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Embedded Antennas for Inside Wireless Devices

Wi-Fi Explosion

Company Description

Airgain, Inc. ("Airgain" or "the Company") provides embedded antenna products, integration support, and test services for the residential wireless market. Since 2004, the Company has been developing a proprietary expertise around the design, integration, and performance testing of **WLAN†** or **Wi-Fi** antennas for in-home wireless devices. Airgain's antennas are routinely selected for use inside consumer devices from major firms, such as DIRECTV and Cisco Systems, and can today be found in the homes of millions of consumers worldwide. In addition to antenna design and development, Airgain offers device manufacturers a number of complementary services, such as early stage device design support, antenna/device integration support, and an over-the-air (OTA) test methodology for reliably determining a device's real-world wireless performance. In 2013, Airgain shipped 57 million antennas and reported record annual sales of over $25 million.

Key Points

- Airgain's emphasis is not on creating off-the-shelf antenna products but rather customizing the optimal solution for each client, taking into account device design constraints to achieve the max WLAN range, coverage, and speed possible for that device. This approach has led to an average 30% improvement in **throughput** versus competing solutions.
- Today, Wi-Fi connectivity is included in most home electronics, such as smart TVs, **set-top boxes**, **gateways**, routers, media and entertainment units, thermostats, utility meters, security alarms, and more. Wireless has replaced many other wired forms of communication, and as of 2012, 38% of U.S. adults lived in a wireless-only home.
- Airgain holds 48 issued and 23 pending patents worldwide, which center on antenna design and performance. This includes patents for the **small cell** market, enabling the Company's expansion into enterprise and outdoor WLAN markets (e.g., Wi-Fi hotspots, office buildings).
- Airgain is led by individuals who are highly experienced in the technology industry and in product development, and who have shown financial discipline as well as a commitment to driving growth.
- As of June 30, 2014, Airgain held cash of over $3.8 million.

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Investment Highlights

- Airgain, Inc. ("Airgain" or "the Company") is a provider of embedded antenna products, integration support, and test services for the in-home wireless device market.

- The Company has roughly 50 customers, comprising wireless service providers, original equipment manufacturers (OEMs), original design manufacturers (ODMs), and semiconductor vendors. Airgain's antennas can be found inside wireless devices from Actiontec, Belkin, Cisco, DIRECTV, EchoStar, Huawei, Netgear, Pace, Sagemcom, ZTE, and dozens of other companies—helping to wirelessly connect millions of consumers across North America, Europe, and Asia.

- Airgain reported over $25 million in revenue during 2013, which was up nearly 40% over 2012. The Company's revenues have been increasing for the past several years due in part to operating in a rapidly growing market for wireless devices. Airgain believes that its sales and marketing expenses are minimal, having represented only 12% of revenues during 2013, and that much of its sales stem from favorable word-of-mouth.

- The market opportunity for Airgain's products and services is significant. Globally, the enterprise WLAN market had annual growth of 15% in 2013 and the consumer WLAN market expanded by 11% in 2013, driven by a transition in wireless technical standards to the 802.11ac standard (Source: IDC's February 26, 2014, press release). 802.11ac requires more advanced antennas and a higher number of antennas per device in order to deliver faster and higher quality wireless data and video. It also creates a natural replacement cycle for hardware, enabling Airgain to further penetrate this market with new antenna solutions.

- With over 150 antenna products in its portfolio, Airgain's technology can be found in a wide array of end-user products deployed in carrier, enterprise, and residential wireless networks, such as in WLAN **access points**, routers, gateways, set-top boxes, smart TVs, multimedia systems, and more. ABI Research forecasts that shipments of these types of Wi-Fi-enabled devices will exceed three billion units a year by 2019.

- In 2013, Airgain shipped an estimated 57 million antennas, bringing the Company's cumulative product shipments from 2006 through 2013 to over 145 million antennas.

- Airgain's technological skill in antenna selection and design is a competitive advantage for the Company. Airgain's antenna system designs have shown to provide increased range and throughput for wireless equipment, and the Company has developed a proprietary test methodology for antenna performance that it believes has been accepted as a de facto industry standard for over-the-air (OTA) throughput testing.

- In January 2014, the Company released its AirMetric™ predictive antenna performance modeling solution. AirMetric™ is a proprietary creation of Airgain that identifies the most promising antenna system through simulation at the earliest stages of device design, and provides device manufacturers with design recommendations (e.g., box size and orientation, **printed circuit board [PCB]** size, heat sink/shield locations and size) before the end wireless device is built. This service, which is further detailed on pages 18-19, improves device performance and reduces OEMs/ODMs' product development time and costs.

- Airgain is headquartered in San Diego, California, with research facilities, sales, and design offices in China, Taiwan, the United Kingdom, and South Korea. As of the second quarter 2014, the Company employed 54 individuals, comprising both employees and consultants.

Growth Strategy

Since it began designing and evaluating wireless antenna solutions in 2004, Airgain has achieved significant growth in a short period of time. From 2009 to 2013, the Company's revenue increased from $3.6 million to over $25.3 million.

The Company's rapid growth over the past several years has come from several factors, including the following:

- operating in an expanding market for wireless devices, all of which need high-quality antennas to achieve good data and video transmission;
- continuously building upon and leveraging the Company's four "core strengths"—advanced research and design, sophisticated integration, proprietary performance testing, and extensive, industry-wide relationships—as described on page 26; and
- a highly scalable business model with gross margins of close to 40% in 2013.

Product Line Expansion

Going forward, Airgain plans to continue to invest in product development efforts, with the objective of enabling novel products and technologies for new and growing wireless markets. The Company currently provides embedded antennas for the connected home (in-home residential wireless) market, and holds key smart antenna patents and antenna designs for the small cell market, enabling its expansion into enterprise and outdoor WLAN markets as well. Expanding its antenna capabilities and target applications will likely allow Airgain to capture a greater share of its customer's wallet, in essence, continuing to penetrate existing customers for adjacent devices as well as entering new markets for related antenna technologies, such as enterprise, long-term evolution (LTE), Bluetooth, and **machine to machine (M2M)** applications.

Geographic Expansion

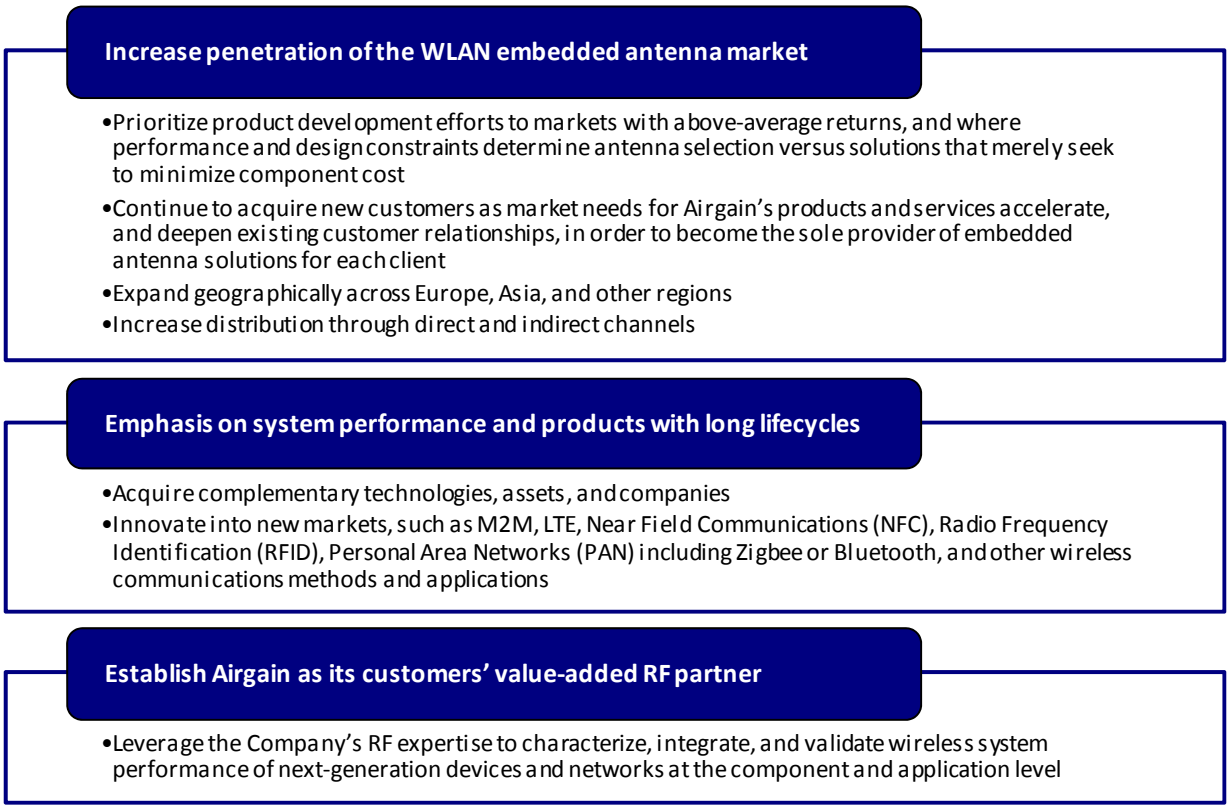
In conjunction with diversified product development, Airgain is also working to expand sales and engineering staff in order to further penetrate U.S. and global markets. The Company has a solid presence in Asian markets, which is where many of its OEM/ODM customers are located and who ship products directly into the Chinese carriers. In addition, Airgain has a considerable presence in European markets, which began through a relationship with Siemens several years ago.

Airgain continues to expand geographically, including further penetrating the Asia-Pacific region by capitalizing on its sales offices in Taiwan, engineering and design teams in China, and sales and distribution offices in Korea (which were established in 2013). The Company is also beginning to access the Japanese market. Beyond Asia, Airgain is focused on reaching more of Europe as the Company has reported seeing a lot of carrier opportunity there. To that end, Airgain placed a vice president of sales in Europe in 2012.

The Company's key strategies for achieving continued business growth are outlined in Figure 1 (page 5).

Figure 1

AIRGAIN'S GROWTH STRATEGIES



Sources: Airgain, Inc. and Crystal Research Associates, LLC.

Recent Milestones

- After record corporate growth in 2013, Airgain moved into a larger headquarters in San Diego during April 2014. The new headquarters is designed to have more space for employees as the Company hires new talent and is situated in a favorable location for recruiting and retaining staff and traveling to work with customers around the world.

- The Company also recently invested in the installation of a sophisticated SATIMO SG 24 antenna measurement system (as described on pages 22-23), which is anticipated to allow Airgain to better test wireless throughput performance for a variety of in-home wireless protocols, including LTE and IEEE 802.11n and IEEE 802.11ac Wi-Fi standards.

- Airgain appointed Dr. Simon Yang, Airgain's former director of hardware engineering and manager of the Company's China engineering team, as the new vice president of engineering in July 2014.

- Airgain introduced a new hardware and software solution in January 2014 that helps device manufacturers improve wireless performance and throughput while reducing product development costs and timelines. Called AirMetric™, this is believed to represent the industry's first predictive, Wi-Fi antenna performance modeling solution. It is detailed on pages 18-19.

- Airgain achieved record revenue and new business growth in 2013, with year-over-year sales increasing more than 60% for the past three years (Source: Airgain's January 6, 2014, press release).

- Global broadband technology company Ubee Interactive selected Airgain's embedded antennas, integration, testing, and wireless optimization methodology to help enhance the performance of Ubee's Wi-Fi-enabled devices delivered to European customers as they transition to the IEEE 802.11ac standard.

Intellectual Property

Airgain holds 48 issued and 23 pending patents worldwide, which represent a comprehensive portfolio of patents covering smart and embedded antennas. These patents center on antenna design and performance and include coverage for smart antenna selection and switching, which is key since most 802.11n Wi-Fi chipsets utilize antenna selection at their core and emerging 802.11ac technologies for in-home wireless video distribution incorporate smart antenna selection and switching.

Airgain's issued patents and patent applications include those with jurisdiction in the U.S. as well as foreign counterparts of U.S. utility patents. Priority dates for the Company's patents were established as early as November 2000, which may represent a barrier to competition as well as a licensable asset for Airgain in the **Multiple Input, Multiple Output (MIMO)** sector.

Airgain's four primary patent families are summarized below:

- Methods of determining which antenna pattern to use;
- Antenna pattern selection with multiple stations connected to access point;
- Dynamically selected antennas for MIMO systems; and
- Hardware implementations of switched directional antennas.

Airgain has also been working with major chipset vendors on 802.11ac **reference designs** (described on page 25), and holds design patents on new antennas. In addition, Airgain believes that it has a beneficial patent portfolio of antenna designs for the small cell market (low-power LTE **femtocells**, etc.) that is allowing the Company to move into this sector.

Beyond patents, Airgain uses a combination of copyright and trade secret laws, confidentiality procedures, and contractual provisions to protect its products and technologies.

Company Leadership

Management

Airgain is led by individuals who are highly experienced in the technology industry and in product development, and who have shown financial discipline as well as a commitment to driving growth. Figure 2 summarizes the Company's executive leadership, followed by brief biographies.

Figure 2
EXECUTIVE MANAGEMENT

Charles Myers	President, Chief Executive Officer, and Director
Leo Johnson	Chief Financial Officer
Glenn Selbo	Chief Operating Officer
Simon Yang, Ph.D.	Vice President, Engineering
Alan Frank	Vice President, Worldwide Sales
Morad Sbahi	Vice President, Sales EMEA
Jacob Suen	Vice President, Asia Pacific

Source: Airgain, Inc.

Charles Myers, President, Chief Executive Officer, and Director

Mr. Myers has over 20 years of executive leadership in the technology industry, with management experience ranging from private, venture-backed startups to business units of Fortune 500 companies. Prior to joining Airgain, Mr. Myers served as the CEO of the Wireless Business Unit at VeriSign Corporation (VRSN-NASDAQ), where he restructured a $110 million business unit and managed an international workforce of 600 staff. Mr. Myers has also served as CEO of Awarepoint, a developer of location-based hardware and software for the healthcare industry, and founder and CEO of NetworkCar, a wireless automotive technology company. Mr. Myers began his career with Science Applications International Corporation (SAIC), a Fortune 500 company, where he rose to the position of corporate vice president. He holds an M.S. in finance and engineering from MIT.

Leo Johnson, Chief Financial Officer

Mr. Johnson has served as Airgain's chief financial officer since July 2014. From December 2012 to June 2014, Mr. Johnson served as a consultant to the Company. From September 2001 to November 2011, he held several financial positions at Verisign, Inc., including director of finance, a position he held since 2003. From 1998 to 2001, Mr. Johnson served as chief financial officer at Planning Technologies, Inc., a professional services company focused on network infrastructure and architecture that was acquired by Red Hat Inc. Mr. Johnson holds a B.B.A. in accounting from the University of Georgia.

