



# Genmix Technology

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INTRODUCTION TO THE MOST LEADING TECHNOLOGIES

YEAR OF 2018

# About US

We, **Genmix Technology**, are a leading supplier of high performance microwave active products through **ISO 9001: 2010 certified** for our quality assurance.

Our mission is to **share and achieve** our clients' goals by **providing effective solutions**. We also target to accomplish our mission via intelligent designs, efficient manufacturing process, detail orientations, quality assurance, and devotion to process improvement.

We are highly focus on Hi-Rel RF/Microwave products in Satellite/Mobile communication, Radar and Defense industries.



## Reliable

Genmixtech's products are trustworthy in worldwide industrial level by meeting ISO 9001: 2010, IPC/J/Mil standards along with growing long-term relationships with our customers.



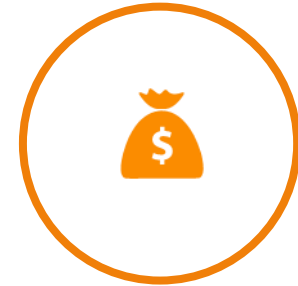
## Solutions

We endeavor to acquire your maximum satisfaction while offering a variety of solutions. Yet, we also offer a competent level of customizations as needed.



## Experience

Our engineering team has experienced in multiple industries, but focus on RF/Microwave technologies to capture the most utilization of our technology and its own development.



## Cost-effective

Our products are committed to offer the best solutions while saving your time in development and cost on the top of diverse demands.

# Technology & Products

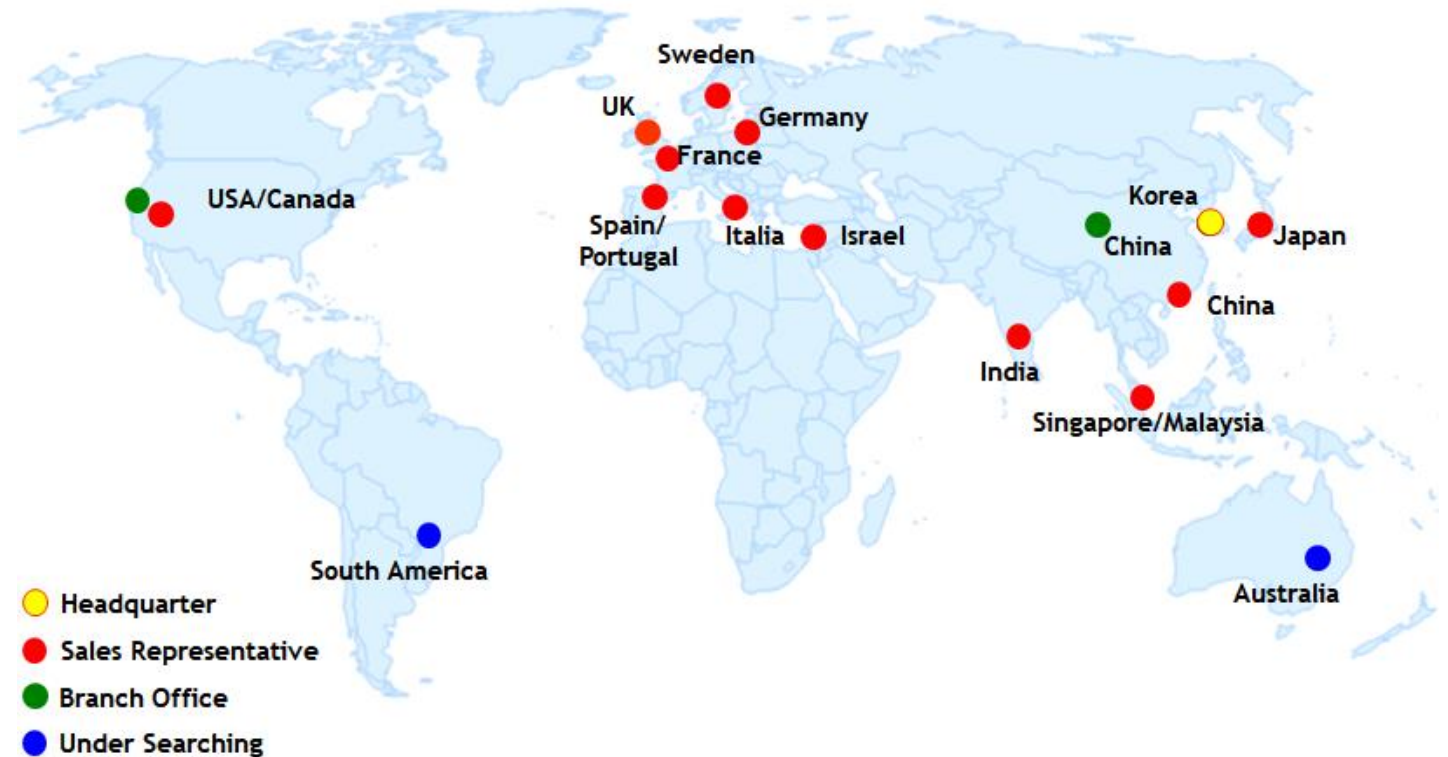
- Offer variety of **innovative technologies**
  - RF/Microwave technology, Frequency converting/synthesizing tech., Signal amplification tech., MMIC design capabilities
  - **Transceiver, Up/Down Converters, C/X/Ku/Ka Band Power Amplifier, Passive Products and General RF/Microwave Modules**
- Serve four main industries

