GALTRONICS
A BAYLIN TECHNOLOGIES COMPANY

Galtronics Manufacturing Capabilities

Mobile Device and Networking Antenna Systems

Innovative Antenna Solutions

Mobile Devices | Wireless Infrastructure | Broadband

www.galtronics.com

Galtronics Manufacturing Capabilities

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Galtronics. Worldwide.

Galtronics Corporation Ltd., a Baylin Technologies (TSX: BYL) company, is a global company providing innovative antenna and communications solutions of the highest quality and design.

Galtronics has state-of-the art design centers around the globe as well as world class manufacturing facilities in China and Vietnam.

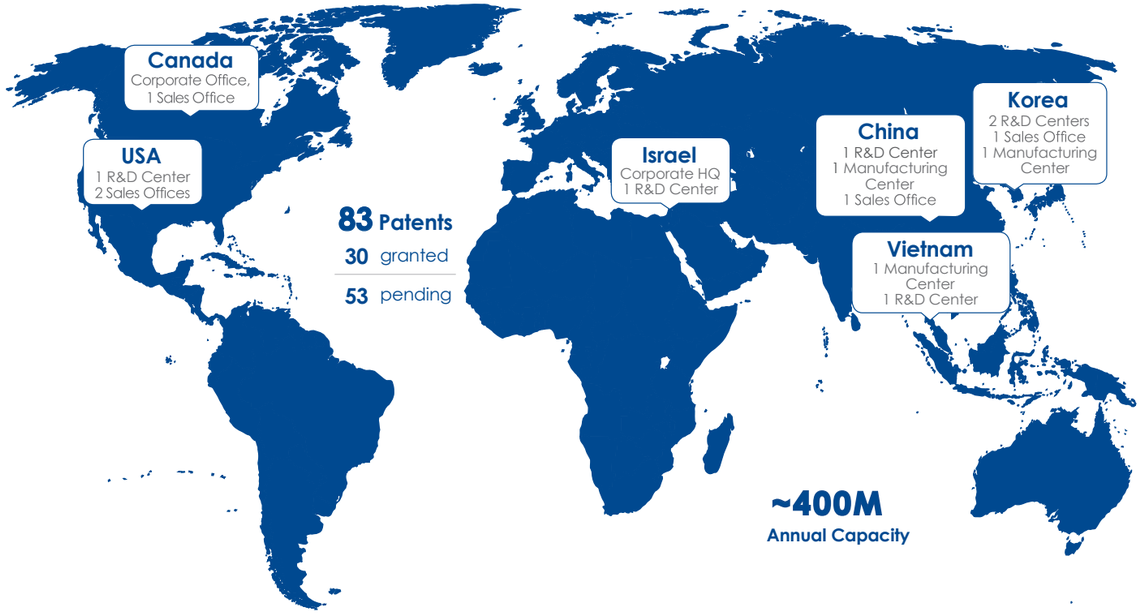
Galtronics offers custom and off-the-shelf antenna solutions from concept and design to production and delivery of products for the world's leading wireless organizations. Since Galtronics was established in 1978, the business has grown into an international platform with operations in North America, Europe and Asia.

To learn more about Galtronics and its offerings:

» Visit our website at **www.galtronics.com**

» Email us at **sales@galtronics.com**

» Call us at: **+1 866-206-9482**



37 Years of **Innovation**



1978
Motorola
HT200 Portable
Two-Way Radio

1983
Motorola
DynaTAC
8000x

1987
Nokia
Talkman 900

1988
Motorola
GP88

1992
Nokia 1011

1996
Motorola
StarTAC

2000
Qualcomm
QCP-1960

2002
Motorola
Fred

2002
Elster 2261
ABB WAH
Meter

2003
Hyundai
H-150

2005
Motorola
v710

2006
Cisco Linksys
WRT610N
Router

2006
Samsung
E250

2009
Motorola
MiniMach
4272

2010
Samsung
Galaxy 1

2011
Samsung
Galaxy 2

2012
PEAR™
MIMO
Antenna

2012
Cisco Linksys
e4200 Router

2012
Spider Cloud
Small Cell

2012
Samsung
Galaxy 3

2013
Samsung
Galaxy S4

2013
LMP Multi-
Wideband
Antenna

2014
EXTENT™
Small Cell
Antenna

2014
EXTENT™ 30°/30°
Narrow Beam MIMO
Panel Antenna

2014
PEAR™ Ultra
Flat In-Building
Antenna

Innovative Antenna Solutions

Mobile Devices

Partner and Leading Supplier to Major Global Cellular Handset OEMs

Galtronics offers major OEM customers a range of PIFA, STILT, LOOP, FMA, and LDA designs that deliver single and multi-band performance, as well as GPS, WiFi, Bluetooth and other wireless standards. Our continued R&D investment enables us to meet fast-changing customer and market requirements. Our newest **4GA™ antenna technology** is providing Smartphone, Tablet and Wearable OEMS and advanced antenna solutions to meet the challenges of devices with LTE-Advanced with Carrier Aggregation capabilities.

