GET Initiative for Space Collaboration

Startups, School and Enterprise

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Qisda

3 aspects for space collaboration

Trend and Challenge

Qisda Space Partnership

GET Initiative

Industry

Top Trends:

- New satellite uses driven by LEO (and mix)
- Research–focused to commercial use (and faster)
- User terminal expects volume (value–added await)
- Constellations (end to end services)
- Defense and security (gov led initiatives)

Top Challenges:

- Killer applications
- Integration
- Validation
- Regulation
- Policy
- Capital (funding)

The problem:

1. Too many opportunities, but small
2. Narrow view causes risky decision
3. Integration wanted, but who?

The solution:

1. University is still the platform for all
2. Industry injects the strategy and capital
3. Align the school, startups, and enterprise

Qisda

Company

Qisda Overview

Top 10 in TW Tech Industry (fueled w/ strategic portfolios)

ESTABLISHED YEAR

1984

NO. OF EMPLOYEES

27,000

GLOBAL LOCATIONS

- Taiwan
- China
- Vietnam
- Singapore
- Japan
- USA

- R&D Center — Taiwan/China
- Manufacturing Site — Taiwan/China/ Vietnam
- Service Center — Singapore/Japan/USA

REVENUE 2022

USD$8.2B

2018 THOMSON REUTERS
TOP100
GLOBAL TECH LEADER

Qisda

Company

Qisda: One Platform

Brand, R&D, Solution, Manufacturing, Synergy, Investment (M&A)

- System Integration & IoT
- Display & Solar
- 3C & Medical Service
- Chemicals & Materials
- IC Design
- Precision Component
- Lighting
- Networking & Communication

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Qisda for Space Business

Qisda Space Fleet

- Alliance
- Investment
- Leadership support
- Executives placement
- Synergy w/ subsidiaries

Innovation Arm

RAPIDTEK

- RF design, test & calibration
- Phase Array: mixer (Ka, Ku, L band)
- Comm. Payload
- Office: TW, US

Manufacturing Arm

ALPHA Networks

- Networking OEM/ODM/JDM
- Factory: Vietnam, Taiwan, China

hitron

- Cable operator manufacturing
- Office: TW, US; factory: Vietnam

Integration Arm

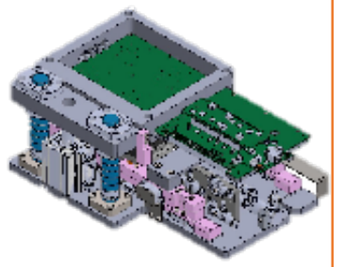
idt Interactive Digital Technologies

- Cable operator OEM/ODM/JDM
- Hybrid operator application
- Office: TW, US; factory: Vietnam

BU1 - RF Testing Solution

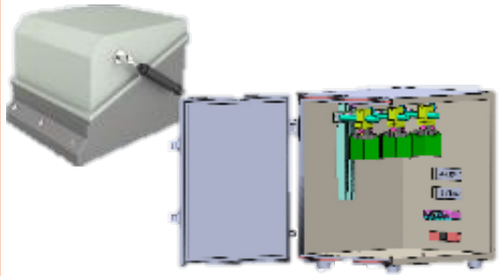
67GHz Capable for Wifi 6E/7, Radar, AESA

Fixture



Full customize

Shielding Box



RF Accessories

Switch Box

Mechanical
Solid State

UDC(Mixer)

