Power your Signal

with MOBI Antenna Product & Solutions

Apr 2017

MOBI 摩比

Contents

Company Overview

MOBI 摩比

Since 1999

Shenzhen, China

4000+ Employees

270+ Million Revenue in 2016

HK Exchange Code:0947

Your global antenna partner

Global Locations

Main Business

•Antenna:

Base station antenna
Microwave antenna
GPS antenna
Indoor antenna

•RF devices

Filter
Diplexer
TMA
RRU
RET devices

•Coverage Solution

Camouflage Antenna
Cloud WiFi

Product Philosophy

U.C.D (User Centered Design)

User Experience

Total Cost of Ownership

Potential of evolution

Customizable product and solution

R&D Team

-2 R&D Centers （ Shenzhen, Xi’an)

-Professional & Experienced Team

-400+ R&D Engineers

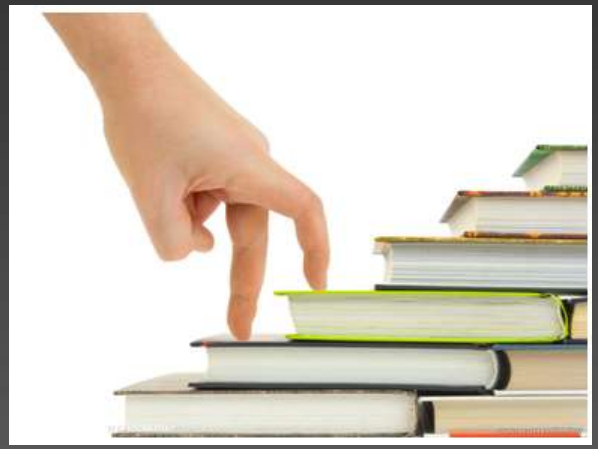
R&D Investment

-5,200,000+ USD in 2013

-5,600,000+ USD in 2014

-6,300,000+ USD in 2015

R&D Investment



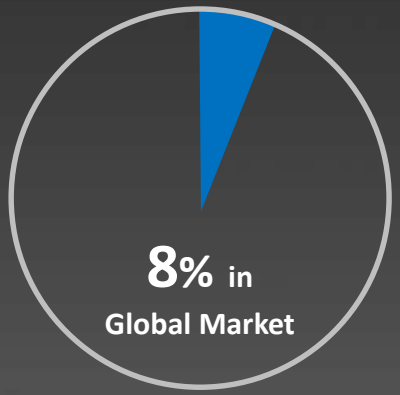
400+ patents applied,

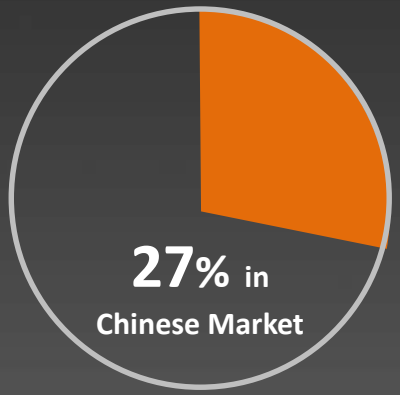
300+ pcs have been granted.

Customers


中国移动
China Mobile
China unicom中国联通
CHINA TOWER
中国铁塔
NOKIA
ZTE
ERICSSON
Alcatel-Lucent
SoftBank
Airtel
MTN
MTS
telcel
elisa
Telefónica
AIS
P1
digi
viettel
true move
telenor
TATA
Globe
Beeline
VimpelCom
etisalat
BSNL
Connecting India
NEC
.TELE2.
smart.
Reliance Mobile
CELLC
Reliance
Industries Limited
Growth is Life
VNPT
SMART
AIRCEL
!dea
TELKOMSEL
Loading.

Market Share (2015)





MOBI ranks 4th among global antenna vendors in 2015. (by Shipment Qty)

Sales References

中国移动
China Mobile

1,000,000+ TD-LTE Smart Antenna

1885-2025/2500-2690MHz
8T8R MIMO/Beam-forming

Sales References

China unicom中国联通

600,000+ FDD-LTE Antenna

1710-2170MHz
2/4/6 ports RET antenna

Sales References

SoftBank

Pre-5G Massive MIMO Antenna

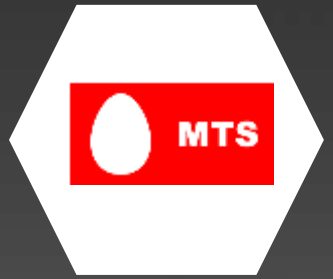
2490-2690MHz 64x64 MIMO Active Antenna
3D Beam-forming + Massive MIMO