<b>Mobile Communication</b>	<ul style="list-style-type: none"> <li>- Tx/Rx/TR Modules and RF Front-end for 5G network</li> <li>- Mobile Hot Spot Network</li> <li>- Mobile Wireless Back-haul Link / Outdoor Units (ODU) for DMR</li> </ul>
<b>Defense/Specialty Industry</b>	<ul style="list-style-type: none"> <li>- EW/Jammer/Radar/UAV/Airborne applications</li> <li>- Wideband Receiver/Synthesizer/Amplifier/Front-end solutions</li> <li>- Instrumentation/ATE/Special Test Equipment, Filters/Diplexers</li> </ul>
<b>Satellite Communication</b>	<ul style="list-style-type: none"> <li>- C/X/Ku/Ka Band BUC, SSPA, LNB, Filters for Satellite Two-Way Communication System / VSAT / OTM Terminals</li> <li>- RF Front-ends for In-flight Internet Access System</li> </ul>
<b>Radar Applications</b>	<ul style="list-style-type: none"> <li>- PSR / SSR Radar, Medium/Short haul Surveillance Radar</li> <li>- Industry : Motion Sensor, Distance/Velocity/Direction, Highway</li> <li>- Collision Avoidance, Imaging</li> </ul>



# Global Business Network

- Headquarter: South Korea
- Genmix Technology has been able to seize market share in the global market, such as **North America, Europe, and Israel.**
- Noticeably, we also captured the emerging markets in **China, India, South-east Asia, and South America.**
- Via active S/R, we tend to keep increasing our international sales.



# Business Model

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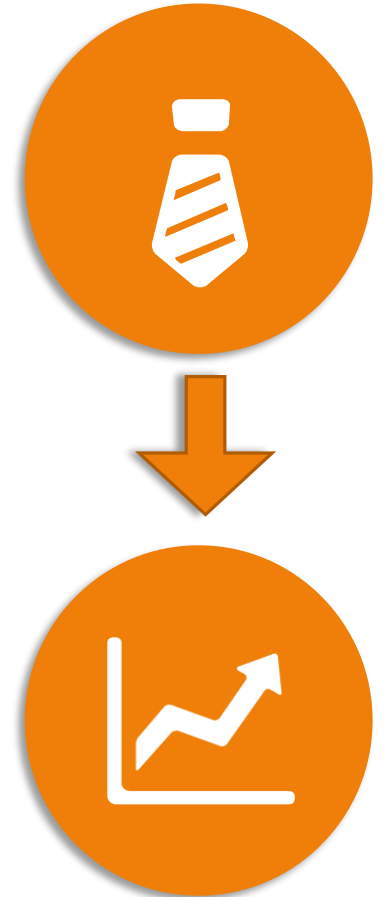
- Business Partnership

- we are **highly proficient in innovative RF/Microwave technologies** and its related engineering. Thus, we are able to provide **sufficient technologies and products** to our clients and **satisfy clients' expectations**, so are the business growth on both ends.