Glenn Selbo, Chief Operating Officer

Mr. Selbo has been with the Company since its inception in November 2003. He is responsible for all day-to-day operations of the Company, including product development, marketing, manufacturing, IT, and operations. Prior to joining Airgain, Mr. Selbo served as senior director of sales and marketing for Powerwave Technologies, Inc., where he oversaw marketing and product management activities for cellular power amplifier solutions. Previously, he served as vice president of strategic marketing for Wireless Facilities, Inc. (now Kratos Defense & Security Solutions, Inc. [KTOS-NASDAQ]), during a period of rapid expansion. Mr. Selbo has also served as vice president of marketing for VoltDelta, an application service provider in the wireless space, and director of global market development for Unisys Corp. (UIS-NYSE). Mr. Selbo began his wireless career with AirTouch Communications, Inc., where he held several marketing and business development positions in the company's U.S. and international

operations. Mr. Selbo received an MBA from the University of Southern California and a B.A. in finance from California State University, Fullerton.

Simon Yang, Ph.D., Vice President, Engineering

Dr. Yang has been with the Company since 2004, and was appointed vice president of engineering in July 2014. Dr. Yang brings over 30 years of executive experience in hardware engineering and product development, and is responsible for Airgain's overall technology strategy and product engineering. He has led successful teams across multiple countries by developing business strategies to increase market share in the fields of embedded electronics, consumer electronics, and wireless communications. Prior to joining Airgain, Dr. Yang was the senior research scientist at CSIRO Australia, senior manager of engineering at CeLight, Inc., and manager at Lumera Corporation. Dr. Yang received a B.S. in EE from Sichuan University, an M.S. from Shanxi University, and a Ph.D. in physics and engineering from Australian National University.

Alan Frank, Vice President, Worldwide Sales

Mr. Frank has been with the Company since February 2008, and has served as vice president of worldwide sales since June 2012. Previously, Mr. Frank served as the director of western sales and northwest regional manager for Semtech Corp. (SMTC-NASDAQ), a supplier of analog and mixed-signal semiconductor products for use in computers, portable devices, and communications equipment. Prior to joining Semtech, Mr. Frank served as director of worldwide sales and business development for Oren Semiconductor, Inc., a privately-owned fabless integrated circuit (IC) manufacturer that designed, developed, and marketed VLSI demodulator ICs for the digital television and set-top box markets prior to its acquisition in 2005. Mr. Frank has also held various sales and marketing positions with Altera Corp. (ALTR-NASDAQ), Cypress Semiconductor Corp. (CY-NASDAQ), and Epson America, Inc. (part of Seiko Epson Corp. [6724-Tokyo]). Mr. Frank received a B.S. in electrical engineering from the University of Delaware.

Morad Sbahi, Vice President, Sales EMEA

Prior to joining Airgain, Mr. Sbahi served as general manager EMEA for SMC Networks, Inc., a provider of customer premise equipment for service providers, where he led the development of SMC's European business and directed the company's planning and execution efforts across the market. Mr. Sbahi brings over 18 years of international executive management experience in the telecommunications industry to Airgain. A recognized industry leader, he has held executive management positions with such companies as Broadcom Corp. (BRCM-NASDAQ), Texas Instruments Inc. (TXN-NASDAQ), and Ubee Interactive, where he was vice president of marketing and business development for EMEA for four years.

Jacob Suen, Vice President, Asia Pacific

Mr. Suen brings over 15 years of domestic and international sales, marketing, and management experience to Airgain and is responsible for sales and business development activities in the Asia Pacific region at the Company. Previously, Mr. Suen served in numerous management positions as director of business development, OEM/ODM manager, and regional network consultant for Paradyne Corporation, formerly a part of AT&T Inc. (T-NYSE) and a supplier of network equipment worldwide. While at Paradyne, Mr. Suen was responsible for reducing overall cost and improved time to market in various product lines through the ODM/OEM initiative and successfully established its first subsidiary in China. Mr. Suen has also held various product development and engineering positions at GVN Technologies and Motorola. Mr. Suen received an MBA from the University of Colorado, a Master's of Electrical Engineering and Management from the University of South Florida, and a B.S. in computer and electrical engineering from the University of Florida.

Board of Directors

The Board of Directors oversees the conduct of and supervises the Company's management. Figure 3 provides a summary of Board members, followed by brief biographies.

Figure 3
BOARD OF DIRECTORS

Jim Sims	Chairman
Charles Myers	President, Chief Executive Officer, and Director
Francis X. Egan	Director
Frances Kordyback	Director
Thomas A. Munro	Director
Arthur M. Toscanini	Director

Source: Airgain, Inc.

Jim Sims, Chairman

Mr. Sims is the chairman of Airgain and is currently chairman and CEO of Gen3 Partners, Inc. Previously, Mr. Sims founded Cambridge Technology Partners in 1991. He also served as the founder of Concurrent Computer Corp. (CCUR-NASDAQ), the vice chairman of RSA Security, and is a member of the Republican National Finance Committee. Mr. Sims has served on the EDS Board of Directors, and on the Thru, Inc. Board of Directors. He has served as chairman of American E-Pay, Inc., chairman of Groxis, Inc., chairman of GenXL, Inc., chairman of Leveler, LLC, and chairman of Specialists on Call, Inc.

Charles Myers, President, Chief Executive Officer, and Director

Biography on page 8.

Francis X. Egan, Director

Mr. Egan is the managing partner of Gen3 Capital and the managing director of Northwater Capital Inc.'s Merchant Banking practice. Prior to Gen3 Capital, Mr. Egan served as executive vice president with PaineWebber, Kemper Securities, and Daine Rauscher Wessels. In addition to serving on the Board of Gen3 Partners and Airgain, he sits on the Boards of One Chip Photonics, loxus, Inc., Legend 3D, American E-Pay, Specialists on Call, and is an observer on the Board of Textura, Inc.

Frances Kordyback, Director

Ms. Kordyback is the vice president of Northwater Intellectual Property Fund. Prior to Northwater Intellectual Property Fund, she served as the managing director of CCFL Parklea Capital Inc., was a partner in Plaxton & Co., and was the vice president of mergers and acquisitions at Wood Gundy (now CIBC Wood Gundy).

Thomas A. Munro, Director

Mr. Munro is the CEO of Verimatrix, Inc. Prior to Verimatrix, Mr. Munro was the president of Wireless Facilities. Previously, he was CFO of Precision Digital Images and MetLife Capital Corporation. Mr. Munro has founded start-ups that include @Market, Sportsgear.com, and Precision Digital Images.

Arthur M. Toscanini, Director

Mr. Toscanini is CFO of Gen3 Partners. Prior to Gen3, he was with Cambridge Technology Partners where he also served as the CFO. Mr. Toscanini also served as vice president and controller of Concurrent Computer Corporation. Prior to Concurrent Computer Corp., he worked at Perkin-Elmer Data Systems Group.

Core Story

Airgain, Inc. ("Airgain" or "the Company") develops embedded antenna products for wireless devices deployed in enterprise and residential wireless networks worldwide, primarily those that use wireless local area networking (WLAN). Devices that incorporate Airgain's antennas include third-party products such as routers, residential gateways, WLAN access points, set-top boxes, media adapters, and digital televisions. More broadly, Airgain antennas might enable any equipment that has wireless connectivity for in-home or in-building data and video transmission, as all wireless devices require one or more antennas to connect with another device or the network.

MARKET OPPORTUNITIES

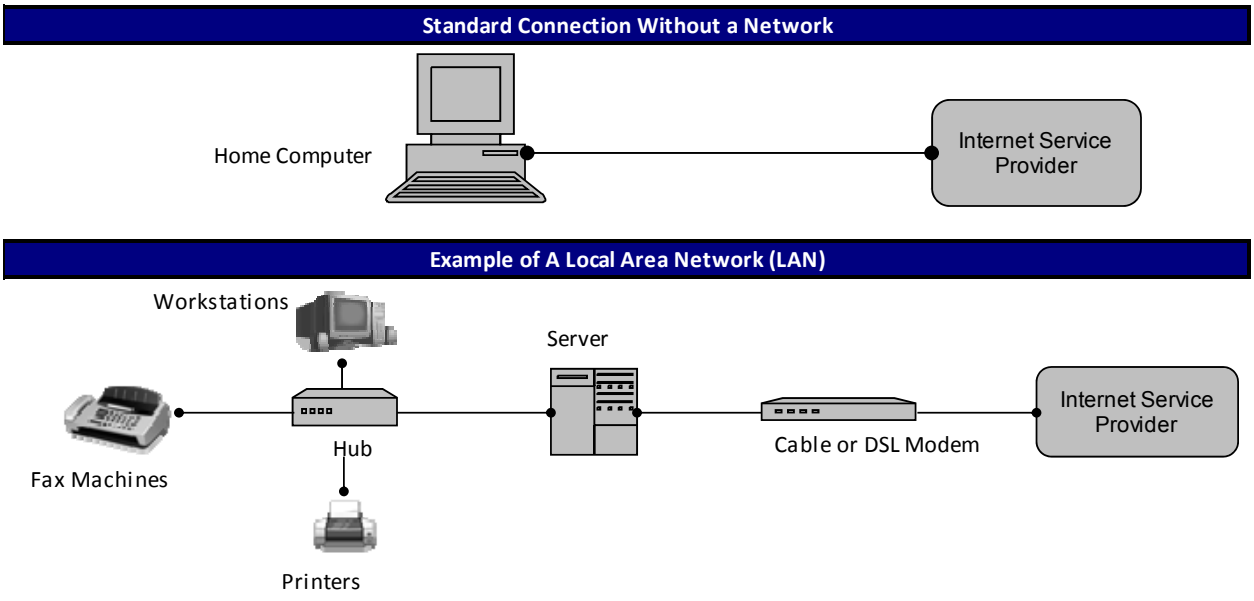
Introduction to Wireless Networks

A network is any system that transmits voice, video, or data between users or devices. Every network is based on a common protocol or language, which is its procedure for governing the transmission of information. Airgain is primarily focused on wireless networks that use the Institute of Electrical and Electronics Engineers' (IEEE) 802.11 wireless protocols (also known as WLAN or Wi-Fi technology). The 802.11 standard, or Wi-Fi, is the most ubiquitous wireless connectivity technology in use today (Source: ABI Research). Approximately 57% of wireless data traffic in North America is transmitted using Wi-Fi technology, as opposed to other methods of connectivity. By 2018, Wi-Fi's share of the mobile data transmission market is forecast to increase to 64% (Source: **CTIA**, The Wireless Association®, May 15, 2014).

The term "WLAN" refers to a local area network (LAN) that is wireless, or has no cabling or wiring. A LAN links devices confined in a small area often less than a mile in range, such as a home or office building, as illustrated in Figure 4. Creating embedded antennas that work in devices deployed in a WLAN is Airgain's primary area of expertise. The LAN then connects into larger networks, known as either metro area networks (MANs) that range in size from a university campus or office complex to a city, or wide area networks (WANs) that connect many smaller networks over large geographic distances using satellite uplinks, private lines (e.g., a T1 connection), public networks (e.g., the telephone system or the Internet), or even transoceanic undersea cabling.

Figure 4

NETWORK CONNECTIONS



Sources: Crystal Research Associates, LLC, Red Line Software, and 3Com Corporation.

Globally, the enterprise WLAN market had annual growth of 15% in 2013 and the consumer WLAN market expanded by 11% in 2013, driven by a technological evolution to the newer and faster 802.11ac wireless standard as well as new deployments in emerging markets (Source: International Data Corporation's [IDC] February 26, 2014, press release). The 802.11ac transition, and the favorable impact that it has on Airgain's market opportunities, is described on page 14.

Growth in the second quarter 2014 for the combined consumer and enterprise WLAN markets was 9.2% year-over-year, with the enterprise WLAN segment remaining one of the faster growing technologies in networking (Source: IDC's September 3, 2014, press release). Consumer WLAN is particularly large in the U.S. and China, where, in China, there was an 81.3% increase in shipments of WLAN devices during the second quarter 2014 versus the second quarter 2013. During the quarter, Latin America led the WLAN market with 35.4% year-over-year growth, followed by the Europe, Middle East, and Africa (EMEA) region, and the Asia-Pacific region.

Adjacent Wireless Connectivity Markets

In addition to Wi-Fi, there are other technologies for wireless connectivity, and many devices such as smartphone and tablets offer multiple wireless technologies in one product (e.g., 4G LTE, Wi-Fi, and Bluetooth). Though in the same device, each of these requires a separate antenna solution. Airgain is able to provide these antenna solutions and support for wireless devices using each of the below adjacent technologies as well as Wi-Fi.

- ***Worldwide Interoperability for Microwave Access (WiMAX).*** WiMAX and Wi-Fi are complementary technologies. Similar to how the IEEE 802.11 (Wi-Fi) specifications detail a WLAN protocol, IEEE 802.16 standards cover WiMAX as another wireless connectivity option. WiMAX has a greater range than Wi-Fi and is thus designed for wireless broadband coverage in MANs. Two of Airgain's product families, its MaxBeam™ High Gain antennas and Ultra embedded antennas, are available for WLAN and WiMax frequency bands. Details of these products are provided on pages 15-17.

- ***Radiofrequency Communications Engineering (RFCE).*** **Radiofrequency (RF)** is often used for wireless broadcasting and communications. It entails applying an alternating current (AC) to an antenna to generate an electromagnetic field, or an RF field. These radiowaves can be used to communicate between cordless and cellular telephones, radio and broadcast television stations, satellite communications, and other devices that operate in the RF spectrum. Airgain's Profile embedded antenna family (pages 15-17) is compatible with RF bands.

- ***Digital Enhanced Cordless Telecommunications (DECT).*** DECT is primarily used for cordless phones in homes and businesses. It employs **time division multiple access** ([**TDMA**] a technology used in many 2G cellphones) to transmit radio signals to a multitude of phones located in close proximity to each other. Both Airgain's Profile embedded and Ultra embedded antenna families have compatibility with DECT protocols.

- ***Low Power Devices (LPD) in the 433MHz Frequency.*** Airgain's Profile embedded antennas can enable LPD, which are those that use the 433 MHz band for license-free communications. An example would be a hand-held radio, automatic car keylocks that can be unlocked with a wireless remote, and other such wireless instruments. LPD requires that antennas are non-removable and have a set maximum power.

- ***Cellular Frequency Bands.*** Cellular communications is often thought of as only being used for cellphones and smartphones. In reality, the same protocols that are powering 3G/4G mobile networks around the world can also be used to create an in-home wireless network without Wi-Fi or broadband access. Similar to a wired broadband connection, users plug in a wireless gateway or access point where the antenna connects to nearby cell towers rather than to the phone or cable company. Cellular frequencies include GSM (2G), WCDMA (3G), and HSPA+ or LTE (4G), among others, with LTE ("long-term evolution") being the fastest and latest 4G technology. Major carriers like Verizon Wireless, AT&T, and numerous others offer LTE networks, fueling the technology's adoption. By 2019, 95% of North America is expected to have LTE coverage (Source: *Ericsson Mobility Report*, November 2013). Airgain's Profile embedded antenna solutions can be used to enable wireless LTE devices.