Sales References

4,000+ Quad-band RET Antenna

698-960MHz 4T4R/1710-2690MHz 4T4R
Internal RET 4.3-10 Connector

Sales References



10,000+ Multi-band antenna

790-960/1710-2690MHz

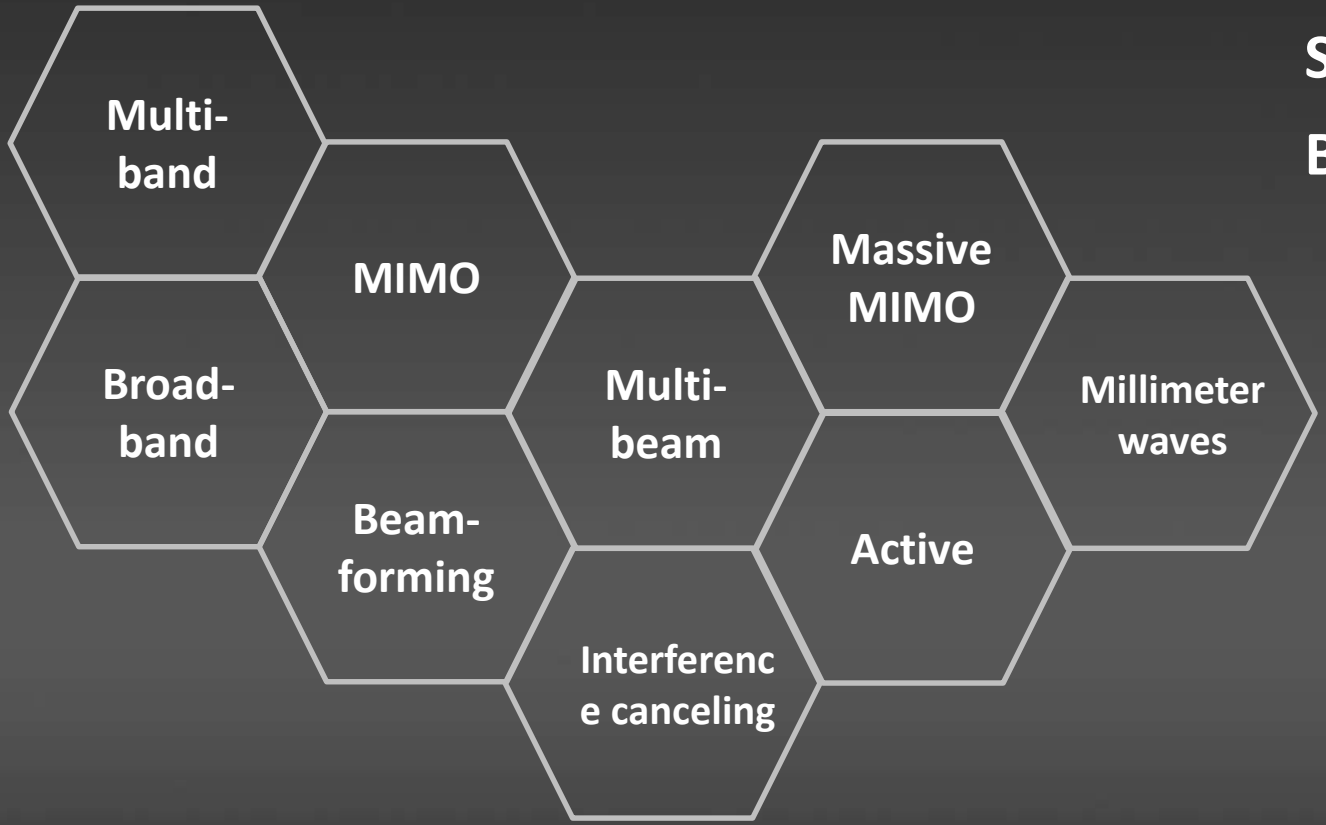
Dual-band/Triple-band/Quad-band/Penta-band

Challenge to Operators

Speed	-high speed network access
Coverage	-network in every where
Capacity	>Gbps throughput

TCO	-Capex & Opex ARPU
On site work	-Less site access & Easy installation
Mast resources	-increasing no. of networks and antennas

Antenna: the Gateway of Signal



Small invest

Big **benefit**

MOBI Antenna Family

MBA

-Multi-band Antenna for Mobile Broadband :
- All in One Solution
- Easy Installation & Configuration

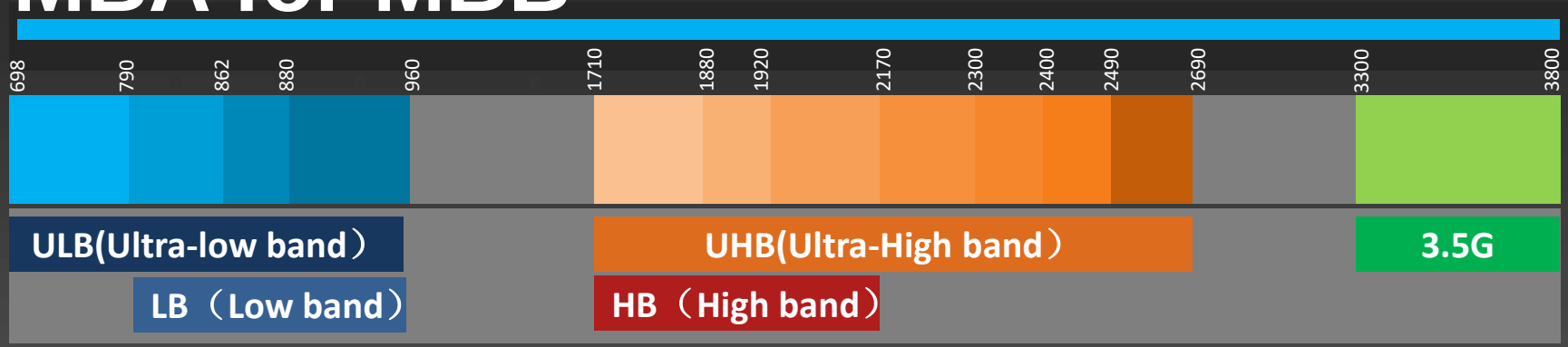
UFA

-Unique Function Antenna for Network Optimization:
- Multi-beam
- Low side-lobe
- High F/B Ratio
- Interference Cancelling
- Big down tilt
- Small cell

AAU

-Active Antenna Unit for Network Evolution:
- Semi-active / DBF
- Massive MIMO
- 3D beam-forming

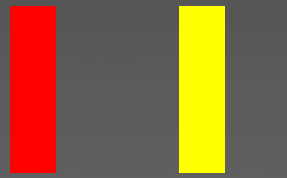
MBA for MBB



Single-band	Dual-band	Triple-band	Quad-band	Penta-band	Hexa-band
•ULB •LB •HB •UHB •3.5G	•ULB*2 •ULB+LB •HB*2 •UHB*2 •ULB+UHB	•ULB+UHB*2 •LB+UHB*2 •UHB*3 •HB*3	•ULB*2+UHB*2 •LB*2+UHB*2 •UHB*4 •ULB+UHB*3 •LB+UHB*3	•ULB*2+UHB*3 •LB*2+UHB*3 •ULB+UHB*4 •LB+UHB*4	•ULB*2+UHB*4 •LB*2+UHB*4