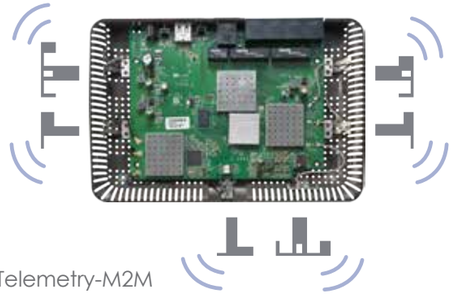
With advanced manufacturing capabilities that enable us to provide products including low-cost stamped metal, flex-film designs, two-shot MID molding or intricate laser-directed structuring (LDS), Galtronics has the right solution for you.

Broadband

Integrating Customized Antenna Solutions

Galtronics Broadband Antenna Division designs and manufactures embedded or external antennas for various applications such as Home Networking (routers, home gateways and set-top boxes), 2-Way-Radio communication, Telemetry-M2M (machine to machine) and Telematics (car communication).

Embedded Antennas
in Router



During the design stage, we partner with you to integrate the antenna into your device and optimize the antenna design to maximize performance and meet your requirements such as space limitations, interface, shape and TM/Logo. For our LMP customers, Galtronics offers single-, wide- and multi-band antennas covering frequency bands from 130 MHz to 6000 MHz.

Wireless Infrastructure

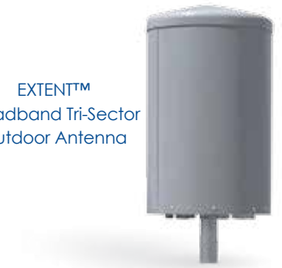
Providing Antennas for High-Performance LTE Connectivity for World Leading Operators

Our extensive **PEAR™ In-Building Small Cell and DAS Antenna** product line offers true omni and first-class directional SISO and MIMO indoor antennas with high gain covering all LTE, 3G and 4G bands. The **EXTENT™** product line is comprised of outdoor DAS antennas along with narrow-beamwidth antennas for high capacity venues such as stadiums. Both product lines have been endorsed by carriers in the USA, South America, Europe and Asia.

We are committed to supporting your business success by enabling high-performance connectivity for all your products and systems, as we are successfully doing for other world class OEMs and market leading products.