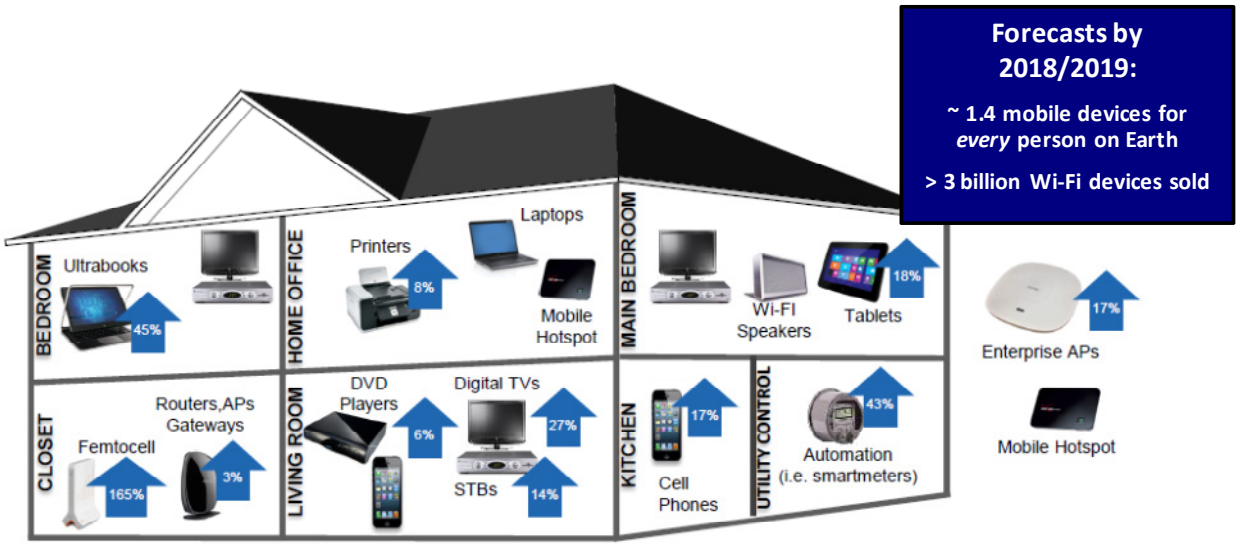
Rapid Growth of Wireless Devices is Fueling Market Opportunities for Airgain

Most people today are familiar with the concept of a wireless router, which distributes an Internet connection to all users' computers, tablets, and cellphones throughout the house (or office). However, since Wi-Fi was first deployed in computers and routers, the technology has exploded and is now embedded into a wide range of electronic devices found in the home, a selection of which are illustrated in Figure 5. As of 2012, a Centers for Disease Control and Prevention (CDC) survey found that approximately 38% of adults in the U.S. lived in a wireless-only home with no landline telephones (Source: CTIA, The Wireless Association®, March 7, 2014).

Growth in the number of wireless devices is driving growth in the antenna market. By 2019, the number of Wi-Fi-enabled devices sold each year may exceed three billion according to technology market intelligence firm Allied Business Intelligence, Inc. (Source: ABI Research's *Wi-Fi Chipset Shipments will near 18 Billion Chipsets during the Next Five Years*, May 5, 2014). Some of the in-home devices that are increasingly being produced with Wi-Fi capabilities and which require antennas capable of audio and video distribution throughout the "connected home" include smart TVs, tablets, smartphones, music devices, set-top boxes, gateways, smart thermostats, meters, security alarms, and much more. When wireless devices that use a different frequency from Wi-Fi, such as cellular communications and machine to machine (M2M) devices, are included, it is estimated that there will be over 10 billion mobile and M2M products by 2018—nearly 1.4 mobile devices for every person on Earth (Source: *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013–2018*, February 2014).

Figure 5

A SELECTION OF IN-HOME WIRELESS DEVICES



** STBs are Set-top Boxes. CAGR percentages next to each device are forecasts from ABI Research (2013), as presented in Airgain's February 2014 Management Presentation.*

Sources: Airgain, Inc., Allied Business Intelligence, Inc., Cisco Systems Inc., and Crystal Research Associates, LLC.

Residential applications are not the only area where wireless use is growing. Global Wi-Fi hotspots, such as those found at enterprise locations (e.g., a Starbucks or an office building), are forecast to expand at a CAGR of 15% from 2013 to 2018. In 2013, there were around 4.2 million Wi-Fi hotspots, which is expected to reach 10.5 million by 2018 (Source: ABI Research's *Global Wi-Fi Hotspots Will Grow to 7.1 Million in 2015 as a Method to Offload Traffic*, May 8, 2014). Factors driving growth include an organic increase in the number of retail and office sites providing Wi-Fi to customers and employees. Wi-Fi hotspots are also increasingly being deployed by mobile and fixed-line carriers as well as third-party operators as a means of offloading 3G/4G data users to Wi-Fi networks. Airgain's product portfolio includes enterprise-class antennas for applications like Wi-Fi hotspots, where networks need to support high-traffic, high-bandwidth requirements for a large number of users in a small area.

More Devices, More Data, More Bandwidth

Figure 6
WIRELESS CONTINUES TO EXPAND

Source: Airgain, Inc.

As the number of Wi-Fi-connected devices proliferates, consumers are using greater quantities of data in the home and requiring higher connection speeds to support high-bandwidth applications, such as video streaming. Whole home video is an emerging trend that has been forecasted to continue to have unabated adoption for at least the next five years (Source: Cisco's *Global Mobile Data Traffic Forecast Update, 2013–2018*). An example of this is the new AT&T U-verse® wireless receiver products that allow consumers to move their television sets anywhere in the house while still streaming HD television, without wires connecting the TV to the wall.

With video streaming, multiple devices per person connected to the home network, and even mission-critical services such as monitored security alarms or utility controls being delivered wirelessly, demand for bandwidth has grown exponentially. The CAGR for mobile data traffic (bandwidth) is forecasted to be 61% through 2018, two-thirds of which will be from video applications (Source: Cisco's *Global Mobile Data Traffic Forecast Update, 2013–2018*).

Consequently, there must be performance improvements in the wireless hardware, and the antennas that connect these products, in order to adequately meet consumers' advanced transmission needs. For example, while sending email or loading basic webpages through Wi-Fi is fairly simple and does not require a lot of bandwidth, it is far more challenging to enable uninterrupted video streaming (without buffering or pixilation), as this requires a constant delivery of data packets and stable information flow.

Airgain reports that its business is driven by the rapidly expanding market for embedded antenna solutions for in-home wireless data and video connectivity products. The Company's proprietary integration process (described on pages 18-23) is stated to achieve an average 30% improvement in antenna performance over existing solutions. Airgain attributes this performance improvement to being the factor that allowed the Company to enable market-leading video solutions for its customers, providing its customers with early advantages over competitors in the whole home video market. By focusing on throughput, Airgain's antennas help make Wi-Fi a viable alternative for cable replacement and wireless deployment of video.

Updated Wireless Protocols Require an Increasing Number of Antennas per Device

As the demands placed on Wi-Fi networks evolve, the IEEE periodically updates the 802.11 technical standard in order to support the development of next-generation devices capable of meeting new applications. The industry is presently in a transition phase, where new, more advanced products are being introduced to meet the 802.11ac standard, which upgrades the previous 802.11n standard. 802.11ac is designed for a faster Wi-Fi, with a substantial increase in throughput.

802.11n Wi-Fi devices typically use between two and six antennas, depending on the frequency bands covered and the number of **spatial streams**. With 802.11ac, more MIMO spatial streams are possible (up to eight), effectively increasing the number of possible Wi-Fi antennas to 16. This creates a significant increase in demand for Airgain's products, as a result of two main factors: (1) Airgain's customers now need more antennas than previously used in their wireless devices; and (2) a natural replacement cycle is created by the change in standards. OEMs/ODMs working on new Wi-Fi devices may use this opportunity to pursue Airgain for the competitive advantages the Company can offer to their design and integration process (as detailed on page 26). Airgain believes that it is well positioned in key WLAN segments as a provider of embedded antennas capable of meeting the 802.11ac wireless standards in the connected home. Going forward, it is anticipated that new wireless protocols and product designs could require even more antennas per device.

AIRGAIN'S PRODUCTS AND SERVICES

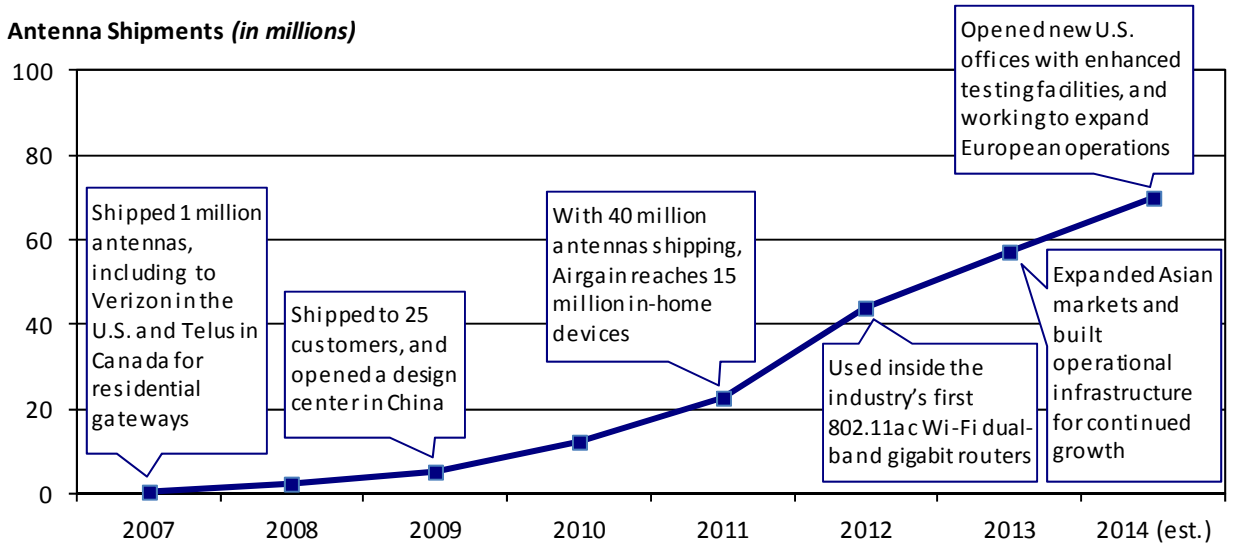
The essential component to any wireless device is the antenna. Antenna selection and design can have a dramatic impact on a device's performance (throughput), range, and reliability. Within the WLAN market, Airgain prioritizes those sectors and applications where the Company's antenna performance and ability to select an antenna solution around design constraints is valued more than competing solutions that merely seek to minimize component cost.

Products

Airgain has consistently ramped up production and sales over the past several years, from shipping under one million antennas in 2007 to over 57 million during 2013 (as shown in Figure 7). Cumulatively, from 2006 to 2013, Airgain shipped approximately 145 million antenna products worldwide. With a forecasted delivery of over 70 million antenna products in 2014, the Company's total antenna products shipped since 2007 is expected to be nearly 215 million by the end of the year.

Figure 7

AIRGAIN'S ANNUAL PRODUCT SHIPMENTS SHOW YEAR-OVER-YEAR GROWTH (2007-2014E)



Sources: Airgain, Inc. and Crystal Research Associates, LLC.

In conjunction with increasing production, Airgain routinely works to introduce new products and technologies that capitalize on emerging trends in the wireless market.

Airgain's antennas are constructed out of printed circuit board (PCB) or stamped metal materials and are connected to the radio card within the housing of the wireless device as opposed to being external to the device, as shown in Figure 8 (page 16). Accordingly, all of Airgain's antennas are embedded or integrated within the wireless device. They are configured in one of three ways: (1) cable-fed antennas that use an RF cable connected to the main PCB; (2) through-hole–mounted antennas, which use feeding pins positioned on the circuit board that are attached via sonic welding; and (3) surface-mount antennas, where the antennas are placed directly onto the surface of the PCBs as an alternative to through-hole mounting.

Figure 8

ALL OF AIRGAIN'S ANTENNAS ARE EMBEDDED

Dipole Antennas	Embedded Antennas
	

Source: Airgain, Inc.

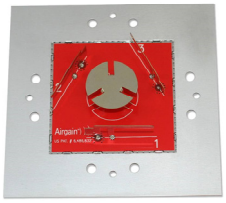
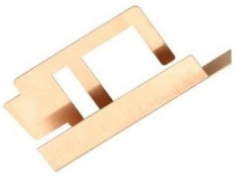
Advantages to embedded antennas over dipole antennas include that embedded antennas are typically a lower cost solution and are more compact and space-efficient, allowing for cleaner device designs. However, these types of antennas can be limited by their sensitivity to other device components (whereas external antennas have more immunity to device-generated noise/interference) and are more challenging to design in a manner that captures their theoretical efficiencies. Airgain believes that it has developed an expertise in overcoming these shortcomings of embedded antennas.

Antenna Product Families

Figure 9 illustrates the Company's three primary antenna product families, which are further detailed on page 17. Each of these families includes a portfolio of antennas that have varying frequencies, dimensions, and applications. At present, the Company has over 150 different antenna **SKUs** (stock-keeping units), which include solutions for access points, gateways, set-top boxes, and other devices, as illustrated in Figure 10 (page 17).

Figure 9

ANTENNA PRODUCT FAMILIES

MaxBeam™ High Gain	Profile Embedded	Ultra Embedded
		
Key Features:	*Key Features:*	*Key Features:*
▪ High gain, integrated antenna assemblies for optimal performance ▪ Single and multi-element subassemblies for turnkey integration ▪ Peak gains up to 7.0dBi for maximum reach ▪ Available for WLAN and WiMAX frequency bands ▪ Single band, dual band, and concurrent radio options	▪ Efficient PCB-based antenna solutions for ODMs and OEMs ▪ Low profile embedded antenna design for confined IDs ▪ Ideal for embedded applications requiring integration flexibility ▪ Case, Through-Hole, and SMT mount designs ▪ Available for use in WLAN, RFCE, DECT, LPD (433MHz), and cellular frequency bands ▪ Single, dual, and tri band applications	▪ Low cost, stamped metal embedded antenna design ▪ Stamped metal design allows for rapid customization and tuning ▪ Ideal for embedded applications requiring integration flexibility ▪ Case, board, and through-hole mount designs ▪ Available for use in WLAN, DECT, and WiMAX frequency bands ▪ Single and dual band applications

Source: Airgain, Inc.