- Quality Assurance

- to maintain our **commitment on reliable and price competitive supplies along with industrial standards**, the followings are to be proceeded as minimum, yet committed to continuous improvements:

- Performance testing in accordance with a documented acceptance test procedure.
- Screening preconditioning
- Final test data
- Final visual and mechanical inspection in accordance with documented workmanship standards
- Packaging/shipping inspection to ensure adequate protection and identification during transit and storage



# Products & Core Technologies

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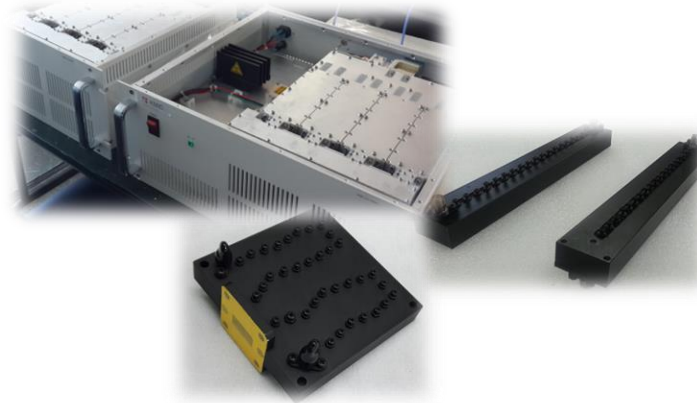
# Defense/Military

- Airborne In-Flight Broadband Access – Ku/Ka-band 16W SSPA, Switchable Multi-LOs Full band Block Up Converter and Block Down Converter, LNA, Ku-band 40W BUC Amplifier
- Anti-IED Jammer – 20MHz to 6GHz 80W to 35W HPA, Power Cut-back for Optimum Power Consumption



# Defense/Military

- UAV/Drone and Data link – Ku-band 20W SSPA module, 50W Rack, Band Pass Filters, Diplexers

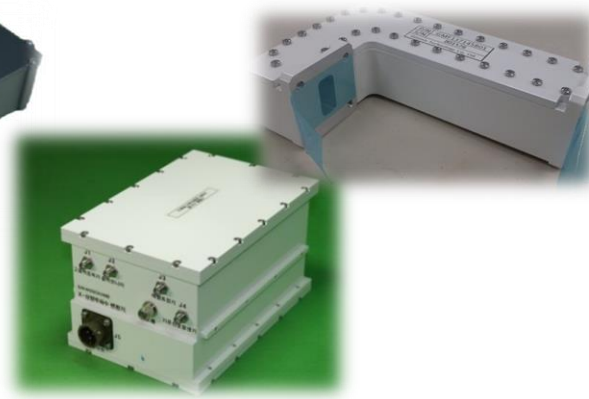
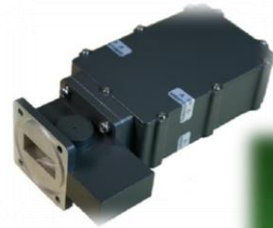


- Helicopter Collision Avoidance Radar System - 35GHz, 20W SSPA, Transceiver, Oscillator, and Signal Processing

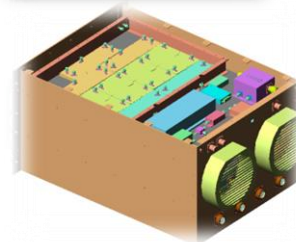
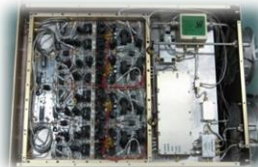