Technologies Platform

Basic Module



698-960 1710-2690

1440-1560 3300-3800

+

Array Technologies

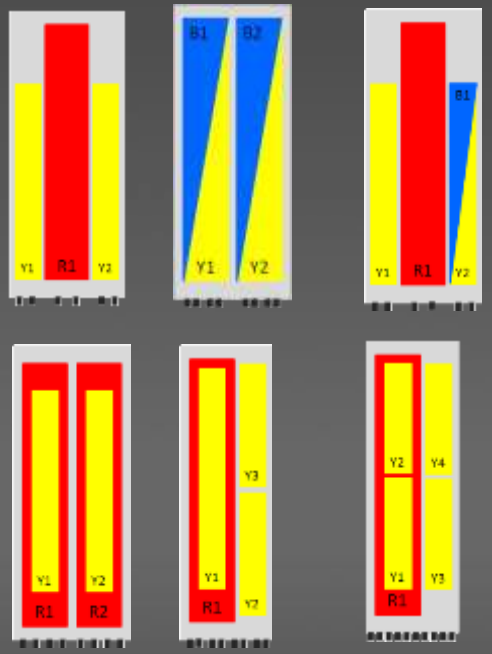
side by side

Stack

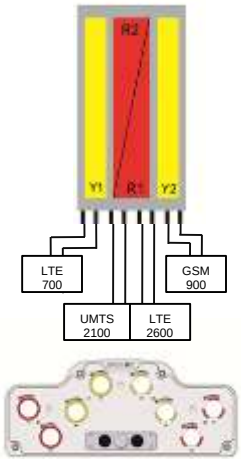
Co-axial

Dipole Multiplexing

=

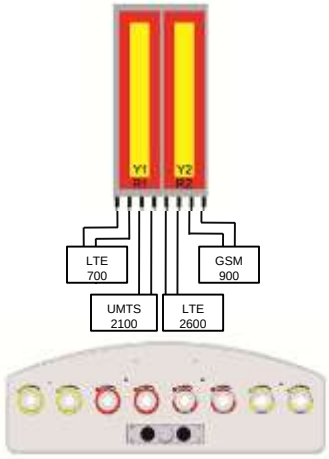


Multi-band Antenna



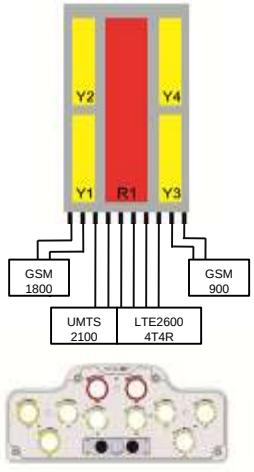
XXXX POL
698–862/880–960MHz 65°
2x1710–2690MHz 65°

- Quad-band Antenna
- Internal RET and Applying filter technology
- Optimized for MIMO



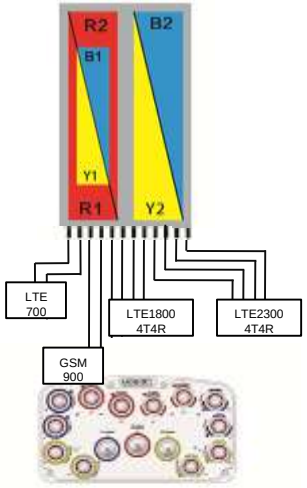
XXXX POL
2x698–960MHz 65°
2x1710–2690MHz 65°

- Quad-band Antenna
- Internal & replacable RET
- Optimized for multi-networks co-existing



XXXXX POL
698–960MHz 65°
4x1710–2690MHz 65°

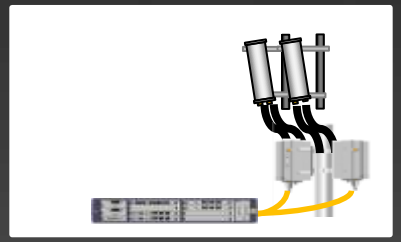
- Penta-band Antenna
- Internal & replacable RET
- Capable for multi-system sharing



XXXXXX POL
698–806/824–960MHz 65°
2x1710–1880/2300–2690MHz 65°

- Hexa-band antenna
- Flexible for multi-system deploymer
- Internal RET and Applying filter technology
- Optimized for MIMO

RET Antenna System



Complete RET Antenna Solution

Various Solution for different scenarios
All components & accessories

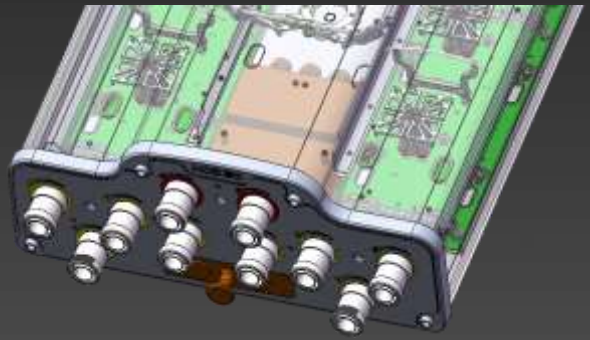
Protocol

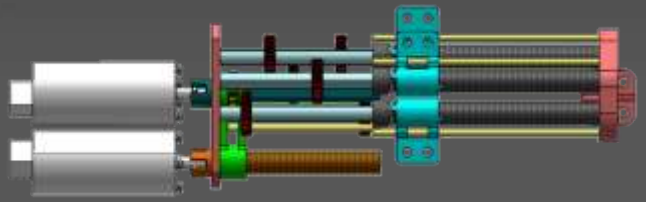
AISG/3GPP
AISG Member

Compatibility(IOT)

Nokia, Ericsson, Huawei, ZTE etc.

Mobi-RET





All new internal RET solutions:

