

Tomorrow's wireless, today

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YTTEK

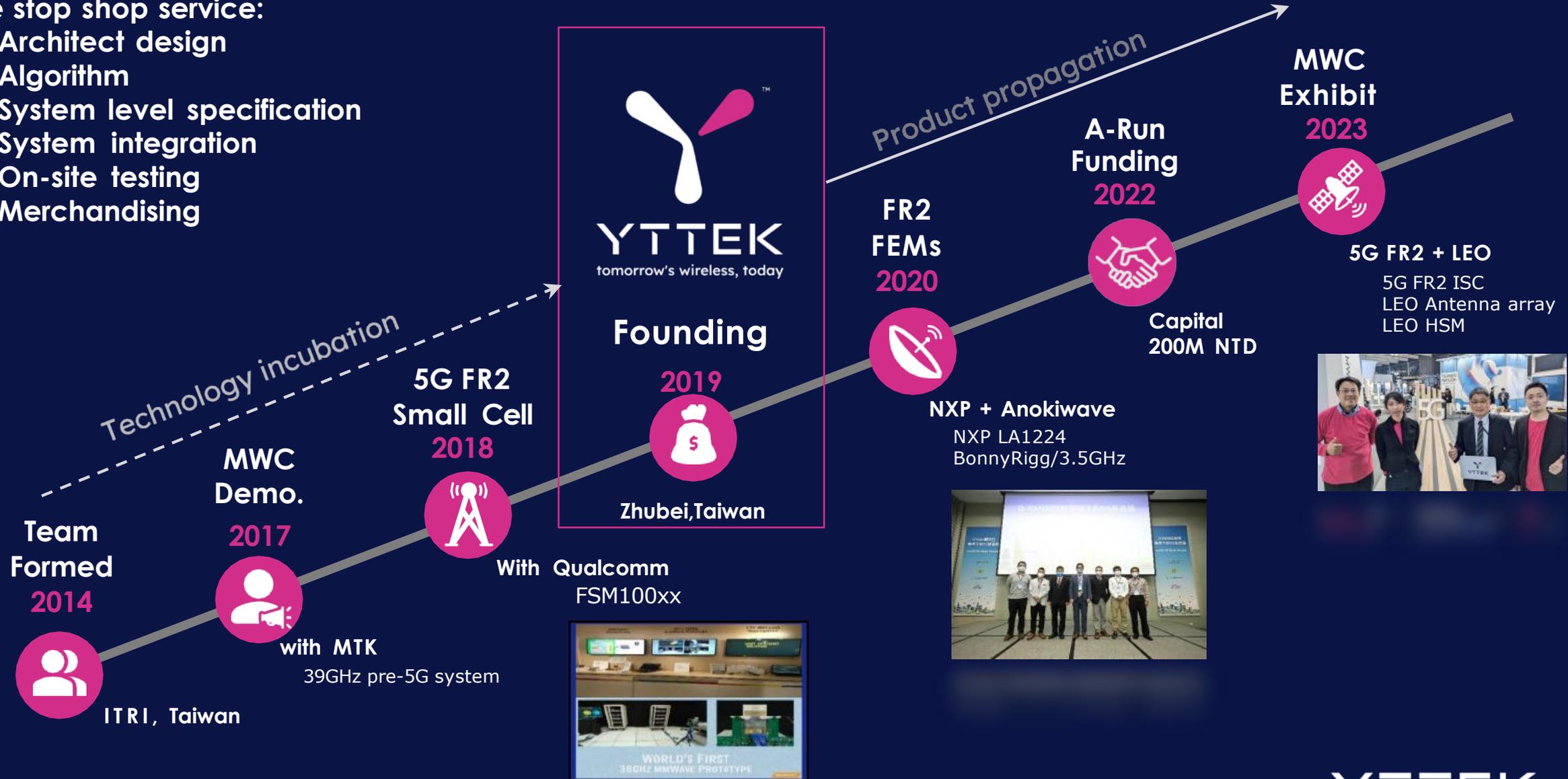
Introduction

CEO
Jiangson Chen

Milestone of YTTEK – 10 Years mmWave Experience since 2014

One stop shop service:

- Architect design
- Algorithm
- System level specification
- System integration
- On-site testing
- Merchandising



5G FR2



From FEM, ISC to Test instrument

 **.BEAM S**

A white icon of a lattice tower antenna with a central antenna element and signal waves, set against a circular gradient background.A white icon of a lattice tower antenna with a central antenna element and signal waves, centered on a dark blue background.