# Defense/Military

- Military Satellite Communication – X-band BUC, SSPA, LNB, Transmit Rejection Filter, 350W Rack-type and Out-Door SSPA



- Electronic Warfare – UHF 20 to 100MHz 2KW HPA, VHF 100 to 500MHz 1KW HPA in 19inch Rack



# Radar/Security Applications

- Boarder/Coastal Surveillance Radar – Ka-band Transceivers for Short/Medium Range Surveillance



- Aircraft Detection System – X-band Doppler Radar Receiver (turn-on flashlights when required)

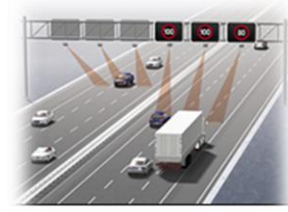


# Radar/Security Applications

- Radar for Highway
  - Ka-band, Speed, Traffic Flow, Detection Still Objects for Smart Highway Service, VDS

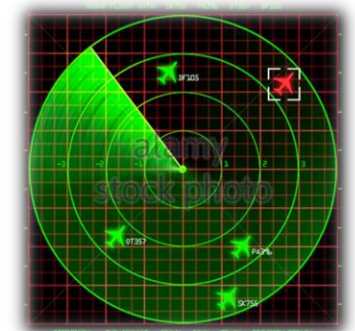


School Zone



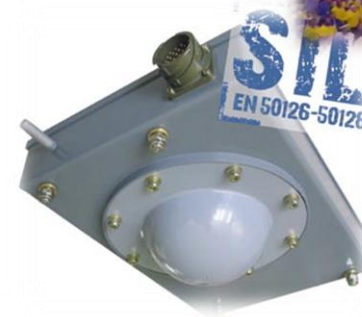
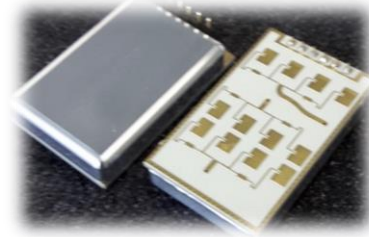
Road/Highway

- PSR/SSR Radar – S-band Receiver, High Power Pulsed Amplifier for Primary/Secondary Surveillance Radar for Air Traffic Control System



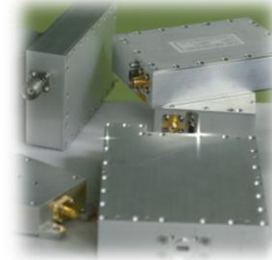
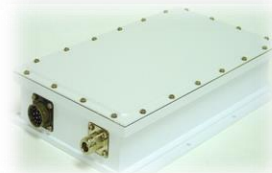
# Radar/Security Applications

- Radar Module and System
  - Ka-band, Unlicensed ISM band, Motion Sensor, Doppler Speed Sensor, Automatic lighting/Door, Range Sensor, 3D VR Imaging



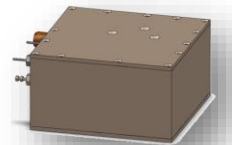
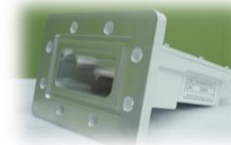
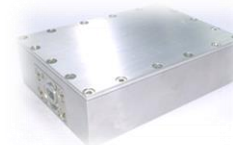
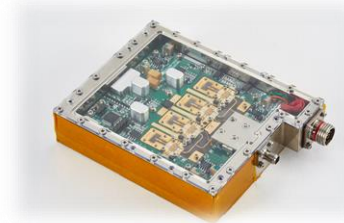
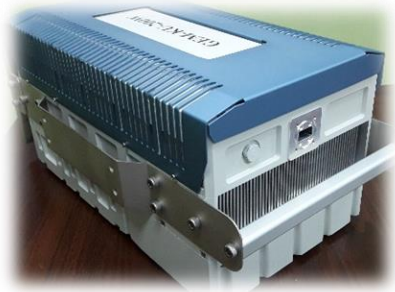
# Satellite Communications