20GHz
50GHz
90GHz

Automation

Automatic Array Antenna Calibration Algorithm

Tester

Successfully Scenario

ROHDE&SCHWARZ

KEYSIGHT TECHNOLOGIES

amarisoft

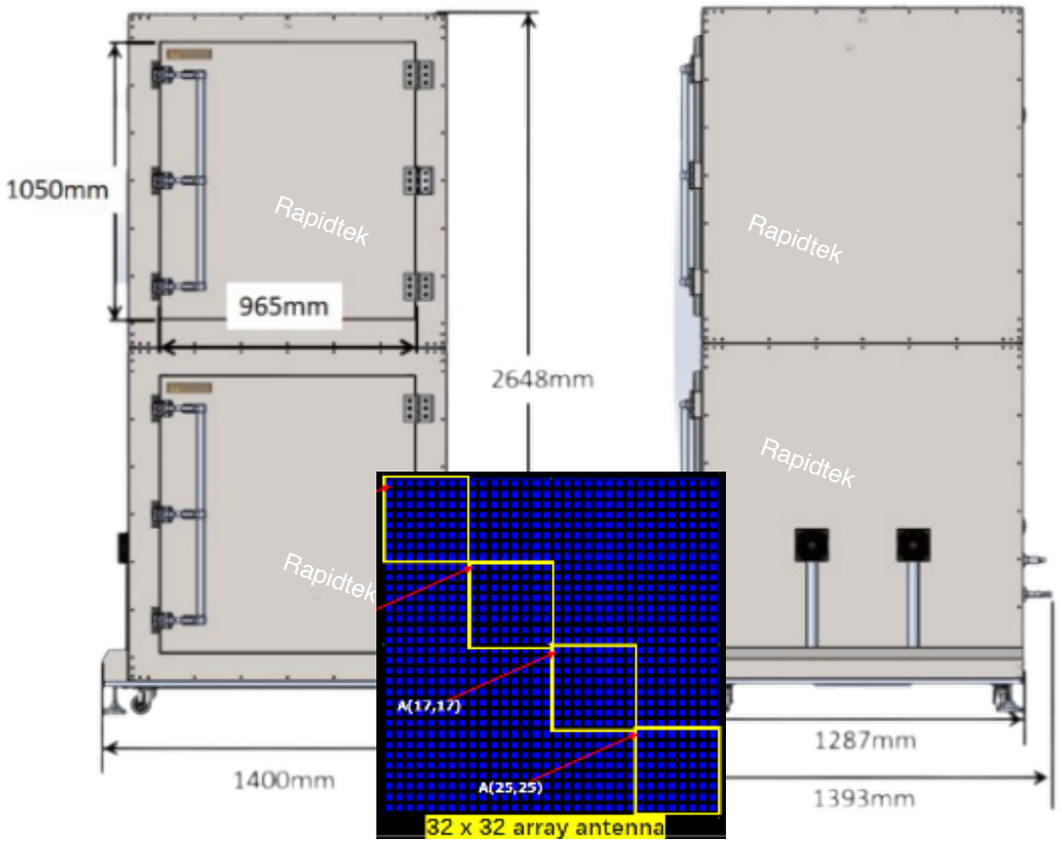
National Instruments is now NI.