-Less cable connection & easy installation

-Pre-config. in factory

-Replaceable on site without switching off

-Auto Config. download after replacing

-Up to 6 bands individual adjustment

Smart-beam antenna

Dual-beam

6 Sectors solution

- 698-969MHz
- 1710-2690MHz

Triple-beam

9 Sectors solution

- 698-969MHz
- 1710-2690MHz

Penta-beam

High capacity solution

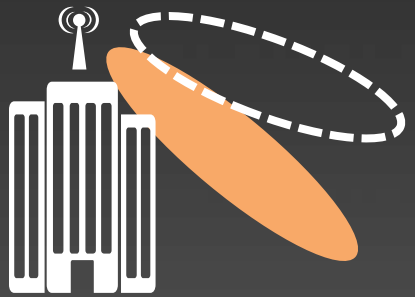
- 698-969MHz
- 1710-2690MHz

Hybrid-beam

65HBW +dual-beam

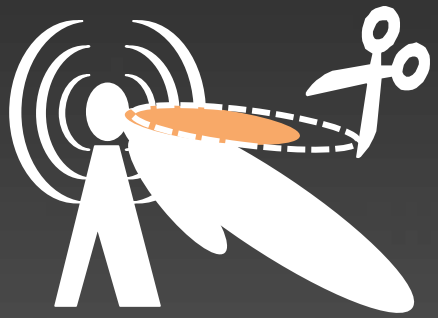
- 698-969MHz
- 1710-2690MHz

Unique Function Antennas



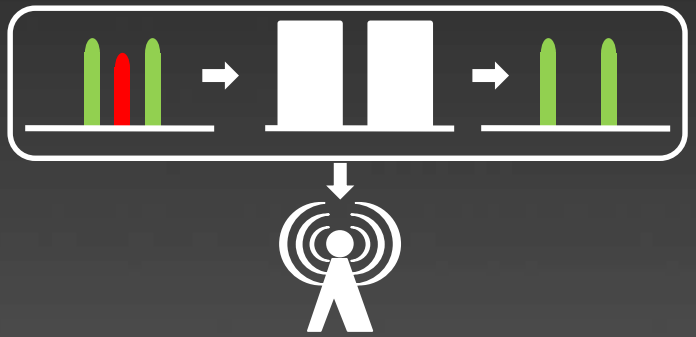
Big tilt
Antenna

Sector edge control
Up to 25° E-tilt



Low side-lobe
Antenna

Reduce interference
from/to adjacent site



Anti-Interference
Antenna

Embedded filter to
eliminate interference

Active Antenna