- VSAT/SatCom
  - C-band/X-band/Ku-band/  
Ka-band BUC, LNB, SSPA  
4W to 350W, SWaP Design
- OTM(On-the-move) Terminal
  - Optimum Dimension and Weight  
for Aircraft, Maritime, Vehicle, Fly-  
away, Portable, BGAN style  
and Manpack  
Customized Design Available

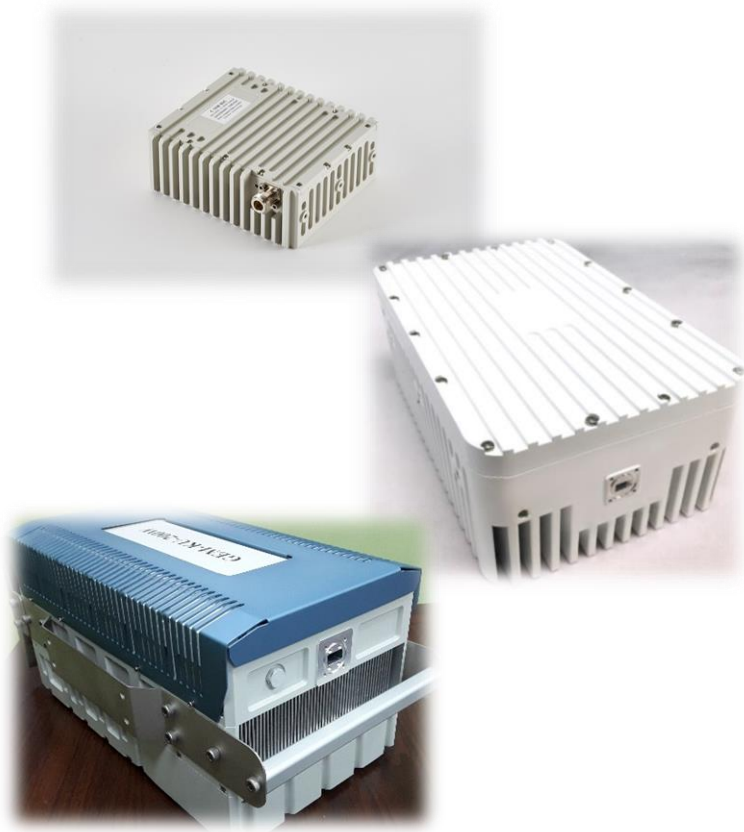


# Satellite Communications

- Replacing TWTA
  - Solid State Power Amplifier and BUC : Ku/Ka/C/Ka-band upto 400W
- Driving TWTA
  - Block Up Converters for driving TWTA, excellent gain flatness, 9bit gain control
- Customized Products
  - SSPAs, LNAs, PLOs with customer specified outline and requirements



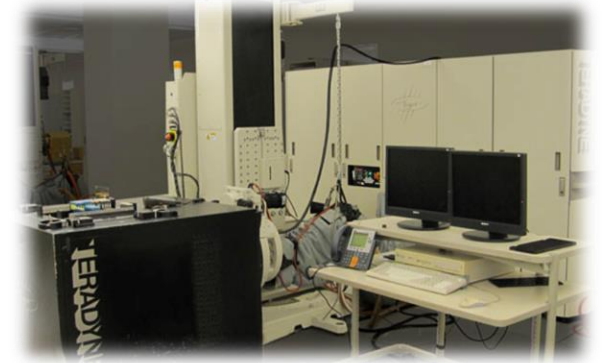
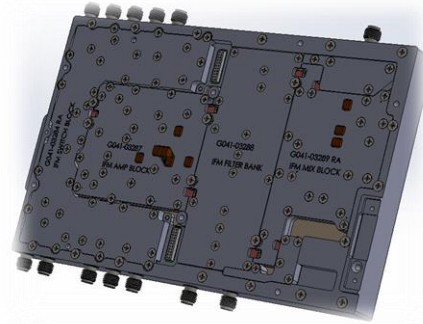
# Satellite Communications - Product List and Roadmap