MaxBeam™ High Gain Antennas

Airgain's MaxBeam™ antennas use a patented switched multi-beam antenna technology to deliver up to double the signal strength and greater sensitivity than conventional antenna solutions. The increase in performance is derived by combining the benefits of high-gain directional antenna elements with high isolation between each antenna beam. Each antenna uses mixed material, integrated antenna assemblies to provide optimal performance and turnkey integration. The MaxBeam™ antenna family offers peak gains of up to 7.0dBi and is designed for WLAN and WiMAX frequency bands.

Profile Embedded Antennas

The Company's Profile embedded antennas feature efficient PCB-based solutions offering low-profile designs targeted to confined industrial design requirements. Airgain believes these antennas are well suited for embedded applications requiring integration flexibility. The Profile family includes case, through-hole, and surface-mount designs and is available in single-, dual-, and tri-band applications. Profile antennas have been designed for use in WLAN, RFCE, DECT, LPD (433MHz), and cellular frequency bands.

Ultra Embedded Antennas

The Ultra line of embedded antennas has been designed for lower cost, embedded applications. The stamped metal design allows for rapid customization and tuning to each device, making them suitable for embedded applications requiring integration flexibility. The Ultra family includes a variety of case, board, and through-hole mount designs, and is available for use in WLAN, DECT, and WiMAX frequency bands.

Figure 10 shows a selection of third-party products that have used Airgain's antenna solutions, noting that this is by no means an exhaustive list of the Company's customers.

Figure 10

A SELECTION OF WIRELESS DEVICES WITH AIRGAIN INSIDE

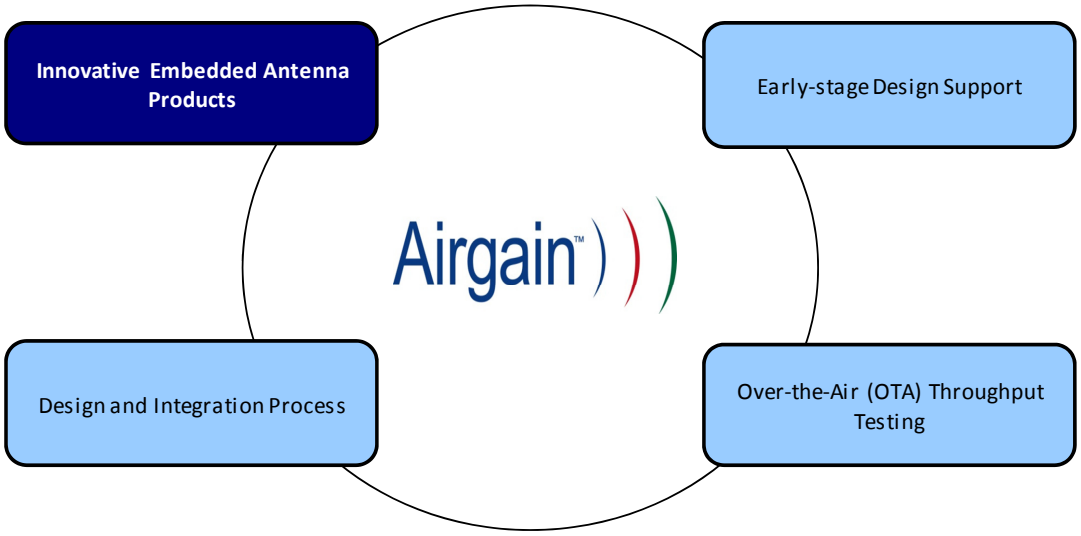
Source: Airgain, Inc.

Value-Added Services:
Custom Design, Integration Support, and OTA Testing

Due to Airgain's extensive experience designing and evaluating wireless antenna solutions for 802.11-based WLAN devices, the Company is able to provide customers and industry partners an array of value-added services, which represent a major competitive advantage for Airgain in the residential WLAN market. The Company's skillset includes but is not limited to an expertise in research and design that enables Airgain to develop customized antenna solutions around OEMs/ODMs' device design constraints and performance requirements, and a proprietary process for over-the-air (OTA) throughput testing that is used to validate the wireless system performance of next-generation devices and networks. Airgain believes that the strength of its service offerings help establish barriers to entry in this market, and have led to long-term relationships with its customers.

Figure 11 overviews Airgain's solutions, followed by details of each of the service offerings (the light blue boxes in the Figure). The embedded antenna product families were described previously on pages 15-17.

Figure 11
AIRGAIN'S PRODUCTS AND SERVICES



Source: Airgain, Inc.

Early-stage Design Support

Airgain's background in antenna research and design enables the Company to offer its customers a variety of specific, customized R&D support services, which include extensive simulations, rapid prototyping, integration, and testing of solutions. For instance, in the design stage of a custom antenna product, Airgain evaluates its antenna-specific characteristics in the context of board-level factors, such as on-board noise and radio interference, in order to achieve optimal gain and efficiency in the given environment.

AirMetric™ Predictive Wi-Fi Performance Modeling Solution

In January 2014, Airgain launched its AirMetric™ Wi-Fi performance modeling solution, which is used to identify the optimal antenna solution in the earliest design stage and to provide design recommendations to device manufacturers. The objective is to achieve the best possible performance of the final product. To the Company's knowledge, AirMetric™ represents the industry's first predictive antenna performance modeling solution.

The key feature of AirMetric™ is that this program is run in the very early stages of device design, which is the most cost- and time-efficient point to make changes to the proposed product configuration. At this stage, the device manufacturer has not typically committed to an industrial design, and it is at this point that it is the least expensive to evaluate trade-offs between design and performance. The 1-10-100 Rule of Quality from the project management field is a good illustration of this benefit: if a mistake (such as propensity for overheating) caught in the design stage costs $1 to fix, the same mistake would cost 10 times as much to fix later in product development/manufacturing. After product launch, the cost of product failure is typically 100 times what the costs would have been at the design stage, if the problems could have been predicted and accounted for then. Having a predictive modeling technology like AirMetric™ improves the design process by showing what the possible performance outcomes are for various design configurations, and identifies potential weaknesses in device design that could impede signal performance.

Airgain uses 3D industrial designs, board layouts, and system overview information, and analyzes a combination of passive simulation measurements, in order to do an extensive search of possible antenna solutions for the product under review. Suggestions for modifications to the design that would improve performance are provided to the customer after running AirMetric™. Such suggestions typically address mechanical changes to the device housing, movement of components that will negatively impact performance, and shielding of RF interference sources. When employed during early stage product design, AirMetric™ helps ensure peak performance before devices are built, as well as time and cost savings related to product development.

Custom Antenna Design Covers Multiple Wireless Network Technologies

Airgain offers custom antenna design support not just for the in-home WLAN market but also for other types of residential wireless networks, such as cellular/long term evolution (LTE) and digital enhanced cordless telecommunications (DECT), as well as for wireless enterprise networks. As listed in Figure 9 (page 16), Airgain's antenna product families also include antenna products for many other in-home and in-building wireless networks beyond just WLAN, including WiMAX, LTE and other cellular technologies, DECT, radiofrequencies, and so on.

Design and Integration Process

Custom Antenna Design

A key difference between Airgain and other antenna manufacturers is Airgain's work creating custom, rather than catalog, parts. All of the Company's parts are custom-built using proprietary knowledge and rapid prototyping in order to develop antennas that are designed specifically to integrate with each customer's unique platform. For instance, while there are numerous "how to's" online for how to make a wireless chip work with something as simple as a coat hanger, aluminum foil, coffee cans, or any number of other simple homemade solutions, this does not mean that it will work well or reliably. Buying a catalog antenna part for a sophisticated WLAN device is a similar scenario. The antenna part may work in the laboratory, but when it is buried in the box (e.g., a router or a set-top box) at the back of the television cabinet in the basement without any antenna part protruding from the device, there is a big difference in performance. Airgain believes embedded antennas of this sort require more advanced development and custom integration work than is offered by many vendors.

The choice between using a higher performance antenna versus a standard catalog part in a wireless device can lead to wide variations in the quality of video and audio transmitted through the equipment. Airgain compares this to a racecar: even with a Ferrari, bad tires on the car can ruin the race. Good tires are needed to achieve the performance possible with the Ferrari. Airgain views its antenna solutions as the "tires" for its customers' equipment.

Engineering and Integration

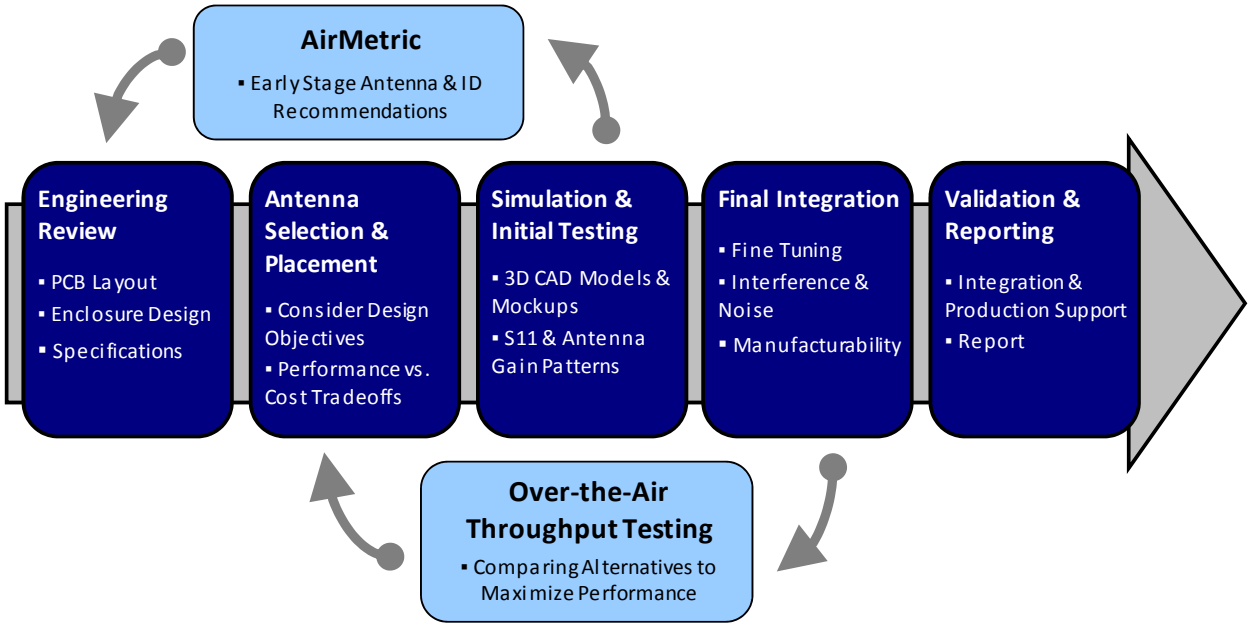
A key competitive advantage for Airgain in terms of integration support is the Company's development of a defined set of steps for antenna engineering and integration, which Airgain believes enables it to identify the optimal antenna solution for any device.

Figure 12 illustrates the engineering and design process, which begins as Airgain draws on its history of prior designs to most effectively define the antenna solution and optimal placement within the enclosure. As the industrial design evolves, antenna design, placement, tuning, and patterns are also refined as a result of a continuous feedback process that involves the customer's design team and capitalizes on repeatable OTA testing to measure performance gains/tradeoffs throughout the project. Fine-tuning during the final integration is aimed at improving manufacturability and reducing noise.

Essentially, Airgain's integration process entails engineering the antenna solution around the device's constraints and using a continuous feedback process focused on maximizing throughput, which is anticipated to lead to better performance of the antennas inside the device and, consequently, improved wireless service for the end user. To Airgain's knowledge, it is the only antenna vendor designing throughput-focused antenna solutions.

Figure 12

AIRGAIN'S ANTENNA ENGINEERING AND INTEGRATION PROCESS



Source: Airgain, Inc.

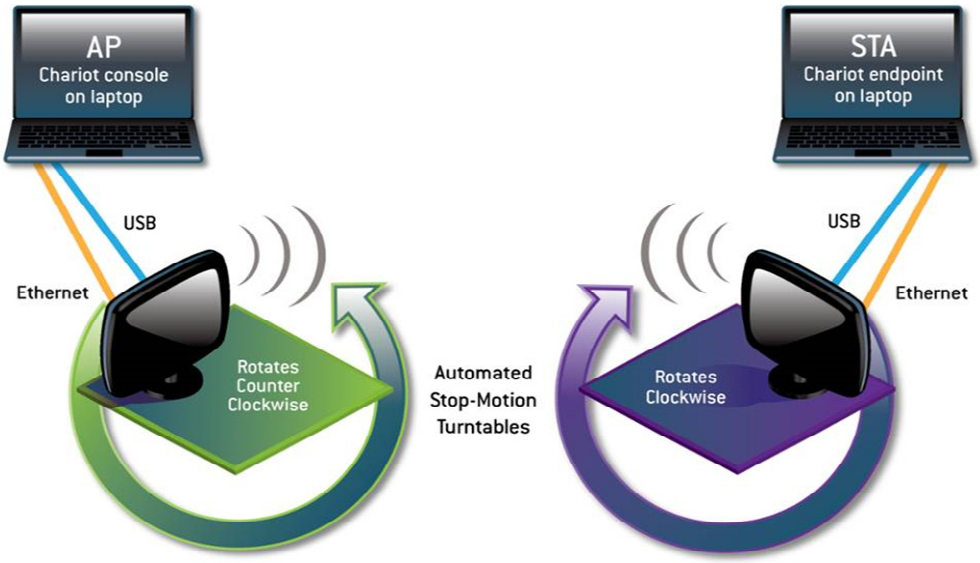
OTA Throughput Testing

Airgain maintains that its performance testing methodologies have become a de facto industry standard. The objective through this testing is to measure and predict the over-the-air (OTA) performance of WLAN devices, which provides purchasers with the information they need when selecting an antenna product. It is also a critical aspect of the Company's design, engineering, and integration services that is used to help Airgain and its customers compare design alternatives and select the one that maximizes performance. Airgain uses the IEEE's **Draft Recommended Practice for the Evaluation of 802.11 Wireless Performance** instructions in its OTA test process along with other industry-standard measurement tools. The Institute for Electrical and Electronics Engineers (IEEE) is the largest professional organization for the advancement of technology, and works to develop technical standards used in many fields worldwide. Its Draft Recommended Practice for 802.11 WLAN devices covers the "recommended practices for evaluating and measuring the performance of IEEE standard 802.11 WLAN devices and networks at the component and application level" (Source: IEEE).