RF Testing Total Solution = Calibration + Measurement + MP Testing

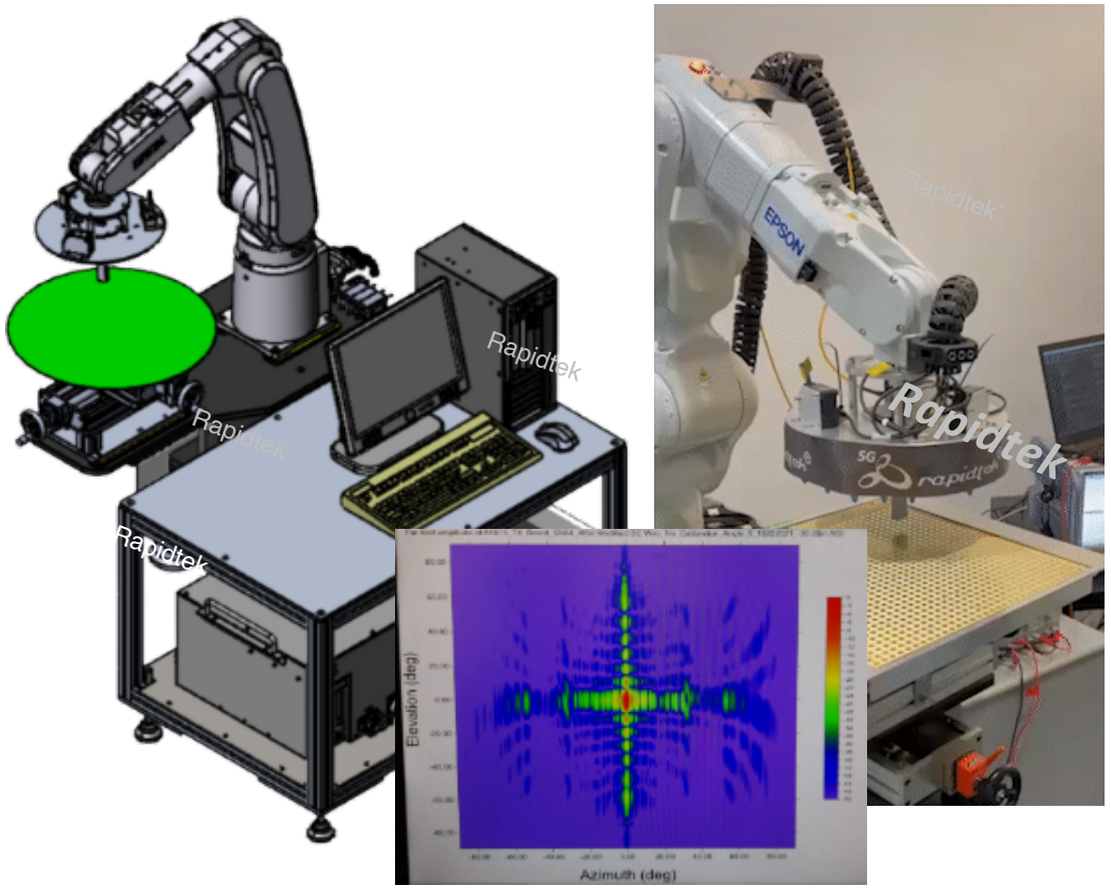
RAPIDTEK

AESA Calibration Solution

Area element calibration procedure for MP side application



Single element calibration procedure for R&D side and offline application



RAPIDTEK

Mixer Product for Satcom

Key Features

- Individual channels for Up/down conversion
- Gain adjustable for both Tx and Rx chain
- Embedded temperature sensor and power detector

Description

- RPC-R14I4V2 is a RF frequency Conversion module designed for satellite communications. The proposed UDC module consists of two individual up- and down- conversion channels, input reference clock circuitry for full-duplex application. The Microcontroller provides the ability to individual adjust the LO frequency of both Up/Down converter. The power detector and temperature sensors are also embedded in proposed module.

UP-Conversion Spec

- RF frequency: 14 ~ 14.5 GHz
- IF frequency: 4 – 4.2 GHz (could be customized for L-band)
- Conversion gain :13 – 17 dB
- Gain flatness: +- 0.25 dB (for any 20 MHz operation BW)
- OP1dB : > +10 dBm
- ACLR > 34 dBc
- Group delay < 2 nsec p-p

Down-Conversion Spec

- RF frequency: 10.7 – 12.7 GHz
- IF frequency: 1.8 – 2.2 GHz
- Conversion gain :21 – 27 dB
- Gain flatness: +- 0.5 dB (for any 200 MHz operation BW)
- IP1dB : > -7 dBm
- Noise figure: < 7 dB
- Group delay < 2 nsec p-p