600W+	▷ 700W				
400W			▷ 350W		
200W	▷ 200W	▷ 200W	▷ 200W	▷ 200W	
100W	▷ 100W	▷ 100W	▷ 100W	▷ 100W	
80W					
60W				⊗ 60W	
50W	▷ 50W	⊗ 50W	⊗ 50W		
40W				⊗ ▷ 40W	
25W		⊗ 25W		⊗ 25W	
20W		⊗ 20W			⊗ ▷ 20W
Mini 16W				⊗ 16W	
16W				⊗ ▷ 16W	
10W		⊗ 10W			⊗ ▷ 10W
Mini 8W				⊗ 8W	
8W				⊗ 8W	
6W				⊗ 6W	
5W		⊗ 5W			⊗ ▷ 5W
4W				⊗ 4W	⊗ ▷ 4W
Mini 3W				⊗ 3W	
Mini 2W				⊗ 2W	
2W					
Power	S Band	C Band	X Band	Ku Band	Ka Band
	Frequency Band				
⊗ BUC	▷ SSPA	Existing Product	2nd Half, 2018	1st Half, 2019	

# Test and Measurement

- Core chip test equipment
  - Broadband 6 to 43GHz to cover 5G frequency bands

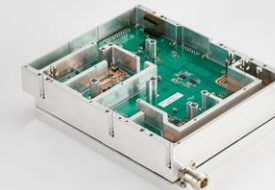
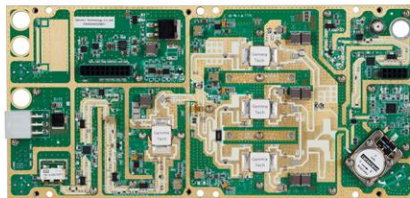
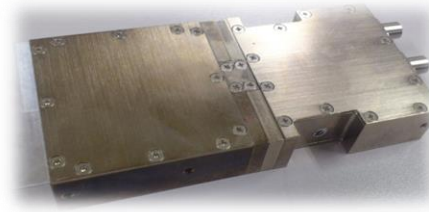


- Broadband RF modules
  - 2 to 18GHz, 18 to 40GHz
  - Synthesizers, Wideband LNA and MPAs



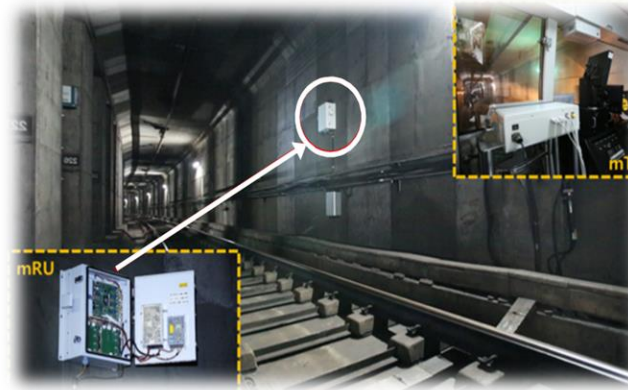
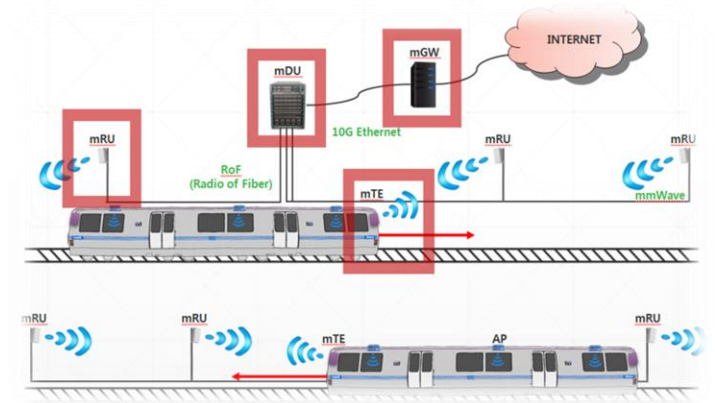
# Mobile Networks