Using industry standards and its own experience with hundreds of devices (and thousands of hours of test data), Airgain has developed a proprietary hardware and software solution for OTA testing that focuses on measuring throughput. The approach uses stop-motion turntables, as illustrated in Figure 13. The crux of the test is to measure the average TCP/IP uplink and downlink throughput at a series of distinct AP/client links, which provide test results for high-, medium-, and low-throughput environments. Airgain's OTA testing captures thousands of data points and has demonstrated accurate and repeatable results.

Figure 13

AIRGAIN'S AUTOMATED OTA TEST SYSTEM



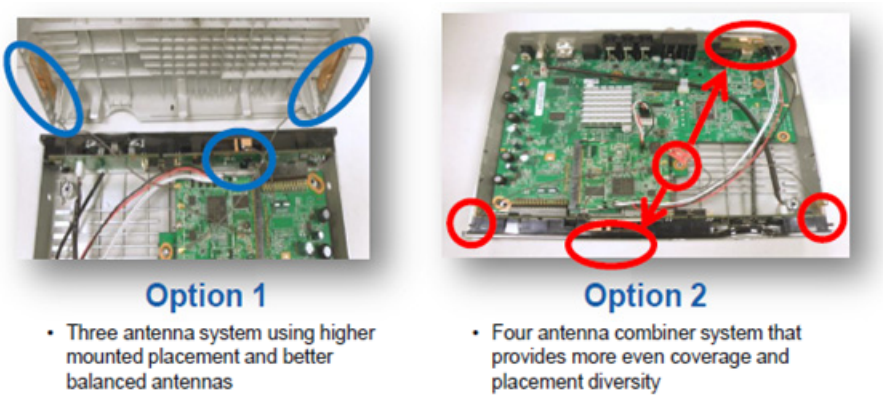
Source: Airgain, Inc.

History has shown that Airgain's customers value the OTA throughput-focused testing and its repeatable results over antenna-specific measurements alone. In addition, the Company has found that its customers are willing to prioritize the performance gains over cost. For instance, an OEM recently contracted with Airgain to devise an antenna solution for an IPTV set-top box that had already been designed. In this situation, the Company had to work with the existing design constraints of the OEM's product that had already been developed, and select an antenna configuration that could meet the OEM's customer's (the carrier's) product qualification testing.

Airgain first used its proprietary OTA testing methodology to assess and measure the OEM's current design's performance. The Company then developed multiple antenna designs and evaluated them against the carrier's performance criteria in Airgain's own test facilities. Figure 14 illustrates two of the possible antenna designs that Airgain created. The final antenna solution that Airgain recommended, shown as Option 2 in Figure 14, maximized coverage and placement diversity, and ultimately increased device performance up to 70%. Though higher in cost than other options, the OEM selected Airgain's Option 2 because its performance was capable of satisfying the carrier's requirements. The end design was retested in the carrier's facilities, where the performance duplicated Airgain's results. As a result, the OEM was awarded 100% of the carrier's business and increased its orders.

Figure 14

AIRGAIN'S INTEGRATION AND TEST METHODOLOGY IDENTIFIES THE OPTIMAL ANTENNA CONFIGURATION



Source: Airgain, Inc.

Airgain has stated that its approach to antenna development (which centers on custom design, engineering, integration, OTA throughput measurement, and a continuous feedback loop) achieves a 30% performance improvement over competing antenna solutions. This gain makes the Company's antenna solutions suitable for advanced applications where high-quality video and audio are being wirelessly delivered throughout a home or building.

New SATIMO SG 24 Antenna Measurement System

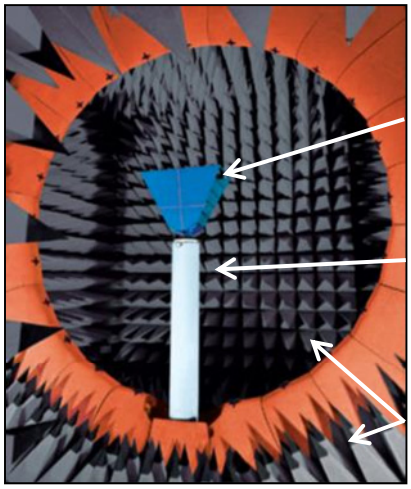
In April 2014, Airgain installed a new SATIMO SG 24 antenna measurement system from Microwave Vision Group (or "MVG") (ALMIC-Paris) at the Company's San Diego headquarters. MVG is a global manufacturer of antenna test and measurement systems, which are used in the telecommunications, automotive, defense, and aerospace industries as well as in academic research. The SATIMO system is designed for testing the performance of wireless devices, and enables Airgain to conduct OTA testing, CTIA-certifiable testing, MIMO measurements, linear array antenna measurements, and 4G frequency testing. MVG states that the SG 24 is "ideal for the OTA testing of mobile device conformance at high throughput or high frequencies, particularly for LTE, Wi-Fi 802.11a and Wi-Fi 802.11n protocols" (Source: www.satimo.com/content/products/sg-24).

Figure 15 illustrates the SG 24 measurement system, which is enclosed in an **anechoic chamber**. This chamber is essentially an insulated room with devices to completely absorb reflections of sound or electromagnetic waves. It creates a room that has no echo and is insulated from outside noises. Among its features, the SG 24 provides a higher dynamic range in antenna measurements, which Airgain believes will improve its testing of wireless throughput performance.

In addition to performing test procedures, Airgain supplies testing tools and its methodology to key customers and partners.

Figure 15

AN INSTALLED SATIMO SG 24 SYSTEM WITH AN ANTENNA UNDER TEST



Choice of reference antennas (horns, dipoles, and loops)

Styrofoam Mast: Supports antennas, laptop interfaces, TVs, a PVC chair for a person

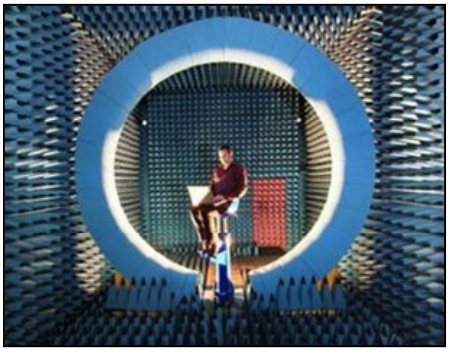
Absorbers and anechoic chamber (insulated and echo-free)

Antenna Measurement Capabilities:

- Gain
- Directivity
- Beam width
- Cross polar discrimination
- Sidelobe levels
- Front to back ratio (SG 24 - L)
- 1D, 2D, and 3D radiation patterns
- Radiation pattern in any polarization (linear or circular)
- Antenna efficiency
- TRP, TIS, EIRP, and EIS measurements according to CTIA specifications

SG 24 shown with laptop interface (left)

Another Satimo product shown with chair mount (right)



Sources: the Microwave Vision Group and Crystal Research Associates, LLC.

AIRGAIN'S CUSTOMERS, PARTNERS, AND INDUSTRY RELATIONSHIPS

Airgain maintains relationships with customers and influencers all across the home-networking WLAN market. This includes relationships with service providers (the "carriers") like Comcast, AT&T, and DirecTV; original equipment manufacturers (OEMs) like Cisco and Motorola; original design manufacturers (ODMs) like Foxconn; and semiconductor (chipset) vendors like Qualcomm and Ralink. In doing so, the Company is able to drive demand for its antenna solutions at multiple points in the vertical supply chain, and also maintain visibility throughout the supply chain of what is occurring in these markets (e.g., new developments in wireless technologies, industry requirements, consumer trends, and so on).

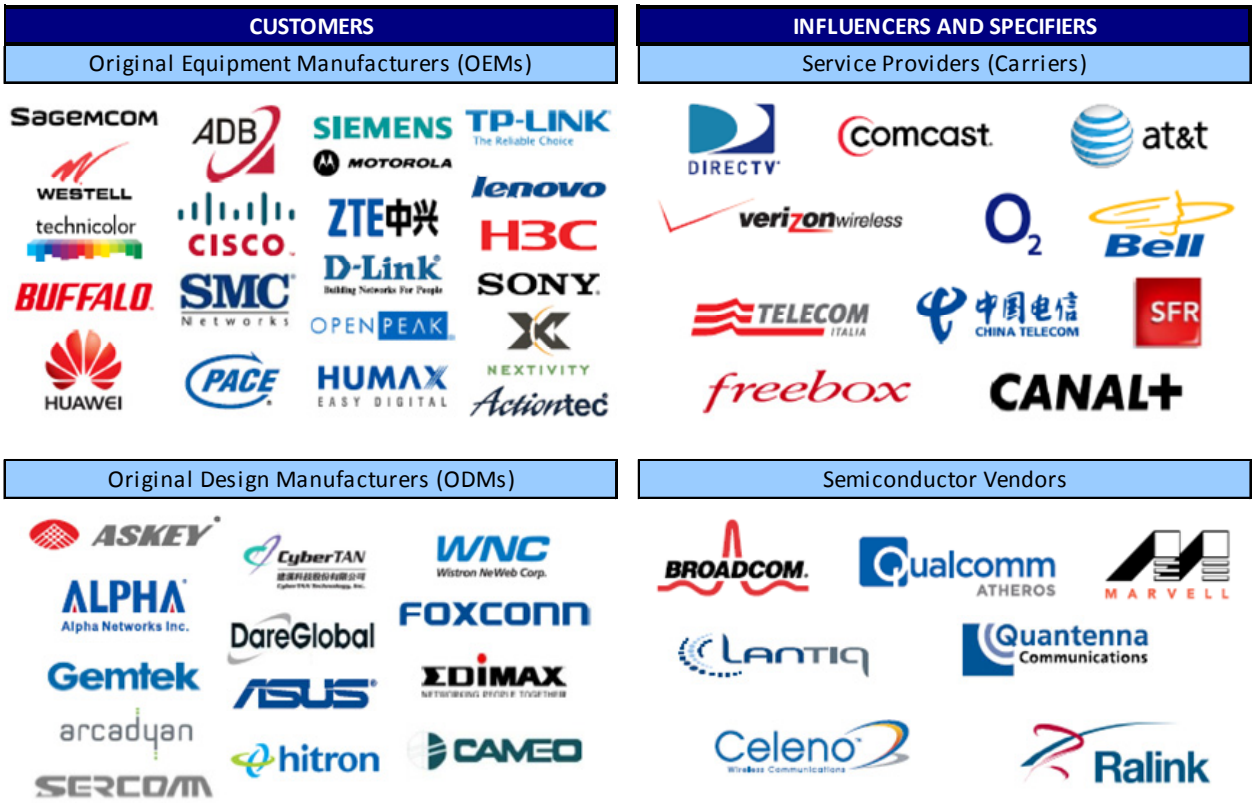
Importantly, Airgain does not have a high level of customer concentration relative to other antenna vendors in its industry. When one customer is responsible for a majority of a supplier's revenues, it can be problematic for that supplier if it loses the customer's business or if macroeconomic conditions constrain the customer's purchasing. Airgain, however, typically keeps close to 50 customers, none of which independently account for more than 30% of the Company's revenues.

Airgain has sold proprietary equipment to more than 10 major clients in the past three years. In 2011, 2012, and in 2013, Airgain fulfilled large orders for Actiontec, Belkin, Cisco, DirecTV, Motorola, and ZTE, among dozens of other clients. Figure 16 lists a selection of the companies with which Airgain has had or currently maintains relationships.

As shown on the left side of Figure 16, the Company's direct customers are OEMs/ODMs that purchase Airgain's antennas for use inside the WLAN equipment they are designing/building. The right side of Figure 16 shows "influencers" and "specifiers," which are the chipset vendors and service providers who influence the OEMs/ODMs' decisions about what configuration and brand of antenna goes inside the WLAN equipment. Details on the role of OEMs/ODMs, chipset vendors, and carriers in Airgain's sales process are provided on pages 25-26.

Figure 16

AIRGAIN'S INDUSTRY RELATIONSHIPS



Source: Airgain, Inc.

Customers

While Airgain maintains relationships with all of the entities in Figure 16 (page 24), and sells into those relationships, the majority of its revenue comes from the ODMs in the lower left-hand corner of the Figure because these are the companies that are the final manufacturers of the wireless devices. The devices are primarily designed by the OEMs (e.g., Cisco), which is who Airgain works with on a daily basis. The Company also works with the carriers (influencers), such as AT&T, because the carriers dictate the performance requirements of the box. The carriers order their devices from the OEMs, who are directed to meet certain performance specifications. Airgain is then written into those specifications, and that order is pushed down to ODMs, such as Foxconn, for production. Thus, while both AT&T and Cisco are customers of the Company's, final payment on the antenna purchases is made by the ODM to Airgain.

Airgain offers its OEM and ODM customers (which are typically under pressure to meet short design, engineering, and production timeframes) several key benefits in terms of antenna design, as listed below:

- time to market, as working with Airgain allows them to focus on non-antenna-related factors;
- performance and reliability, since many antenna vendors compete on cost while Airgain emphasizes its design, engineering, and test capabilities;
- intellectual property indemnification, which is possible due to Airgain's portfolio of issued patents; and
- outsourced engineering expertise, which can lead to better results versus using an in-house engineering group that only works on specific in-house jobs. Airgain has diversified experience working on an array of customers' projects that has given the Company an understanding of trade-offs and engineering constraints from prior experience.

Influencers/Specifiers

Reference Designs with Chipset Vendors

One component of Airgain's industry relationships entails doing WLAN reference designs under joint development agreements with major WLAN chipset vendors like Qualcomm, Broadcom, and Quantenna. The reference design, which is like a technical blueprint for device manufacturers (OEMs/ODMs) to follow, includes optimal integrated embedded antenna systems using Airgain. The reference designs then go from the chipset manufacturers to the OEMs/ODMs like Cisco or Motorola, which now know that if they follow this design including this antenna design, they will have a product they can deploy that mimics what is achievable with the reference design. The intent is to provide device manufacturers with consistent, measurable results using Airgain's embedded antenna solutions in a manner that reduces product development costs and times for all involved.

Optimizing Performance for Service Providers (Carriers)

Similarly, Airgain works with service providers to ensure that their wireless products meet consumers' expectations of wireless data and video quality. To the Company's knowledge, there has not previously been a consistent, scientific methodology for measuring throughput or optimizing device design (Source: Airgain's February 2014 Management Presentation). As a result, carriers and their retail customers have experienced coverage and performance problems with their in-home WLAN devices, while consumer demands for improved service quality in the home continue to increase. This has posed challenges for carriers that lack the internal staff or expertise to resolve hardware-based issues. Moreover, since carriers provide the service but do not manufacture the equipment, they generally do not have mechanisms in place to evaluate design tradeoffs relevant to wireless performance.

Airgain can offer these carriers a number of benefits, chiefly its emphasis on throughput-focused solutions, its proprietary test and evaluation approach, and its relationships with major chipset vendors. In particular, Airgain strives to demonstrate the return on investment (ROI) for carriers, as improved device performance can increase customer satisfaction and retention as well as reduce customer service calls. In some cases, Airgain's WLAN antenna solutions can even enable new applications for carriers, such as wireless set-top boxes for digital televisions. What was previously a lengthy installation process that required hours of a technician's labor to hook up the television cables and connections is now a quicker process with only a short visit due to the ease of wireless installation.