30°/30°, 30°/60°, 60°/60°
EXTENT™ Narrow Beam
Directional Antennas



EXTENT™
Broadband Tri-Sector
Outdoor Antenna



PEAR™ M5542i Small Size MIMO
Omni In-Building Antenna



PEAR™ S5606 Ultra Flat
In-Building Antenna

The Evolution of Small Device Antennas

Antennas as external component » **Antennas as internal component**

LMP Antennas



Retractable Antennas



Stubby Antennas



Metal-Element PIFA Antennas


Metal Element

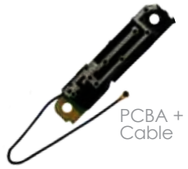

Metal Element and Carrier


Multi Element


LDA

FPC + PCBA Antennas


FPC


PCBA + Cable


FPC + PCBA


IM-FPC

MID / Plated Antennas


TSMA


LDS


P&P

Assembled into case » **Case integrated antennas**

Antennas Assembled into Case
TSMA, LDS, P&P, FPC

Case Integrated (CIA) & Rear Case Integrated (RCA) Antennas
TSMA, LDS, P&P, FPC







From Antennas as a Component to a **Case-Integrated Antenna System**

MIMO LTE Research R&D

Antenna Design Expertise

37 YEARS
of Antenna Design Experience

4
Design Centers globally

Latest RF Simulation & Testing Software including
LTE & MIMO

Fully Automated Anechoic Near Field Chambers
7

83
PATENTS
50 granted, 53 pending

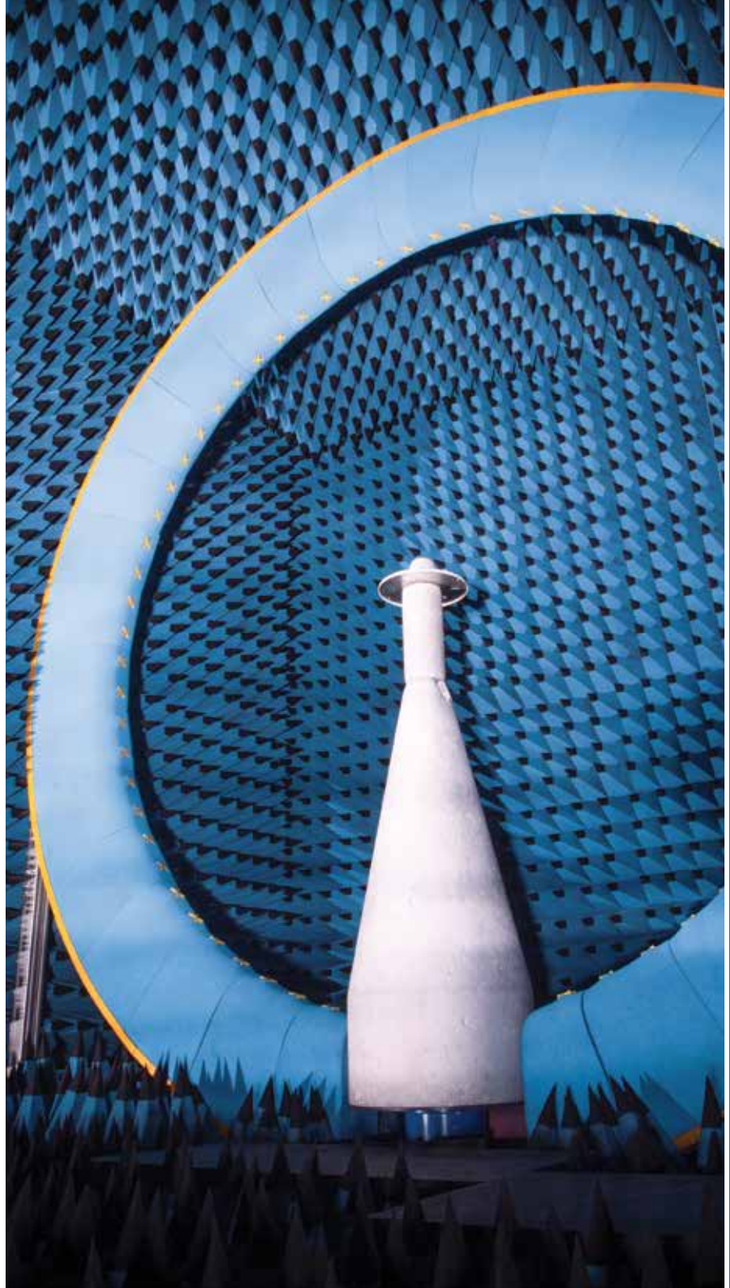
RAPID MTP
Prototyping and Move-to-Production











Antenna R&D + Design Expertise

Corporate Headquarters
Israel, Established in 1978



Arizona, USA
Established in 2000



Seoul, Korea
Established in 2003



Wuxi, China
Established in 2004



Vietnam
Established in 2014



✓ Design Engineering

✓ Rapid Production ramp up

✓ Certifications: ISO9001; TS16949; ISO14000

✓ Precision Tool Fabrication

✓ Six Sigma Quality

✓ Global Sourcing Hub

✓ Precision Plastic Injection incl. O/M & TSMA

✓ Laser Direct Structuring (LDS)

✓ Precision High-speed Stamping

✓ Flexible Manufacturing



Galtronics. Worldwide.



STAMPED
Element Antennas



TWO-SHOT
Molded Antennas (TSMA)



FPC
Flexible Printed Circuit Antennas



LDS
Laser Direct Structuring Antennas



CASE INTEGRATED
Antennas





In-House
LDS Manufacturing Capability

- LPKF Laser Direct Structuring machines
- Antenna Component
- Case Integrated Antennas







In-House
Two-Shot MID Molding Capability

- Plastic Injection Molding Machines
- Horizontal Injection Machine (60~320ton)
- Vertical Carousel Injection (50~80ton)
- Two shot Molding Machines





TSMA



In-House
Antenna & Electronic Module Plating Capability

- **Plating of Laser Direct Structured Antenna and Electronic Components**
- **Plating of Two-Shot Molded Antenna Components**

The high precision plating process is turning the MID plastic part into a functional RF component and or a module for electronic devices.
A High-Tec automated plating process assures high yield and reliability in mass production environment for demanding electronics MID modules and high performance LTE antennas for smartphones and other wireless devices.

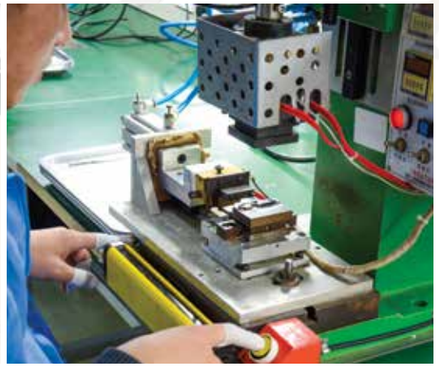


In-House
Precision Stamping Capability

- Own Stamping Facility
- High Speed Stamping Machines
- Semi-Automated Washing Line
- Assembly & Heat-Staking











In-House **Mold & Die Making Capability**

Incl. Two-Shot Molds (TSMA)

- **Precision Wirecut Machines**
- **EDM Machines**
- **High speed & Precision CNC Machines**
- **Coordinate - Measuring Machine (CMM)**









In-House
Antenna Assembly & Testing

» **Antenna Assembly**

- Stamped Elements
- Cables
- PCBs
- FPC







Traceability
Reliability Testing
Quality Assurance

- » **Quality Assurance**
- » **Reliability Testing**
- » **RoHS Compliance Testing**
- » **Laser Marking for complete parency & traceability**
- » **Six Sigma Quality**



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USA | Israel | China | Korea | Vietnam

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