- 5G Networks
  - Ka-band 28GHz and 39GHz, Phased array antenna, Beam control, MIMO, T/R modules with same technology as Military active array radar for surveillance and tracking



# Mobile Networks

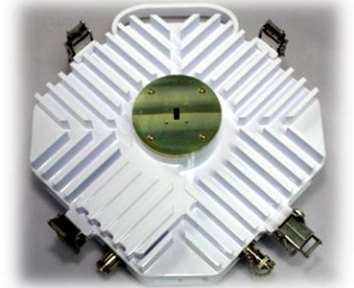
- High Data Rate Mobile Hot Spot Network
  - Ka-band, Gbps rate at 80Km/hr + speed, Video Surveillance for Security and Safety
  - Available at 26GHz, 28GHz, 32GHz



# Mobile Networks

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- PDH/SDH Digital Microwave Radio
  - Licensed band
  - 7/8/11/13/15/18/23/26/38GHz
- IP based Radio
- Transceivers, Up/Down converters, Diplexers



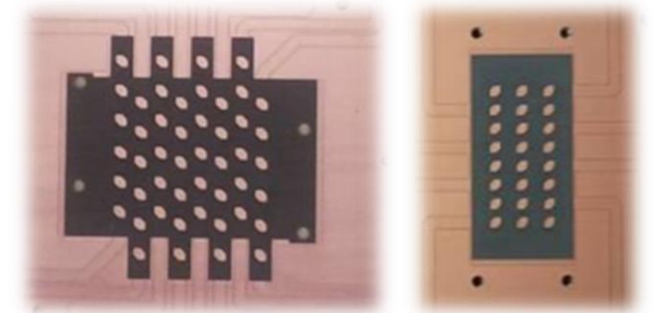
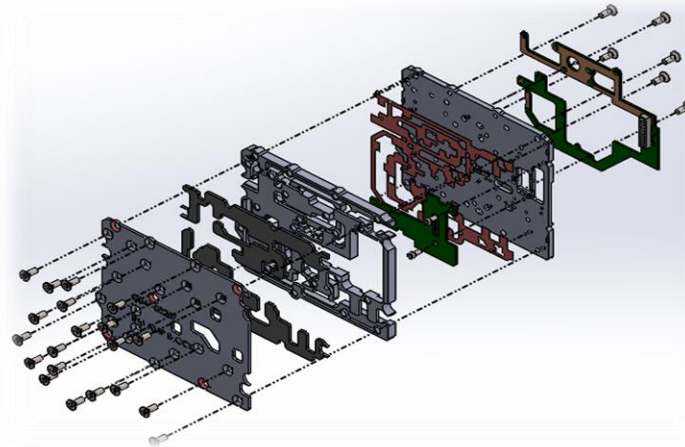
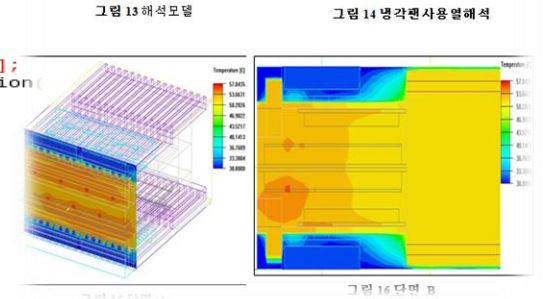
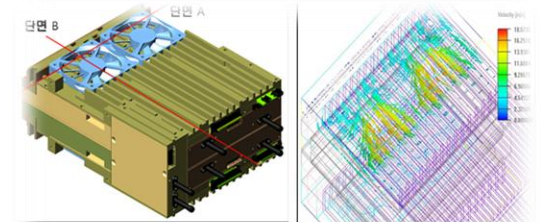
# Core Technologies

- System Design
- Antenna Technology
- 3D Analysis and Mechanical Design
- Thermal Analysis
- MTBF Analysis : Telcordia SR-332