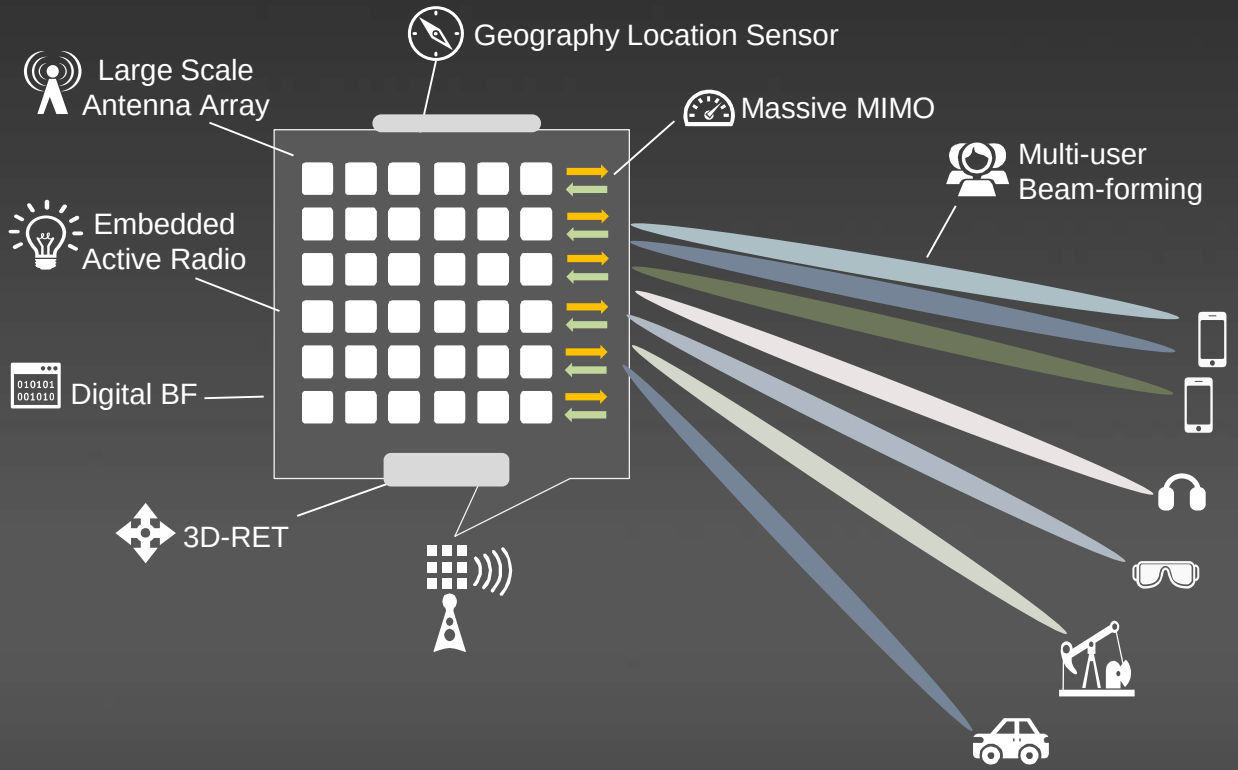
Active Antenna Unit

- Integrated RRU
- TDD/FDD
- Semi-active antenna
- Active antenna

Pre-5G Antenna

- 128 channels
- TDD/FDD
- Massive MIMO
- 3D beam-forming

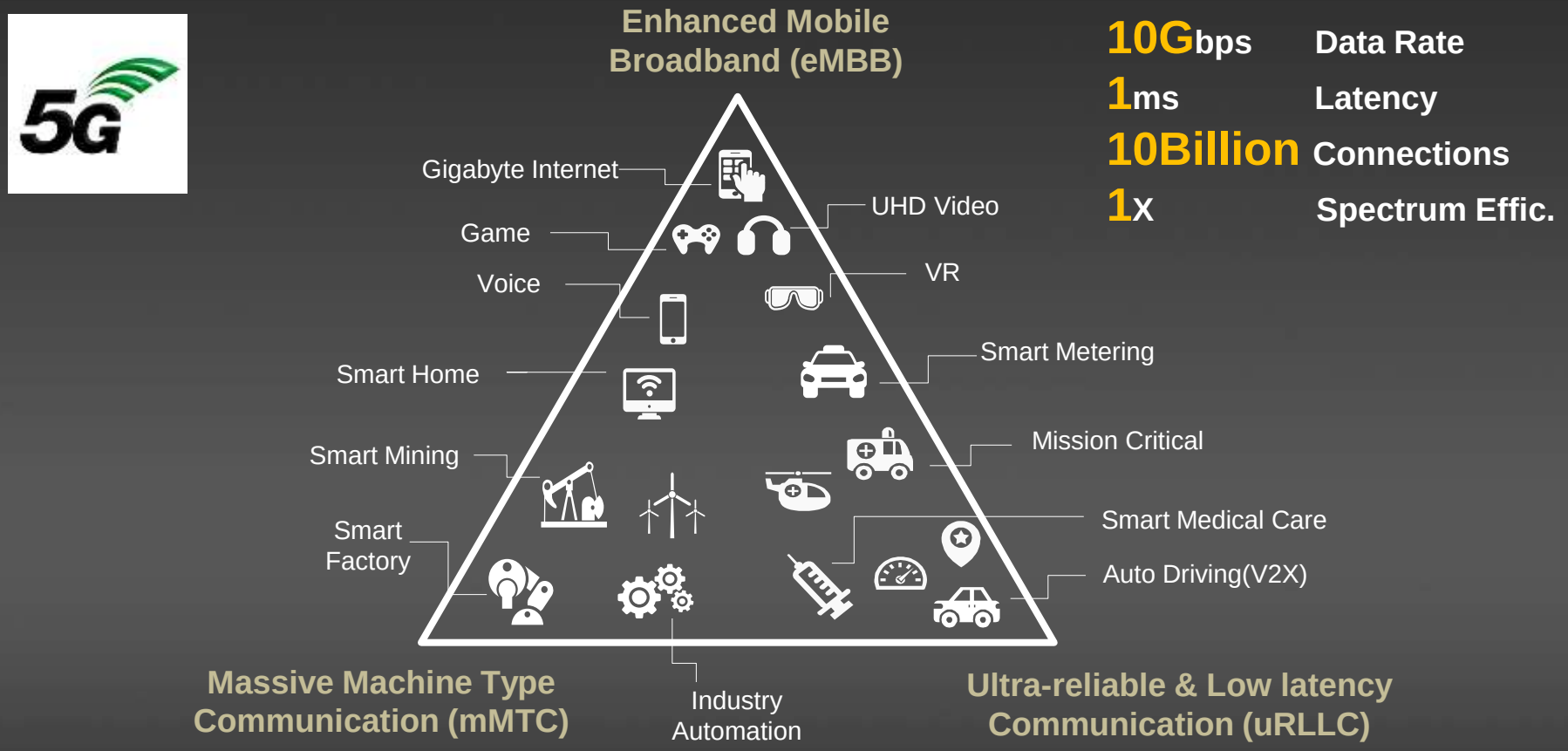
Antenna for 5G



Key Technologies

- Massive MIMO
- 3D Beam-forming
- Multi-user Beam-forming
- Active Antenna
- mm-Waves
- Self-aware antenna
- 3D-RET

5G Use Case

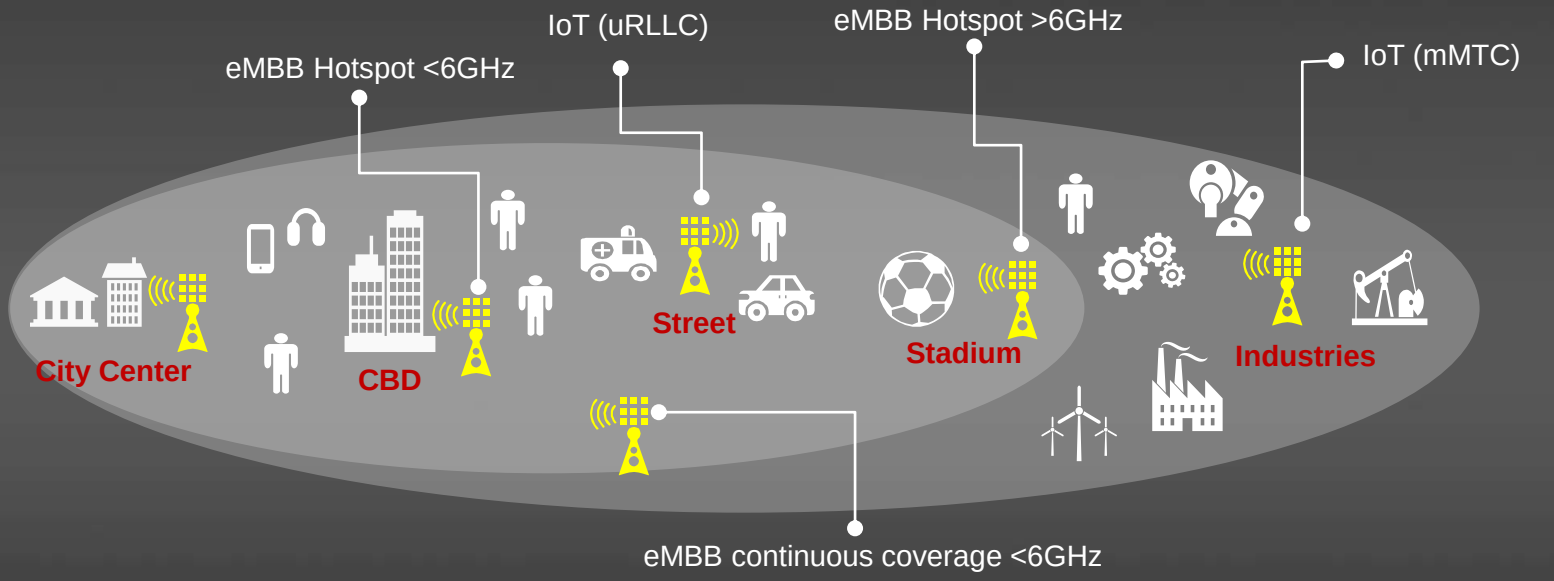

Enhanced Mobile Broadband (eMBB)
10Gbps Data Rate
1ms Latency
10Billion Connections
1x Spectrum Effic.
Gigabyte Internet
Game
Voice
Smart Home
Smart Mining
Smart Factory
UHD Video
VR
Smart Metering
Mission Critical
Smart Medical Care
Auto Driving(V2X)
Massive Machine Type Communication (mMTC)
Industry Automation
Ultra-reliable & Low latency Communication (uRLLC)