A SUMMARY OF AIRGAIN'S CORE STRENGTHS AND COMPETITIVE ADVANTAGES

Airgain's technological know-how, in terms of how it designs and deploys its systems, is a competitive advantage for the Company. Airgain has been developing and testing wireless antenna solutions for 802.11-based WLAN routers, gateways, and set-top boxes since 2004.

During this time, Airgain has come to focus on throughput (the amount of data successfully transmitted in a given time period) and integration, meaning how its antennas integrate with its customers' device designs and constraints in order to provide the highest quality of service once the end products are deployed. The Company's testing and simulations evaluate how its antennas will work in the real world, whether in a house, basement, office building, with multiple devices, in a cable box, in conjunction with laptops, TV sets, iPads, and so on. As a result, Airgain is able to demonstrate to customers (end customers such as carriers as well as the ODMs and chip manufacturers) how its products can improve performance and quality of service, and can design custom solutions adapted to each customer's unique requirements.

Airgain believes that its solutions are selected by customers particularly in situations where performance is more important than price. Furthermore, the Company's emphasis on quality of design in order to achieve an increased range and throughput has allowed it to build a leadership position in the in-home WLAN antenna market.

Figure 17 summarizes Airgain's core strengths enabling the Company's competitive position in this market, each of which has been detailed on the preceding pages.

Figure 17

CORE STRENGTHS AND ADVANTAGES

1 Advanced Research and Design

- Optimization-focused design of high-performance embedded antennas
- Customer-specific support for antenna simulation, rapid prototyping, and integration

2 Sophisticated Integration

- Well-defined set of antenna engineering and integration steps, which allow for optimal system design within customer constraints
- Believed to be the only vendor that designs throughput-focused antenna solutions

3 Proprietary Performance Testing

- Has developed proprietary performance metrics, measurement methodologies, and test conditions
- Test methodology has become a de facto industry standard

4 Extensive Relationships

- Collaborates with chip set vendors to integrate antennas in next-generation wireless LAN reference designs
- Deep, specialized customer engagements across the value chain, which may lead to long-term sustainable business

Sources: Airgain, Inc. and Crystal Research Associates, LLC.

Competition

While Airgain believes that its antenna products offer many design and performance advantages over the competition, the Company may still encounter a number of competitors as it continues to pursue new customers and bid on new work. Within the telecommunications industry, there are many other businesses similar to Airgain that also sell antennas, though many of these potentially competitive offerings are akin to catalog parts and do not offer customers the customized design, integration, and testing services that accompany Airgain's solutions. Airgain believes that it generally competes favorably with these companies on the basis of its antenna performance, strength of intellectual property, design and testing capabilities, and reputation.

In addition to direct competition from antenna vendors, Airgain may also encounter competition from its OEM/ODM customers themselves. Many of these device manufacturers have internal resources that can design, engineer, and manufacture competing antenna products to Airgain's. Furthermore, the Company may compete with other firms that specialize in contract design and engineering services. Such businesses may be given a contract to manage production of an antenna solution, or may work in conjunction with a device manufacturer's in-house design and engineering team.

The following summaries are not intended to be an exhaustive collection of potential competitors to Airgain; however, they are believed to be representative of the type of competition the Company may encounter as it seeks to further commercialize its products/technologies to the in-home residential wireless space.

Direct Competitors

Adant Technologies Inc.
http://www.adant.com/

Located in Pleasanton, California, Adant develops antenna systems for wireless communications. The company's antennas are targeted toward Wi-Fi devices, such as mobile handsets, notebooks, and access points, and are used in RFID systems. The antenna technologies were developed out of Drexel University and the Politecnico di Milano in Italy. Adant itself was established in 2010, and has a research and development center in Italy. Adant's technology has been acknowledged for its innovation in a number of competitions and awards, including a "Bright Future Idea Award" promoted by the British Consulate and British Chamber of Commerce, and winning second prize in an Italian national competition for innovation (Source: Adant). The company maintains that a novel feature of its antennas is that they are "reconfigurable," or capable of dynamically changing their radiation characteristics, including radiation pattern shape and polarization state. This is believed to be in opposition to antennas that radiate energy in a fixed direction, and Adant believes that the feature serves to improve the wireless communication performance possible with its antenna solutions.

Antenova Ltd.
http://www.antenova-m2m.com/

Antenova provides off-the-shelf standard antennas and radio antenna modules for wireless machine to machine (M2M) and consumer electronic devices. Its two product lines are gigaNOVA® for standard antennas and RADIONOVA® for RF antennas. Combined, these products enable Antenova to market solutions for GSM, CDMA, 3G, 4G, and LTE cellular communications, and GPS, Wi-Fi, Bluetooth, WiMAX, WiBro, **ZigBee®**, and FM wireless and radio connectivity. Antenova also offers matching, integration, and OTA performance testing services for choosing antenna solutions for customer devices. The test and measurement services include active and passive testing to examine return loss and impedance, efficiency measurements, 3D radiation patterns, cross correlations between antennas (diversity/MIMO), circular polarization patterns, antenna isolation and optimization, and talk position measurements, with recommendations provided to the customer in a final report. The company is based in the United Kingdom, with manufacturing and technical support in Taiwan and sales offices in the U.S., Taiwan, China, and South Korea.

Ethertronics Inc.
http://www.ethertronics.com/

San Diego, California-based Ethertronics designs and manufactures embedded antennas for wireless devices using cellular, UMTS, Wi-Fi, WiMAX, Bluetooth, GPS, Digital Video Broadcast, and other protocols. Ethertronics markets a patented Isolated Magnetic Dipole™ (IMD) technology that the company states optimizes antenna size and performance while exceeding safety emission requirements. Its portfolio is focused on active antenna systems for smartphones, tablets, and laptops, such as are used to achieve high performance and connectivity in 4G LTE networks. For instance, the EtherSmart LTE 1.0™ product line is stated to enable more bandwidth, a smaller size, and faster time to market. The company offers both off-the-shelf antenna configurations for rapid deployment as well as custom designs for challenging product environments. Ethertronics reports global shipments of its technology of over 200 million units annually. The company has design facilities located in China, Korea, Denmark, Taiwan, and the U.S.

Galtronics Corporation Ltd., a Baylin Technologies Inc. company
http://www.galtronics.com/
http://baylintech.com/

Antenna and communications company Galtronics provides embedded and external antenna solutions for the cellular, automotive, WiMAX, WLAN, M2M, notebook, and PC card markets. The company's global headquarters and research center are in Israel with offices also in China, Korea, Vietnam, the U.S., and Canada. Galtronics has a broad product portfolio of antenna designs, including internal/embedded antennas, combination internal/external antennas, telescopic antennas, panel antennas, stubby antennas, retractable antennas, flexible "rubber duck" portable antennas, and fixed-length antennas. The company capitalizes on its global design centers to offer advanced testing and measurement, engineering software and RF simulation, reliability testing, and rapid prototyping. Galtronics owns manufacturing facilities in China and Israel for full-service prototyping, tool fabrication, plastics injection molding, automated and high-volume assembly, and other production functions.

SkyCross Inc.
http://www.skycross.com/

SkyCross, headquartered in San José, California, designs and manufactures antenna and RF solutions, from traditional antennas to design and integration consult services to reference designs. Its products are used in mobile, wireless, and M2M markets. SkyCross has developed antenna and RF solutions to increase data rates and overall performance, as demonstrated when Deutsche Telekom released 2014 field test results of SkyCross's LTE-Advanced MIMO technology. The technology was found to deliver enhanced performance on loaded networks, increase peak data rates, improve indoor performance, and grow cell size. In May 2014, SkyCross was selected to join Red Herring's 2014 list of the Top 100 North America, which is the top 100 private technology ventures (out of roughly 3,000) that are believed to represent technological innovation, overall business strategy, management strength, financial performance, and customer acquisition. The company's manufacturing facilities are located in South Korea and China.

Taoglas USA, Inc.
http://www.taoglas.com/

Irish company Taoglas, founded in 2004, markets external, embedded, and base station antenna solutions for the following M2M markets: telematics/automotive, smart grid, metering/telemetry, home automation, remote monitoring and medical. Its products are applicable to multiple frequencies and wireless protocols, and can be purchased off-the-shelf or custom designed. In addition to custom design, the company also offers a suite of services, including device layout optimization, noise control, certification pre-testing, OTA TRP/TIS optimization to pass carrier/network requirements, and global coverage with three full test laboratory locations (using CTIA-approved test chambers). The company's technology centers are located in Ireland, the U.S., and Taiwan, and both the Ireland and Taiwan locations hold **ISO 9001:2008** certifications.

OEMs/ODMs

The companies listed below are both customers of Airgain and potential competitors due to their internal antenna engineering resources. This is not an exhaustive list of Airgain's OEM/ODM customers nor is it a complete list of the Company's OEM/ODM competitors; however, it is believed to be representative of the type of large OEM/ODM corporations with which Airgain may work and/or compete.

Arcadyan Technology Corporation (3596-Taiwan)
http://www.arcadyan.com/

Taiwanese company Arcadyan is an ODM that specializes in broadband, multimedia, and wireless technologies. Arcadyan's broadband access and digital home solutions include DSL customer premise equipment, 802.11a/b/g/n WLAN client solutions (e.g., residential wireless routers), Wi-Fi modules, FTTx solutions, mobile broadband products, IP set-top boxes, power line communication, and more. The company serves customers ranging from telecommunications operators and Internet service providers (ISPs) to consumer electronics companies and other OEMs/ODMs. For such customers, Arcadyan is equipped to provide an end-to-end solution with a fast time to market—managing the entire product development cycle from creation to fulfillment. The antenna is a key component in Arcadyan's wireless networking products, and the company has established a dedicated department for developing antenna solutions. To this end, Arcadyan holds over 30 Taiwanese and overseas patents on antenna designs, RF output control methods, testing systems for wireless devices, and test methodology. Arcadyan operates globally, with R&D centers in Taiwan, China, and California and technical support centers in Taiwan, Spain, Germany, the U.S., and Canada.

Gemtek Technology Co., Ltd. (4906-Taiwan)
http://www.gemtek.com.tw/

Also a Taiwanese firm, Gemtek's portfolio is centered on residential and business wireless broadband products and services. The company was founded in 1991 and believes that it was one of the first to sell WLAN products. At present, Gemtek states that it remains one of the world's largest independent suppliers of WLAN products. Its skill set today also includes RF/microwave design, software engineering, and manufacturing, and strategic alliances with global chipset manufacturers. Gemtek's primary markets served are the enterprise, small office home office (SoHo), and public access markets. The company has over 5,500 employees, with headquarters in Taiwan and sales offices in the U.S. and Europe.

Hon Hai/Foxconn Technology Group
http://www.foxconn.com/

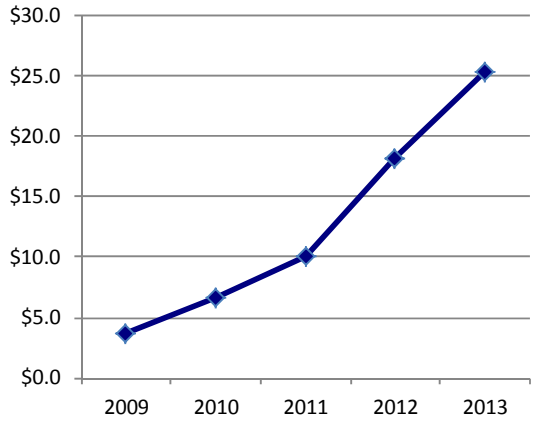
China's Foxconn was founded as Hon Hai Precision Industry Company Ltd in 1974 with the intent of providing the lowest total cost solution to thereby increase the affordability of electronics products for consumers. Today, Foxconn generates almost half of its revenue from manufacturing Apple, Inc.'s (AAPL-NASDAQ) iPhones and tablets (Source: *Wall Street Journal*, June 27, 2014). The company also produces its own brand of mobile handset accessories, sells mobile phones, and is planning to offer telecommunications services in Taiwan. In addition, Foxconn performs joint and contract design, development, manufacturing, assembly, and after-sales services for other companies in the computer, communications, and consumer electronics markets. The company runs several research centers and test laboratories that are focused on development in nanotechnology, heat transfer, wireless connectivity, material sciences, and green manufacturing processes, among other fields. Foxconn's Connector and Cable division offers over 100 antenna products, including WLAN and RF antennas, internal and external antennas, cable assemblies, and more. Foxconn has over a million employees across China, and estimated that it held over 55,000 patents worldwide as of 2012 (Source: Foxconn).

Historical Financial Results

Revenue Growth

Figure 18

AIRGAIN'S ANNUAL SALES GROWTH ($ millions)



Sources: Airgain, Inc. and Crystal Research Associates, LLC.

Airgain may benefit from having relatively predictable revenues due to the length of product lifecycles in the WLAN market. Airgain's products are typically integrated into a wireless device at the design stage. Once the device design (including antenna selection and placement) is established, OEMs/ODMs would incur significant cost, time, and effort to change component suppliers. As a result, once an Airgain antenna is selected for use in a customer's product, the Company can most often ship that product anywhere from one to five years, creating a somewhat consistent, recurring revenue stream before displacement by next-generation devices.

Airgain's revenue growth from FY 2012 to FY 2013 was approximately 39.5%—representing an increase in revenue from $18.2 million in fiscal 2012 to $25.4 million in fiscal 2013. This follows several years of consistent revenue increases, up from sales of only $3.6 million in fiscal 2009 (as illustrated in Figure 18).

In conjunction with the increase in sales, the Company has achieved a reduction in net loss, from a net loss of over $1 million in fiscal 2012 to a net income of $165,056 in fiscal 2013.

Gross Margins

Airgain believes that its gross margins are competitive for its industry. For the year ended December 31, 2010, the Company reported gross margins of 33.3%, which decreased slightly to 32.6% in 2011 but increased to 37.1% in 2012. For the latest full year for which data is available, 2013, Airgain reported higher gross margins of 39.6%.

Risks and Disclosures

This Executive Informational Overview® (EIO) has been prepared by Airgain, Inc. ("Airgain" or "the Company") with the assistance of Crystal Research Associates, LLC ("CRA") based upon information provided by the Company. CRA has not independently verified such information. Some of the information in this EIO relates to future events or future business and financial performance. Such statements constitute forward-looking information within the meaning of the Private Securities Litigation Act of 1995. Such statements can only be predictions and the actual events or results may differ from those discussed due to the risks described in Airgain's statements in its public and investor materials as well as regulatory forms filed from time to time.