## Beam calibration and array factor plot

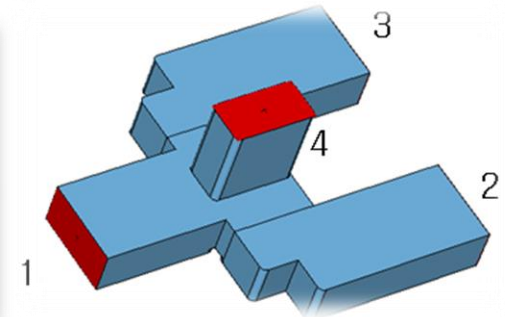
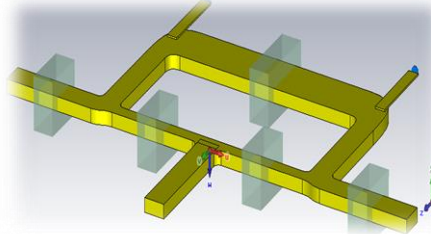
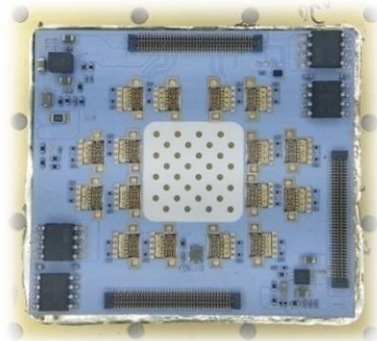
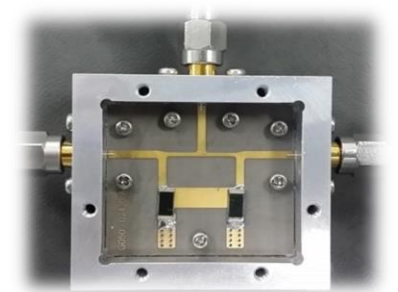
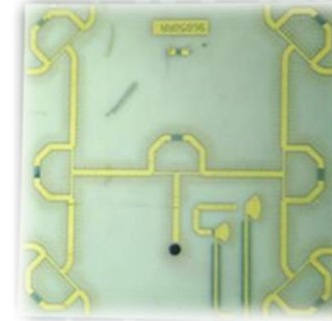
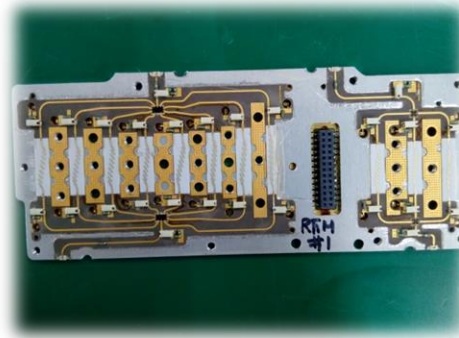
```

13 function [Array]=A_array16(Ref, BeamId, Elevation)
14
15 Ref0=mod(Ref(2:34,2:17),360);
16 Azimuth=[-85:2:85];
17 Elevation=ones(1,length(Azimuth))*Elevation;
18 [theta phi]=cortrans(Azimuth,Elevation);
19
20 for i=1:length(BeamId)
21     beta=betagen(Ref0,BeamId(i))*pi/180;
22     Array(i,:)=20*log10(arraygen(theta,phi,beta));
23 end
24
25 plot(Azimuth,Array);
26 txt_title=['Array Factor for Beam id of ' num2str(BeamId)'];
27 txt_xlabel=['Azimuth(deg) at the Elevation of ' num2str(Elevation)];
28 title(txt_title);
29 xlabel(txt_xlabel);
30 ylabel('Array Factor (dB)');
31 axis([-60,60,-35,5]);
32 set(gca,'xtick',[-60:10:60]);
33 grid on;
34 end
    
```



# Core Technologies

- Switched Filter Banks
- Power Combining Technologies
- 60GHz + Handling Capability
- Highly educated engineers : > 50% Ph.D and Master degree



# Core Technologies

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- Well trained technicians and operators : IPC-A-610, Mil-std-883/810
- Experienced persons for Space Applications
- ISO9001 certified. AS9100 will be certified in 2018.
- ERP / PLM (Product Lifecycle Management) tools



# Genmix as your partner

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