5G Antenna Solution

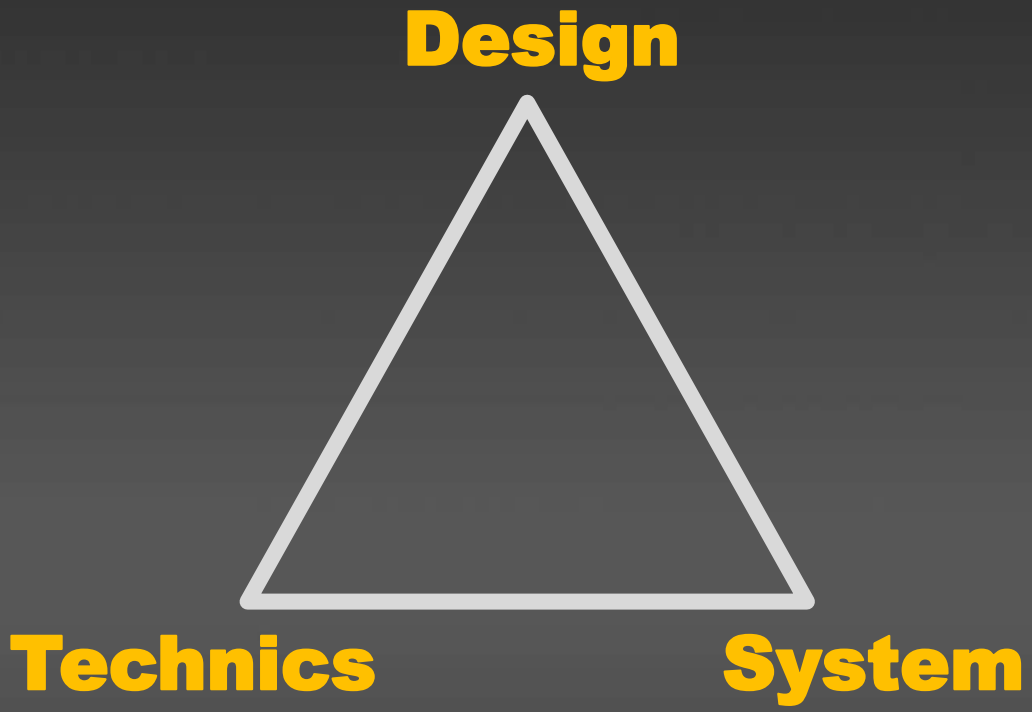
Freq.: 2.6G, 3.5G, 28GHz, 38GHz etc.

MIMO: 16x16, 32x32, 64x64, 128x128, 256x256

Large scale, Smart, Active, Self-aware, Flexible, Self-organized



Quality Triangle



Design Rules

Missions

MOBI is committed to provide antenna with world-class & stable performance in all working conditions.

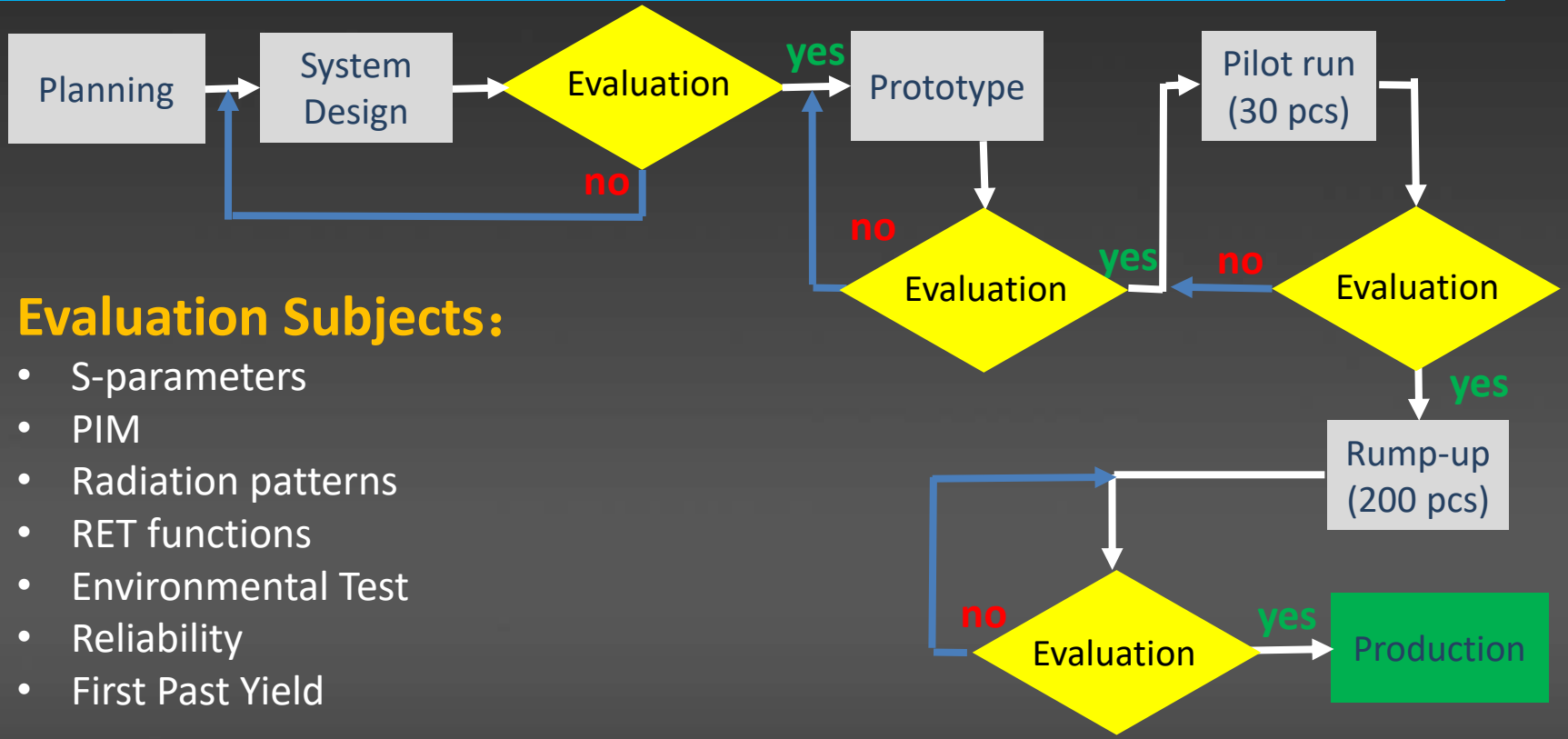
Product Life time

10 years life time is the basic design standard in MOBI.