Ka Band

Ku Band

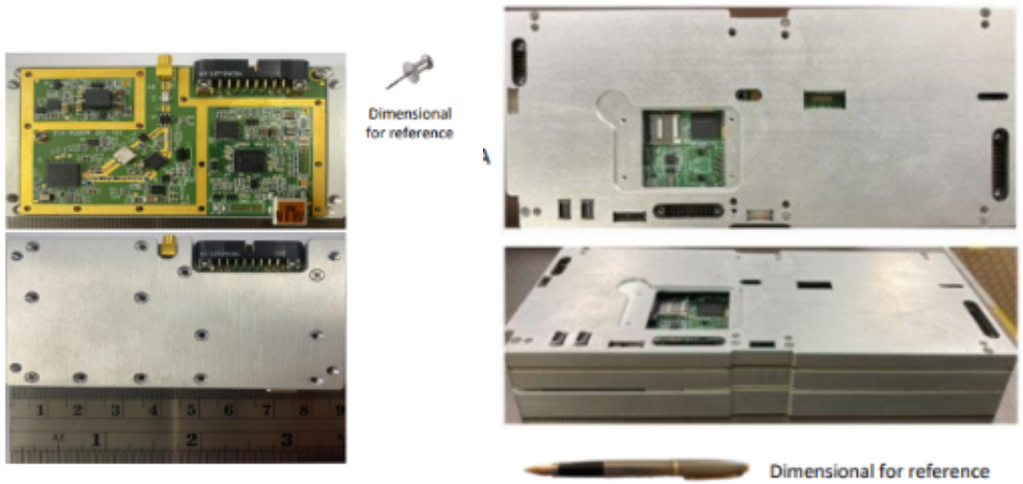
L Band

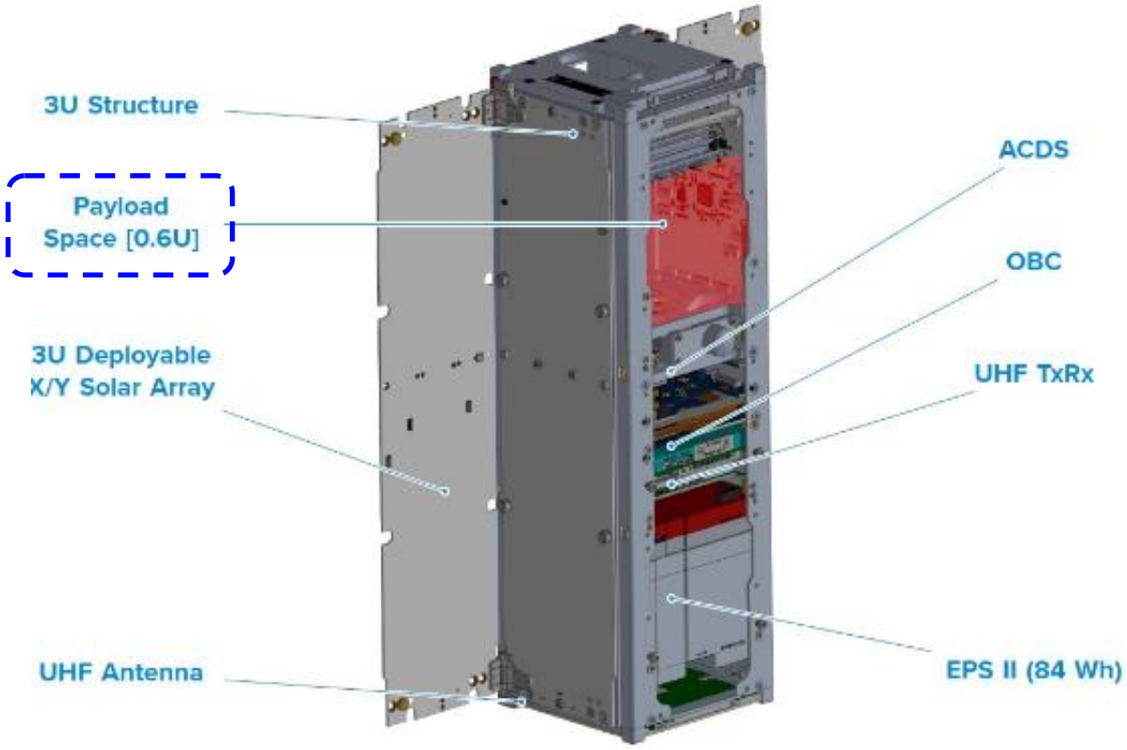
RAPIDTEK

CubeSat Solution

Rapidtek Communication Payload for CubeSat :