 **.spdr**

A white icon of a lattice tower antenna with a central antenna element and signal waves, set against a circular gradient background.

LEO Communication



From antenna array, Payload to Satellite MODEM

 **.BEAM**



 **.FORCE S**



 **.LOAD**



Software-Defined Payload for CubeSat

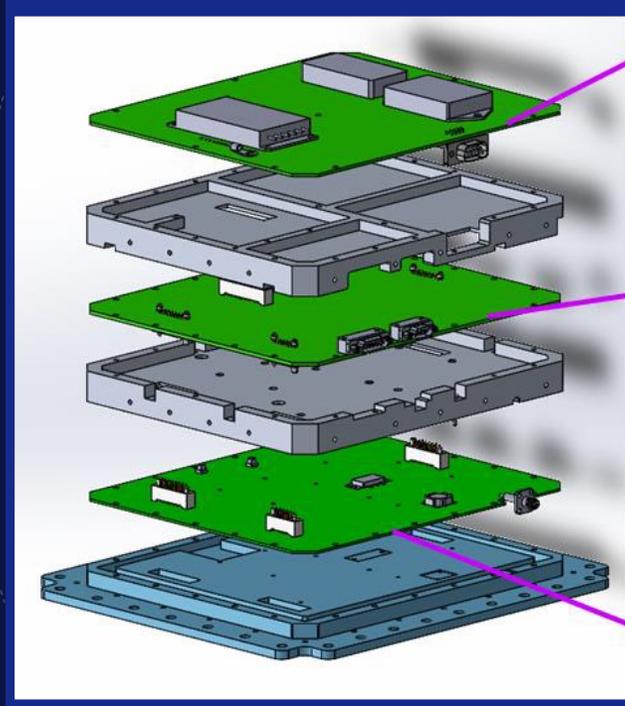
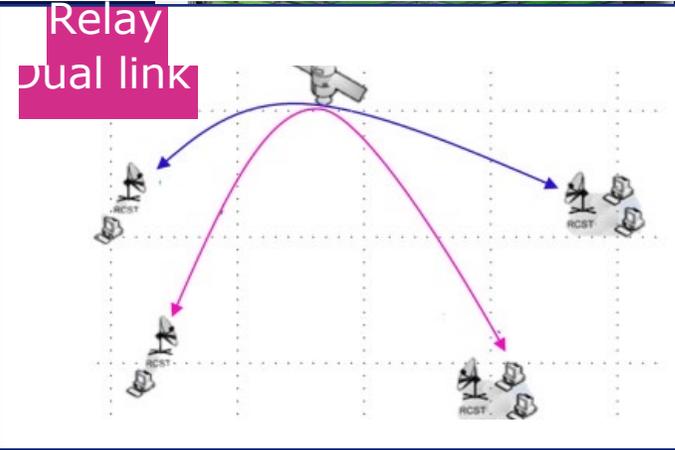
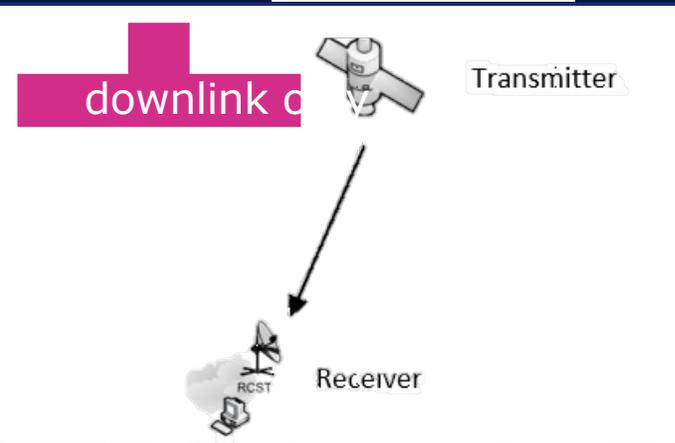