Quality vs Cost

Quality is always prior to cost. Quality is one of the key factor of TCO (Total Cost of Ownership)

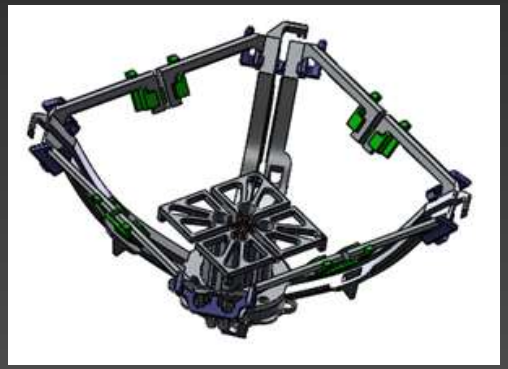
R&D Flow



Evaluation Subjects:

- S-parameters
- PIM
- Radiation patterns
- RET functions
- Environmental Test
- Reliability
- First Past Yield

Key Modules: Dipole



Patent

High gain — Good coverage
High F/B ratio — Less interference

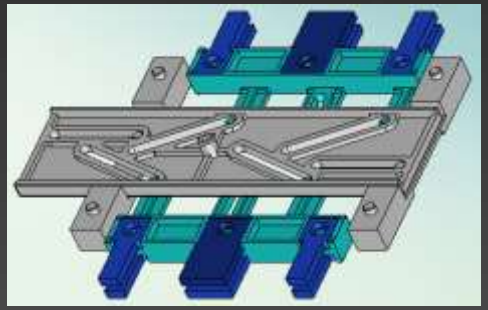
Die-casting (Aluminum alloy)

High structural strength --- Stable & Reliable
Good production consistency

Multi-layer plating (Copper/Tin)

Nickle free --- good PIM
Plating thickness ≥ 8um:
Good welding ability --- Good PIM
High corrosion resistance --- Long life time