- UHF
- L/S/X Band
- Ku/Ka Band





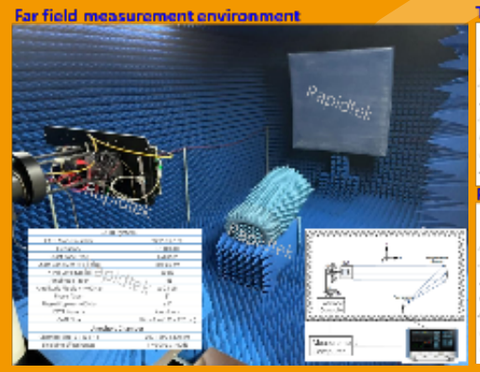
Rapidtek Business Category

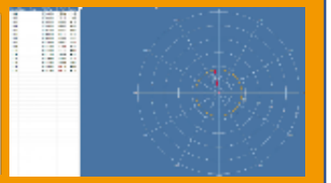
BU1 - RF Testing Solution

DC to 67GHz Capable WiFi6E, Ka, Ku AESA Test Solution

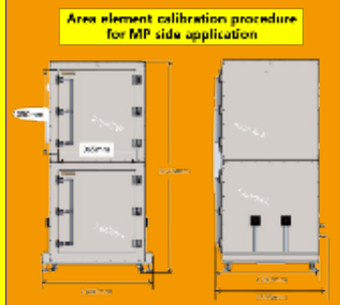
Calibration + Measurement + MP Testing

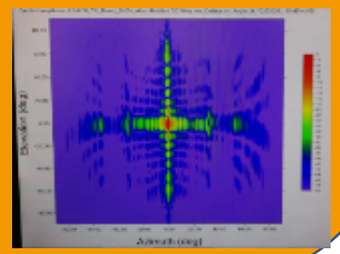
RF measurement





ANT Calibration



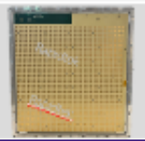
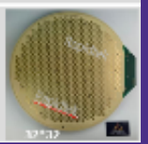


BU2 - Advanced RF Product Design

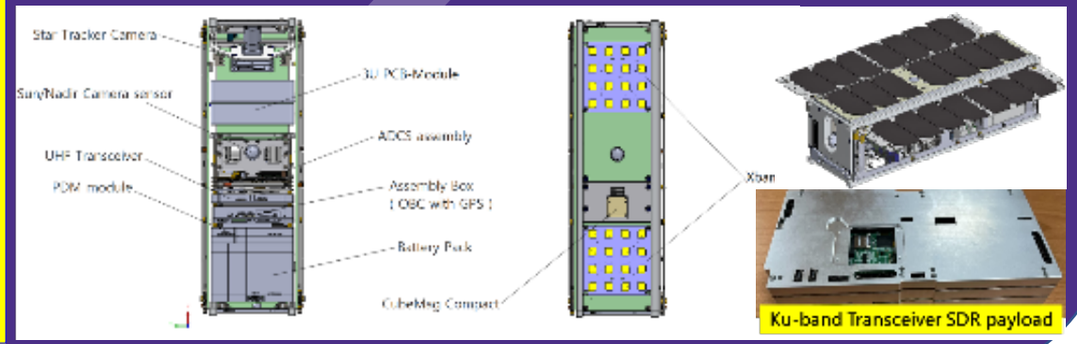
RF Module and System Product Design

For 5G-NR FR1&**FR2** / **LEO** Satellite

Antenna Array

Application	RX AESA	TX AESA	Rx/Tx Hybrid AESA
Space			N/A
Ground			 

CUBESAT



RAPIDTEK

Partnership

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Space Partnership Framework (developing)

Industry Partnership

- Space Technology Partner (STP)
- Space Solution Partner (SSP)
- Space Integration Partner (SIP)
- Space Operator Partner (SOP)

Academia Partnership

- Space Research Partner (SRP)
- Space Education Partner (SEP)

Business Development	Partnership Engagement	Platform Collaboration	Investment Acceleration
People	Perspective	Project	Profit

Collaboration

GET Initiative for Space Collaboration

Generation

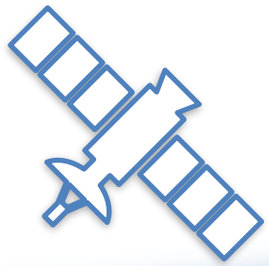
- Young gen.: envision for new career
- Senior gen.: refreshed to outreach

Entrepreneurship

- Small startups: connect for growth
- New startups: Turn RD to BD led

Transformation

- Go global: tech dev, architect, connection
- Partnership for solution: say no to fight alone



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- Qisda Space Partnership
- GET Initiative

Join US?

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