| Item | Spec. | Remark |
|-------------------------|---|---|
| Frequency | 8.5GHz | X band |
| FPGA | Xilinx XCZU9EG Cortex-A53 ARM Quad Core Cortex-R53 Dual core | Zynq UltraScale+ XCZU9EG- 2FFVB1156I |
| Component qualification | Space-qualified | |
| Test condition | Environmental Conditions for Space Flight Hardware | |
| Peripheral | Gbit Ethernet I2C USB-UART | |
| Connector | FMC SMH 150 | For connecting TRX For control and configuration |

Feature:

- Meet 10 x 10 cm² CubeSat requirement (0.3 U)
- Designed with Space qualified components
- Designed with Xilinx Zynq UltraScale+ XCZU9EG reprogrammable FPGA
 - Includes ARM CPU core: Cortex A53, Cortex R5, and Mali-400 MP2
- Pass strict Environmental Conditions for Space Flight Hardware

X Band Payload for LEO



Power Board
Input: 28V
Provide all voltage



FPGA Board

| | |
|---------------|---------------|
| FPGA MPSoC | IF ADI TRX |
|---------------|---------------|

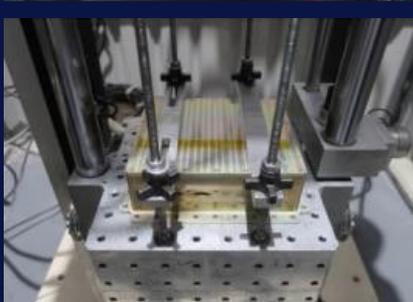
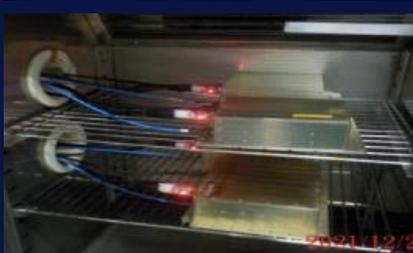
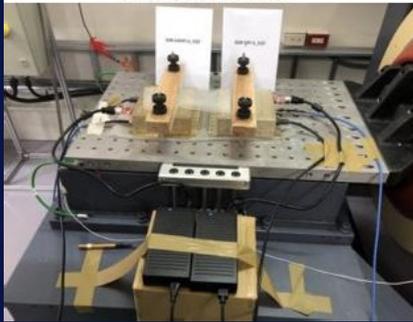


RF Board

| | | |
|-----|-------|-----|
| PLL | Mixer | PA |
| | | LNA |



Environmental Conditions for Space Flight Hardware



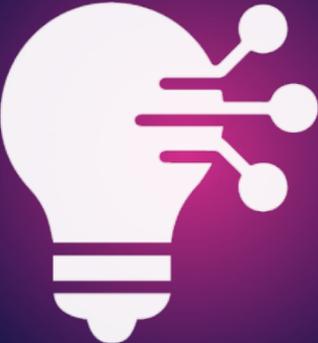
1. Vibration
2. Shock and Acoustics
3. Particle Impact
4. Temperature: Extremes and Cycling
5. Atmospheric Change and Vacuum
6. Humidity
7. Ultra-Violet Radiation
8. Ionizing Particle Radiation
9. Atomic Oxygen
10. Gravity
11. Charged Plasma (Or Space Charging)
12. Combined Environment Tests