The content of this report with respect to Airgain has been compiled primarily from information available to the public released by the Company through news releases, investor presentations, and other materials released from time to time. Airgain is solely responsible for the accuracy of this information. Information as to other companies has been prepared from publicly available information and has not been independently verified by Airgain or CRA. Certain summaries of activities and outcomes have been condensed to aid the reader in gaining a general understanding. CRA assumes no responsibility to update the information contained in this report. In addition, CRA has been compensated by the Company in cash of fifty-five thousand U.S. dollars for its services in creating this report and other communications products.

Investors should carefully consider the risks and information about Airgain's business, as described below. Investors should not interpret the order in which considerations are presented in this or other filings as an indication of their relative importance. The risks and uncertainties overviewed below are not the only risks that the Company faces. Additional risks and uncertainties not presently known to Airgain or that it currently believes to be immaterial may also adversely affect the Company's business. If any of such risks and uncertainties develops into an actual event, Airgain's business, financial condition, and results of operations could be materially and adversely affected, and the trading price of the Company's shares could decline.

This report is published solely for information purposes and is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any state. Past performance does not guarantee future performance. Additional information about Airgain, as well as copies of this report, can be obtained by calling (760) 579-0200.

The market for Airgain's antenna products is developing and may not develop as the Company expects.

The market for Airgain's antenna products, and specifically the Wi-Fi market, is developing and may not develop as the Company expects. Airgain believes that its future success will depend in large part on growth, if any, in the market for Wi-Fi devices that provide in-home wireless data connectivity for Internet and video distribution. It is difficult to predict customer adoption and renewal rates, customer demand for the Company's antennas, the size and growth rate of this market, the entry of competitive products, or the success of existing competitive products. Any expansion in the Company's market depends on a number of factors, including the cost, performance, and perceived value associated with the Company's antennas. If the market for the Company's antenna products does not achieve widespread adoption or there is a reduction in demand for antennas in the market caused by a lack of customer acceptance, technological challenges, competing technologies and products, decreases in corporate spending, weakening economic conditions, or otherwise, it could result in reduced customer orders, early order cancellations, or decreased revenues, any of which would adversely affect Airgain's business operations and financial results.

Airgain had a history of losses, and may not be profitable in the future.

Before the Company's latest fiscal year, Airgain had incurred net losses in each year since the Company's inception, including net losses of $1.1 million in fiscal 2012 and $5.1 million in fiscal 2011. As a result, Airgain had an accumulated deficit of $46.5 million at December 31, 2013. Because the market for the Company's antenna products is rapidly evolving, it is difficult for Airgain to predict the Company's operating results. Airgain expects the Company's operating expenses to increase over the next several years as it hires additional personnel, particularly in engineering, sales, and marketing, and continues to develop new antenna products for new and evolving markets. In addition, as Airgain grows and as it potentially becomes a newly public company, Airgain will incur additional significant legal, accounting, and other expenses that Airgain did not incur as a private company. If the Company's revenues do not increase to offset these increases in operating expenses, Airgain may not be profitable in future periods. The Company's historical revenue growth has been inconsistent and should not be considered indicative of future performance. Any failure by Airgain to sustain or increase profitability on a consistent basis could cause the value of the Company's common stock to materially decline.

The Company's business is characterized by short product development windows and short product lifecycles.

The Company's solutions are purchased and integrated by customers in the electronics industry. In many cases, the products that include Airgain solutions are subject to short product development windows and short product lifecycles. In the case of the short product development window, Airgain is at risk for being pressured to provide solutions that are the lowest in cost in order to be accepted. Customer pressure could force the Company to reduce the price in order to win designs that have short development windows. With respect to short product lifecycles, it is possible that Airgain will provide upfront design and engineering work that will result in a design win, but that design win will be extremely short-lived due to the Company's customer's inability to sell the product in significant volume. The Company's upfront costs associated with a design win can be significant, and if the volumes are inadequate due to lack of acceptance and/or short lifecycle, the Company's financial performance will be impaired.

Airgain generally relies on independent companies to manufacture, assemble, and test its products. If these companies do not meet their commitments to Airgain, or if the Company's own assembly operations are impaired, its ability to sell products to its customers would be impaired.

Airgain has limited manufacturing capability. The Company outsources manufacturing, assembly, and testing of antenna products to contract manufacturers located in China. While there is no unique capability with these suppliers, any failure by these suppliers to meet delivery commitments would cause Airgain to delay shipments and potentially be unable to accept new orders for product. In addition, in the event that these suppliers discontinued the manufacture of materials used in the Company's products, Airgain would be forced to incur the time and expense of finding a new supplier or to modify its products such that such materials were unnecessary. Either of these alternatives could result in increased manufacturing costs and increased prices of the products.

Airgain may experience delays, disruptions, capacity constraints, or quality control problems at its assembly facilities, which could result in lower yields or delays of product shipments to the Company's customers. Any disruption of the Company's contract manufacturers' operations could cause Airgain to delay product shipments, which would negatively impact sales, competitive reputation, and position. In addition, if Airgain does not accurately forecast demand for its products, Airgain will have excess or insufficient parts to build its products, either of which could seriously affect operating results.

Airgain relies on a limited number of contract manufacturers to produce and ship all of its products, and the failure to manage relationships with these parties successfully could adversely affect the Company's ability to market and sell products.

Airgain retains contract manufacturers, which are located in China, to manufacture, control quality of, and ship the Company's products. Airgain currently does not have long-term supply contracts with any of these contract manufacturers. Any significant change in the Company's relationship with these manufacturers could have a material adverse effect on the Company's business, operating results, and financial condition. Airgain makes

substantially all of its purchases from contract manufacturers on a purchase order basis. The Company's contract manufacturers are not required to manufacture the Company's products for any specific period or in any specific quantity. Airgain expects that it would take approximately six to nine months to transition manufacturing, quality assurance, and shipping services to new providers. Relying on contract manufacturers for manufacturing, quality assurance, and shipping also presents significant risks, including the inability of the Company's contract manufacturers to perform the following:

- qualify appropriate component suppliers;
- manage capacity during periods of high demand;
- safeguard consigned materials;
- meet delivery schedules;
- assure the quality of the Company's products;
- ensure adequate supplies of materials;
- protect the Company's intellectual property; and
- deliver finished products at agreed-upon prices.

The ability and willingness of the Company's contract manufacturers to perform is largely outside of the Company's control. For example, during mid-2009, the technology market was rebounding from the sharp economic contraction that was experienced in 2008. Many suppliers and contract manufacturers were unprepared for the speed of the rebound. This led to significant component shortages and capacity constraints at contract manufacturers. During this time, the Company's contract manufacturers claimed difficulty in procuring components and extended the Company's order lead times significantly, which forced Airgain to extend the lead time for its distributors. From time to time, Airgain may change contract manufacturers, which may disrupt its ability to obtain products in a timely manner. Airgain believes that the Company's orders may not represent a material portion of its contract manufacturers' total orders and, as a result, fulfilling the Company's orders may not be a priority in the event the contract manufacturers are constrained in their abilities or resources to fulfill all of their customer obligations in a timely manner. If any of the Company's contract manufacturers suffers an interruption in its business, experiences delays, disruptions, or quality control problems in its manufacturing operations, or Airgain has to change or add additional contract manufacturers, the Company's ability to ship products to its customers would be delayed; revenues could become volatile; and cost of revenues may increase.

Airgain and the Company's contract manufacturers purchase some components, subassemblies, and products from a limited number of suppliers. The loss of any of these suppliers may substantially disrupt the Company's ability to obtain orders and fulfill sales as Airgain designs in and qualifies new components.

Airgain relies on third-party components and technology to build and operate products, and relies on contract manufacturers to obtain the components, subassemblies, and products necessary for the manufacture of its products. Shortages in components that Airgain uses in its products are possible, and the Company's ability to predict the availability of such components is limited. If shortages occur in the future, as they have in the past, the Company's business, operating results, and financial condition would be materially adversely affected. Unpredictable price increases of such components due to market demand may occur. While components and supplies are generally available from a variety of sources, Airgain and its contract manufacturers currently depend on a single or limited number of suppliers for several components for its products. If the Company's suppliers of these components or technology were to enter into exclusive relationships with other providers of wireless networking equipment or were to discontinue providing such components and technology to the Company and Airgain were unable to replace them cost effectively, or at all, the Company's ability to provide its products would be impaired. Airgain and its contract manufacturers generally rely on purchase orders rather than long-term contracts with these suppliers. As a result, even if available, Airgain and its contract manufacturers may not be

able to secure sufficient components at reasonable prices or of acceptable quality to build the Company's products in a timely manner. Therefore, Airgain may be unable to meet customer demand for its products, which would have a material adverse effect on the Company's business, operating results, and financial condition.

The Company's products are subject to intense competition, and include competition from the customers to whom Airgain sells.

Antenna solutions are an established technical field that has low barriers to entry. Antenna competition exists globally for all areas of the Company's product lines. Examples of companies with which Airgain competes, or may potentially compete, include Adant Technologies, Antenova, Asian Creation, Ethertronics, Fractus, Galtronics (a Baylin Technologies company), L-com, PCTEL, Pinyon Technologies, Raylink, Ruckus Wireless, Skycross, Sunwave Communications, Taoglas, Wanshih Electronic, WHA YU, and others. Airgain sells to OEM and ODM customers, and in certain cases, the Company's OEM and ODM customers have internal resources that have competing antenna solutions to Airgain's, such as from Gemtek, Foxconn, Arcadyan, and Cisco, among others. From a cost and control perspective, the Company's products generally cost more and add a degree of complexity to an OEM and ODM product planning and manufacturing process. If the Company's ability to design antenna solutions is deemed to be on par or of lesser value than competing solutions, Airgain could lose customers and prospects.

New entrants and the introduction of other distribution models in the Company's markets may harm the Company's competitive position.

The markets for development, distribution, and sale of the Company's products are rapidly evolving. New entrants seeking to gain market share by introducing new technology and new products may make it more difficult for Airgain to sell products, and could create increased pricing pressure, reduced profit margins, increased sales and marketing expenses, or the loss of market share or expected market share, any of which may significantly harm the Company's business, operating results, and financial condition.

Historically, large, integrated telecommunications equipment suppliers controlled access to the wireless broadband infrastructure equipment and network management software that could be used to extend the geographic reach of wireless Internet networks. However, in recent years, network operators and service providers have been able to purchase wireless broadband infrastructure equipment and purchase and implement network management applications from distributors, resellers, and ODMs/OEMs. Increased competition from providers of wireless broadband equipment may result in fewer vendors providing complementary equipment, which could harm the Company's business and revenues. Broadband equipment providers or system integrators may also offer wireless broadband infrastructure equipment for free or as part of a bundled offering, which could force Airgain to reduce prices or change its selling model to remain competitive. If there is a major shift in the market such that network operators and service providers begin to use closed network solutions that only operate with other equipment from the same vendor, Airgain could experience a significant decline in sales because the Company's products would not be interoperable with these proprietary standards.

Defects in the Company's products or poor design and engineering services could result in lost revenue and subject Airgain to substantial liability.

The Company's antenna solutions are a critical element in determining the operating performance of its customers' products. If the Company's antenna solutions perform poorly, whether due to design, engineering, placement, or other reasons, Airgain could lose revenue. In certain cases, if the Company's antenna solution is found to be the component that leads to failure or a failure to meet the performance specifications of the Company's customer, Airgain could be required to pay monetary damages to the customer.

Airgain sells to customers who are extremely price conscious.

The Company's customers compete in segments of the electronics market. The electronics market is characterized by intense competition as companies strive to come to market with innovative designs that attract customers based upon design, performance, cost, ease of use, and convenience. Product lifecycles can be extremely short as companies try to gain advantage over their competitors. Because of the high design and engineering costs,

companies that are customers or prospects for antenna solutions are extremely cost conscious. As a result, the Company's customers and prospects demand price cuts in established products, and negotiate extremely hard for lower pricing on new products. Because of the intense competition in the antenna solution market, Airgain encounters situations that lead to difficult price negotiations that can force it to take lower margin business than Airgain had forecast.

Any delays in the Company's sales cycles could result in customers canceling purchases of products.

Sales cycles for the Company's products with major customers can be lengthy, often lasting nine months or longer. In addition, it can take an additional nine months or more before a customer commences volume production of equipment that incorporates the Company's products. Sales cycles with the Company's major customers are lengthy for a number of reasons, including the following:

- the Company's OEM customers and carriers usually complete a lengthy technical evaluation of the Company's products, over which Airgain has no control, before placing a purchase order;
- the commercial introduction of the Company's products by OEM customers and carriers is typically limited during the initial release to evaluate product performance; and
- development and commercial introduction of products incorporating new technologies frequently is delayed.

A significant portion of the Company's operating expense is relatively fixed and is based in large part on the Company's forecasts of volume and timing of orders. The lengthy sales cycles make forecasting the volume and timing of product orders difficult. In addition, the delays inherent in lengthy sales cycles raise additional risks of customer decisions to cancel or change product phases. If customer cancellations or product changes were to occur, this could result in the loss of anticipated sales without sufficient time for Airgain to reduce its operating expenses.

The Company's future success depends on its ability to develop and successfully introduce new and enhanced products for the wireless market that meet the needs of the Company's customers.

The Company's revenue depends on an ability to anticipate existing and prospective customers' needs and develop products that address those needs. The Company's future success will depend on its ability to introduce new products for the wireless market, anticipate improvements and enhancements in wireless technology and wireless standards, and develop products that are competitive in the rapidly changing wireless industry. Introduction of new products and product enhancements will require coordination of the Company's efforts with those of the Company's customers, suppliers, and manufacturers to rapidly achieve volume production. If Airgain fails to coordinate these efforts, develop product enhancements, or introduce new products that meet the needs of the Company's customers as scheduled, operating results will be materially and adversely affected and the Company's business and prospects will be harmed. Airgain cannot ensure that product introductions will meet the anticipated release schedules or that the Company's wireless products will be competitive in the market. Furthermore, given the emerging nature of the wireless market, there can be no assurance the Company's products and technology will not be rendered obsolete by alternative or competing technologies.

Future acquisitions could disrupt the Company's business and adversely affect the Company's results of operations, financial condition, and cash flows.

Airgain may choose to expand by making acquisitions that could be material to its business, results of operations, financial condition, and cash flows. The Company's ability as an organization to successfully acquire and integrate technologies or businesses is unproven. Acquisitions involve many risks; an acquisition may negatively affect the Company's results of operations, financial condition, or cash flows because it may require Airgain to incur charges or assume substantial debt or other liabilities, may cause adverse tax consequences or unfavorable accounting treatment, may expose Airgain to claims and disputes by third parties, including intellectual property claims and disputes, or may not generate sufficient financial return to offset additional costs and expenses related to the acquisition.

Unanticipated changes in the Company's effective tax rate could harm the Company's future results.