6G RIS

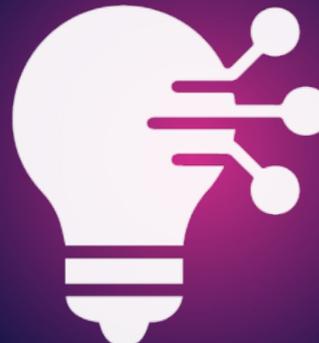


From Reflector, SW package to Test instrument

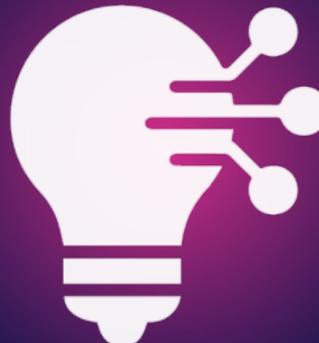
 .RIS



 .spdr

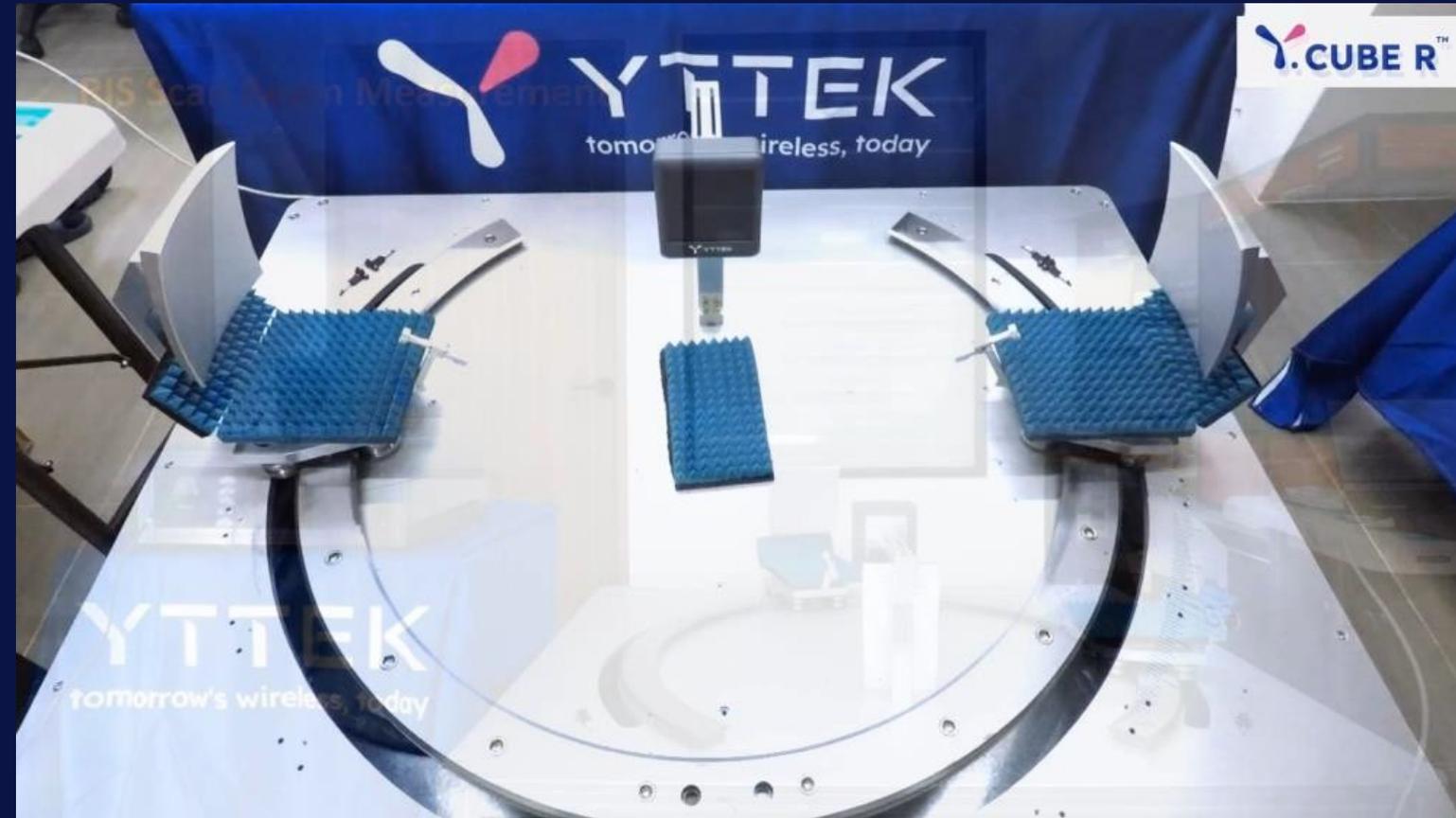


 .CUBE R



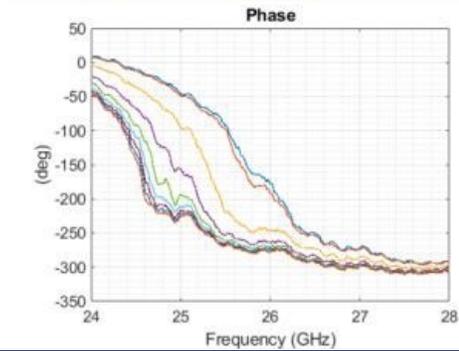
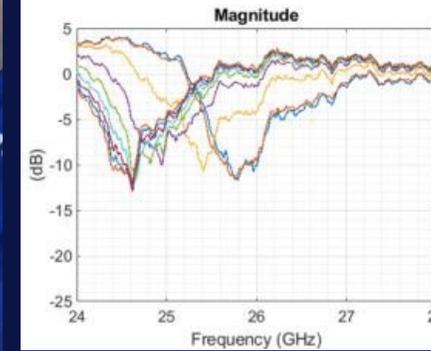
6G RIS

Characterization Instrument



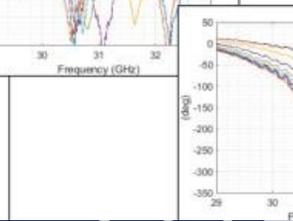
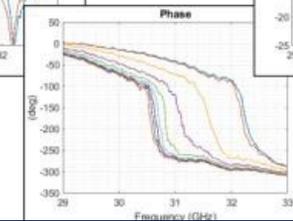
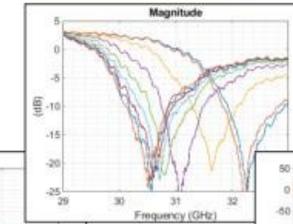
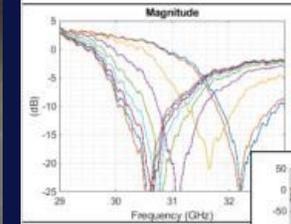
- Center Frequency: 25.03 (GHz)
- Frequency Range: 1.18 (GHz)
- Maximum Phase Range: 200 (deg)
- Nulls of Reflection Coefficient: -10--13 (dB)

| Phase Range (deg) | 160 | 180 | 190 |
|-------------------|-----|-----|-----|
| Bandwidth (GHz) | 1 | 0.9 | 0.3 |



- Center Frequency: 31.38, 31.40 (GHz)
- Frequency Range: 1.66, 1.75 (GHz)
- Maximum Phase Range: 232, 238 (deg)
- Nulls of Reflection Coefficient: -25--30, -22--29 (dB)

| Phase Range (deg) | 160 | 180 | 200 | 220 |
|-------------------|-----|------|-----|------|
| Bandwidth (GHz) | 1.6 | 1.55 | 1.4 | 0.6 |
| | 1.7 | 1.6 | 1.5 | 1.24 |



YTTEK is capable to **define** the wireless communication
&
Provide with a complete **total** solution



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