Because Airgain had a history of losses before fiscal 2013, Airgain paid non-substantial amounts of federal and state taxes. As of December 31, 2013, Airgain had a net operating loss carryforward for federal income tax purposes of $28,038,057, which if unutilized will expire between 2021 and 2031. At December 31, 2013, Airgain had a net operating loss carryforward for state income tax purposes of $23,834,527, which if unutilized will expire between 2014 and 2031. In addition, Airgain had federal research and development tax credit carryforwards of approximately $1,287,006 as of December 31, 2013, which if unutilized will expire between 2026 and 2033. Airgain also has state research and development tax credit carryforwards of approximately $986,344 at December 31, 2013, which may be available to reduce future state regular income taxes, if any, over an indefinite period. These tax credits are subject to examination by state and federal taxing authorities and may need to be revised as a result of any exam.

If tax rules and regulations change, and Airgain is not able to apply these carryforwards, Airgain may be forced to pay taxes at a rate and time prior to what is currently possible today. Further, the Company's existing net operating losses (NOLs) may be subject to limitations arising from previous ownership changes, and if Airgain undergoes an ownership change in connection with or after this offering, the Company's ability to utilize NOLs could be further limited by Section 382 of the of the Internal Revenue Code of 1986, as amended. There is also a risk that due to regulatory changes, such as suspensions on the use of NOLs or other unforeseen reasons, the Company's existing NOLs could expire or otherwise be unavailable to offset future income tax liabilities.

Airgain has identified a material weakness and significant deficiencies in its internal control over financial reporting in the past. The Company's failure to establish and maintain effective internal control over financial reporting could result in its failure to meet reporting obligations and cause investors to lose confidence in its reported financial information, which in turn could cause the trading price of its common stock to decline.

In connection with the audits of Airgain's financial statements as of the year ended December 31, 2011, the Company became aware of a material weakness in its internal control over financial reporting. A material weakness is defined as a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of Airgain's annual or interim financial statements will not be prevented or detected and corrected on a timely basis. The material weakness pertained to deficiencies in the calculation of preferred stock warrant liability, which led to an overstatement of the liability. Airgain did not have adequate controls in place to account for preferred stock warrant liability properly. In order to address the material weakness, the Company initiated remedial measures by taking an inventory of all outstanding warrants and implementing a new review by management.

In connection with the audits of Airgain's financial statements as of the year ended December 31, 2012 and 2013, the Company became aware of significant deficiencies in its internal control over financial reporting. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance. The significant deficiencies in the design of Airgain's internal control related to expense accrual in the proper period and the improper classification of certain reconciling items as cash instead of accounts payable. In order to address these significant deficiencies, the Company initiated remedial measures by implementing additional layers of management review.

Airgain may be subject to litigation regarding intellectual property associated with its wireless business and this could be costly to defend and could prevent the Company from using or selling the challenged technology.

In recent years, there has been significant litigation in the U.S. involving intellectual property rights. Airgain expects potential claims in the future, including with respect to the Company's wireless business. Intellectual property claims against the Company, and any resulting lawsuits, may result in the Company's incurring significant expenses and could subject it to significant liability for damages and invalidate what it currently believes are its proprietary rights. These claims, regardless of their merits or outcome, would likely be time consuming and expensive to resolve and could divert management's time and attention. Other risks associated with intellectual property include those listed on page 41.

- The Company's distributors, network operators, and service providers may expect Airgain to indemnify them for intellectual property infringement claims, damages caused by defective products, and other losses.

- Confidentiality agreements with employees and others may not adequately prevent disclosure of the Company's trade secrets and other proprietary information. Although Airgain primarily relies on confidentiality agreements to protect its trade secrets, Airgain had failed to obtain such agreements from certain of its former employees due to administrative oversights, including those who participated in the development of certain of the Company's products.

The Company's international sales and operations subject it to additional risks that can adversely affect operating results and financial condition.

Currently, approximately 30% of the Company's end customers are outside of the U.S., and Airgain is continuing to expand the Company's international operations as part of its growth strategy. Airgain has limited sales personnel and sales and support operations in the U.S., Asia, and Europe. The Company's ability to convince customers to expand their use of Airgain's antenna products is directly correlated to the Company's direct engagement with the customer. To the extent Airgain is unable to engage with non-U.S. customers effectively with a limited sales force capacity, Airgain may be unable to grow sales to existing customers.

The Company's international operations subject it to a variety of risks and challenges, including the following: increased management, travel, infrastructure and legal compliance costs associated with having multiple international operations; reliance on channel partners; increased financial accounting and reporting burdens and complexities; compliance with foreign laws and regulations; compliance with U.S. laws and regulations for foreign operations; and, reduced protection for intellectual property rights in some countries and practical difficulties of enforcing rights abroad. Any of these risks could adversely affect the Company's international operations, reduce the Company's international revenues, or increase the Company's operating costs, adversely affecting the Company's business, operating results and financial condition, and growth prospects.

The Company's directors and principal stockholders own a significant percentage of the Company's stock and will be able to exert significant control over matters subject to stockholder approval.

The Company's directors, executive officers, and significant stockholders continue to have substantial control over Airgain and could delay or prevent a change in corporate control. As a result, these stockholders, acting together, could have the ability to control the outcome of matters submitted to the Company's stockholders for approval, including the election of directors and any merger, consolidation, or sale of all or substantially all of the Company's assets. In addition, these stockholders, acting together, could have the ability to control the management and affairs of the Company. Accordingly, this concentration of ownership might adversely affect the market price of the Company's common stock by delaying, deferring, or preventing a change in control of the company; impeding a merger, consolidation, takeover, or other business combination involving Airgain; or discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of the Company.

Airgain is an "emerging growth company" and cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make the Company's common stock less attractive to investors.

Airgain is an "emerging growth company" as defined in the Jumpstart Our Business Startups Act (or "JOBS Act") enacted on April 5, 2012. For as long as Airgain continues to be an emerging growth company, it may choose to take advantage of certain exemptions from various reporting requirements applicable to other public companies but not to emerging public companies, which includes, among other things:

- exemption from the auditor attestation requirements under Section 404 of the Sarbanes-Oxley Act of 2002;

- reduced disclosure obligations regarding executive compensation in the Company's periodic reports and proxy statements;

- exemption from the requirements of holding non-binding stockholder votes on executive compensation arrangements; and

- exemption from any rules requiring mandatory audit firm rotation and auditor discussion and analysis and, unless the SEC otherwise determines, any future audit rules that may be adopted by the Public Company Accounting Oversight Board.

Airgain could be an emerging growth company until the last day of the fiscal year following the fifth anniversary after the Company's initial public offering (IPO), or until the earliest of (i) the last day of the fiscal year in which Airgain had annual gross revenue of $1 billion or more, (ii) the date on which Airgain had, during the previous three-year period, issued more than $1 billion in non-convertible debt, or (iii) the date on which Airgain is deemed to be a large accelerated filer under the federal securities laws. Airgain will qualify as a large accelerated filer as of the first day of the first fiscal year after Airgain had (i) more than $700 million in outstanding common equity held by the Company's non-affiliates and (ii) been public for at least 12 months. The value of the Company's outstanding common equity will be measured each year on the last day of the Company's second fiscal quarter.

Under the JOBS Act, emerging growth companies are also permitted to elect to delay adoption of new or revised accounting standards until companies that are not subject to periodic reporting obligations are required to comply, if such accounting standards apply to non-reporting companies. Airgain had made an irrevocable decision to opt out of this extended transition period for complying with new or revised accounting standards.

Airgain could incur significant increased costs as a result of operating as a public company, and management will be required to devote substantial time to comply with the laws and regulations affecting public companies, particularly after Airgain is no longer an "emerging growth company."

Airgain has never operated as a public company. In the future, if as a public company, particularly after Airgain ceases to qualify as an emerging growth company, Airgain will incur significant legal, accounting, and other expenses that Airgain did not incur as a private company, including costs associated with public company reporting and corporate governance requirements, in order to comply with the rules and regulations imposed by the Sarbanes-Oxley Act, as well as rules implemented by the SEC and NASDAQ, the Company's management and other personnel will need to devote a substantial amount of time to these compliance initiatives and the Company's legal and accounting compliance costs will increase. It is likely that Airgain will need to hire additional staff in the areas of investor relations, legal, and accounting to operate as a public company. Airgain also expects that these new rules and regulations may make it more difficult and expensive for the Company to obtain director and officer liability insurance, and Airgain may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be more difficult for the Company to attract and retain qualified individuals to serve on its Board of Directors or as executive officers. Airgain is currently evaluating and monitoring developments with respect to these rules, and cannot predict or estimate the amount of additional costs it may incur or the timing of such costs.

For example, the Sarbanes-Oxley Act requires, among other things, that Airgain maintain effective internal controls over financial reporting and disclosure controls and procedures. In particular, as a public company, Airgain will be required to perform system and process evaluations and testing of the Company's internal control over financial reporting to allow management and the independent registered public accounting firm to report on effectiveness of the Company's internal controls over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. As described above, as an emerging growth company, Airgain will not need to comply with the auditor attestation provisions of Section 404 for several years. The Company's testing, or the subsequent testing by the Company's independent registered public accounting firm, may reveal deficiencies in the Company's internal control over financial reporting that are deemed to be material weaknesses. The Company's compliance with Section 404 will require that Airgain incur substantial accounting expense and management time on compliance-related issues. Moreover, if Airgain is not able to comply with the requirements of Section 404 in a timely manner, or if Airgain or the Company's independent registered public accounting firm identifies deficiencies in the Company's internal control over financial reporting that are deemed to be material weaknesses, Airgain could lose investor confidence in the accuracy and completeness of the Company's financial reports, which could cause its stock price to decline.

When the available exemptions under the JOBS Act, as described above, cease to apply, Airgain expects to incur additional expenses and devote increased management effort toward ensuring compliance with them. Airgain cannot predict or estimate the amount of additional costs Airgain may incur as a result of becoming a public company or the timing of such costs.

Glossary

Access Points—Devices that plug into an Ethernet switch or hub to act as a central transmitter and receiver of wireless radio signals including Wi-Fi (such as in a residential router). Access points can be used to support public Internet hotspots and to extend the Wi-Fi signal range of business networks. If more than one access point is used, like a cellular phone system, users can roam with their mobile devices and be handed off from one cell to another.

Anechoic Chamber—"An-echoic," meaning non-reflective, non-echoing, or echo-free. An anechoic chamber is a room designed to completely absorb reflections of either sound or electromagnetic waves. It is insulated from exterior sources of noise.

CTIA—An international nonprofit organization that represents all sectors of wireless communications including cellular, personal communication services, and enhanced specialized mobile radio. Founded in 1984, the CTIA is an industry trade group that represents service providers, manufacturers, wireless data and Internet companies, and other wireless contributors.

Draft Recommended Practice for the Evaluation of 802.11 Wireless Performance (IEEE 802.11.2)—Describes recommended practices for evaluating and measuring the performance of IEEE standard 802.11 WLAN devices and networks at the component and application level. A set of performance metrics, measurement methodologies, and test conditions are provided that enable such measurements to be made and permit prediction of the performance of installed WLAN devices and networks.

Femtocell—A very small mobile phone base station that is connected to the phone network via the Internet, and that is typically used in areas where the mobile signal is weak.

Gateway—A network point that acts as an entrance to another network.

ISO 9001:2008—This standard establishes criteria for a quality management system and is the only standard in the ISO 9001 family that can be certified to. It can be used by any organization, large or small, regardless of its field of activity. The quality management principles of ISO 9001:2008 include a strong customer focus, the motivation and implication of top management, the process approach, and continual improvement.

Machine to Machine (M2M)—Refers to technologies that allow both wireless and wired systems to communicate with other devices of the same type. M2M is a broad term that it does not pinpoint specific wireless or wired networking, information and communications technology.

Multiple Input, Multiple Output (MIMO)—An antenna technology for wireless communications in which multiple antennas are used at both the source (transmitter) and the destination (receiver). The antennas at each end of the communications circuit are combined to minimize errors and optimize data speed. MIMO is one of several forms of smart antenna technology, the others being MISO (multiple input, single output) and SIMO (single input, multiple output).

Printed Circuit Board (PCB)—A non-conductive material with conductive lines printed or etched. Electronic components are mounted on the board and the traces connect the components together to form a working circuit or assembly.

Radiofrequency (RF)—Refers to alternating current (AC) having characteristics such that, if the current is input to an antenna, an electromagnetic field is generated suitable for wireless broadcasting and communications. These frequencies cover a significant portion of the electromagnetic radiation spectrum, extending from 9 kilohertz (kHz)—the lowest allocated wireless communications frequency—to thousands of GHz.

Reference Design—A technical blueprint of a system that is intended for others to copy. It contains the essential elements of the system; however, third parties may enhance or modify the design as required.

Set-top Box—A device that enables a television set to become a user interface to the Internet and also enables a television set to receive and decode digital television (DTV) broadcasts.

Small Cell—An umbrella term for operator-controlled, low-powered radio access nodes, including those that operate in licensed spectrum and unlicensed carrier-grade Wi-Fi. Small cells typically have a range from 10 meters to several hundred meters.

Spatial Streams—Spatial streaming is primarily observed in wireless communications where multiple-input-multiple-output (MIMO) is being used. When wireless signals are being transmitted or received simultaneously in a MIMO environment, the signals being transmitted by the various antennae are multiplexed by using different spaces within the same spectral channel. These spaces are known as spatial streams.

SKU (Stock-Keeping Unit)—A common term for a unique numeric identifier, typically in a product database.

Time Division Multiple Access (TDMA)—A channel access method for shared medium networks. It allows several users to share the same frequency channel by dividing the signal into different time slots. The users transmit in rapid succession, one after the other, each using its own time slot.

Through-Hole—Having leads that are designed to go through holes to the other side of a circuit board for soldering. It is often contrasted with surface-mount.

Throughput—The amount of data moved successfully from one place to another in a given time period.

Wi-Fi—A Wi-Fi Alliance-certified technology that complies with the IEEE 802.11 wireless Ethernet standards. It is frequently used as a method of adding mobility to private, wired local networks. In the early 2000s, Wi-Fi/802.11 became widely used and, within a short time, all laptops and other handheld devices were equipped with built-in Wi-Fi. Earlier laptops can be Wi-Fi enabled by plugging in a Wi-Fi adapter via a USB port or PC card.

WLAN (Wireless Local Area Networking)—A wireless distribution method for two or more devices that use high-frequency radio waves and often include an access point to the Internet. A WLAN allows users to move around the coverage area, often a home or small office, while maintaining a network connection.

ZigBee®—A wireless communications protocol that has been endorsed by the Continua Health Alliance, and that has been stated to support thousands of devices on a single network and offer secure, robust, battery-efficient wireless connectivity. It has been a preferred choice for many healthcare applications because the ZigBee® wireless technology can coexist with other existing wireless networks found in hospital facilities, like Wi-Fi.

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