Key Modules: Phase shifter

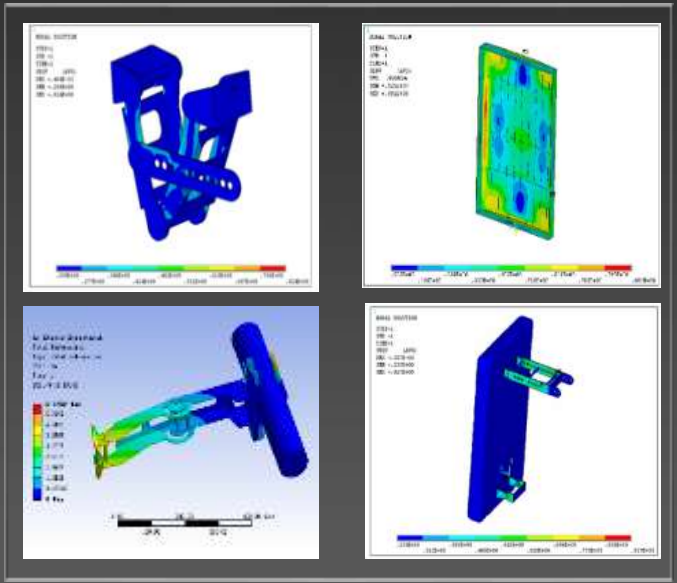


Patent

Air strip-line + Dielectric phase shifter

Good pattern in Ultra-wide band --- Less Interference

Mechanical Design



3D Virtual Design

Fast & accurate design

Solid Reliability Analysis

Whole structure analysis
Static & Dynamic Structure reliability analysis

Manufacture Technics

2 Factories

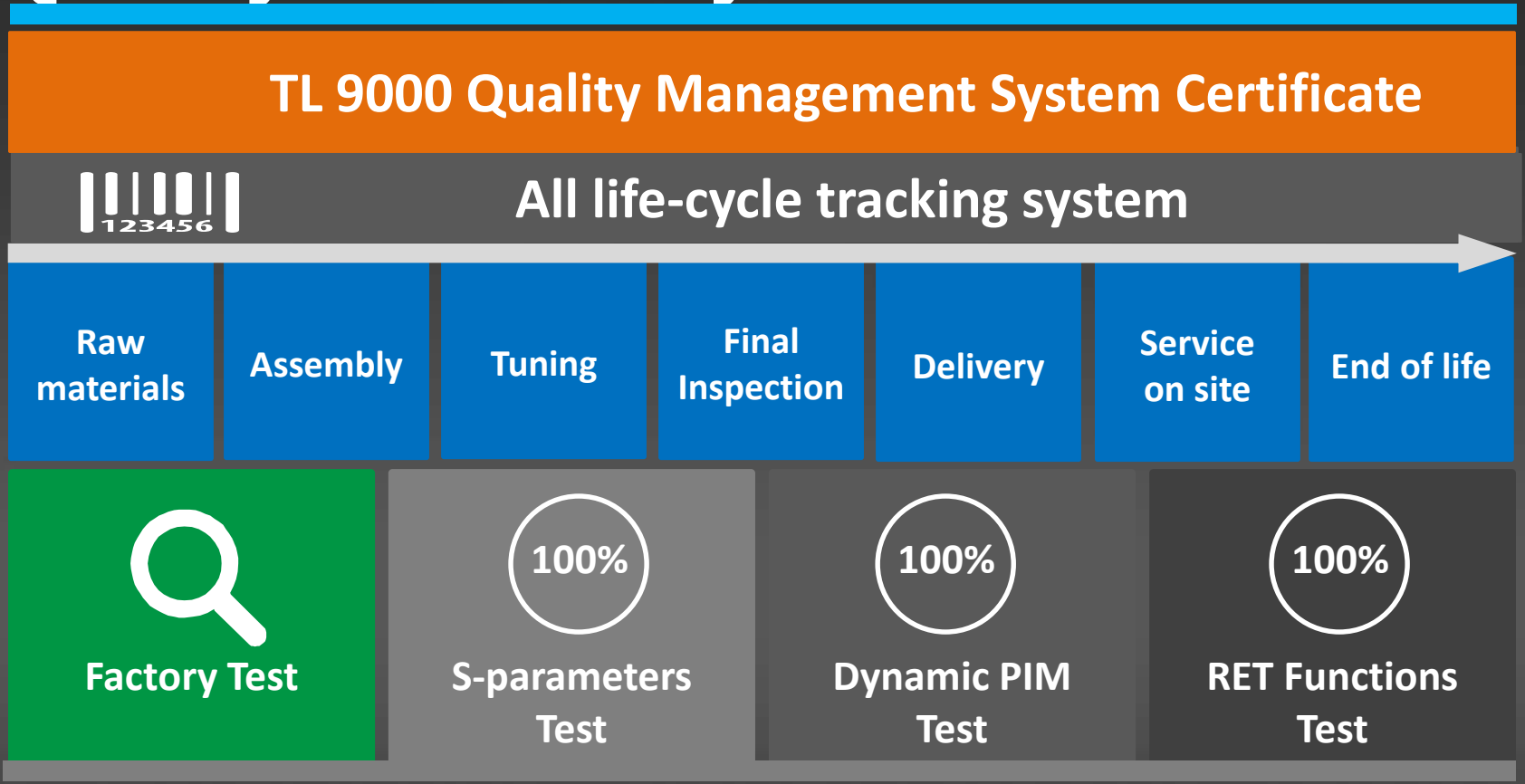
16 Assembly lines

200+ Robots

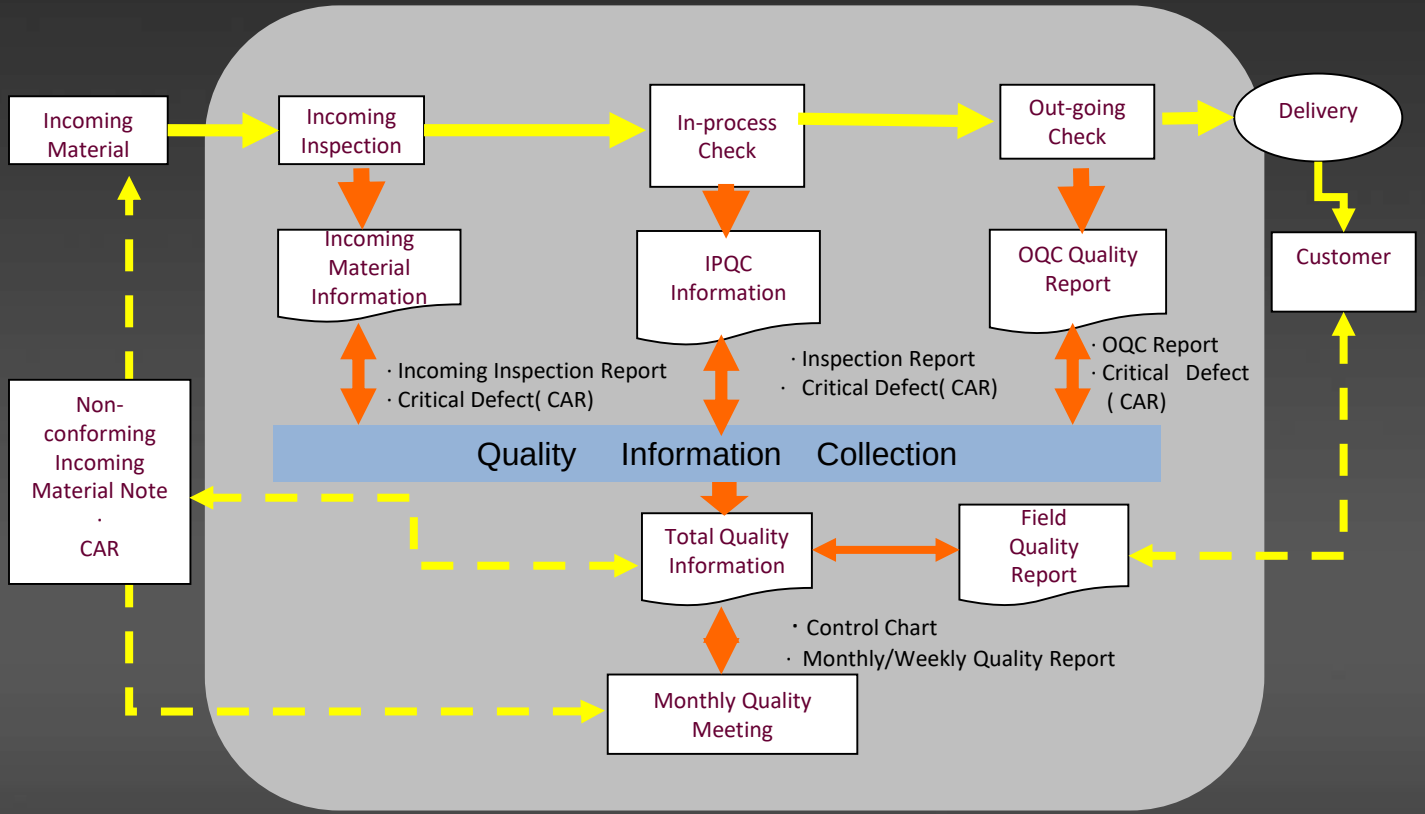
10 days
Lead-time

Output
4000+ /day

Quality Control System



Quality Control Flow

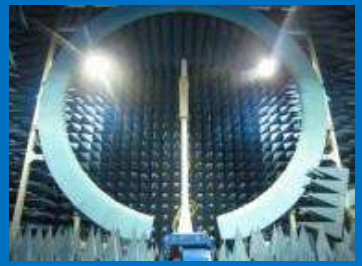


Antenna Laboratory

A world-class Antenna laboratory

CNAS

ilac-MRA



Radiation Pattern Test

S-parameters/PIM Test

Environmental Test

中国电信 CHINA TELECOM

Official Antenna Laboratory of China Telecom

Antenna Laboratory

Test Items	Facilities	Duration	Standard
S-parameters	Anechoic Chamber, VNA	0.5h	NGMA BASTA
PIM	Anechoic Chamber. PIM Analyzer	0.5h	NGMA BASTA
Radiation Pattern	Near Field Range, SATIMO SG128 System	2h	NGMA BASTA
High/Low Temperature	High temperature Cabinet	8h	IEC 60068-2-1, IEC 60068-2-2,
Temperature Cycling	Low temperature Cabinet	12h	IEC 60068-2-14 , ETS 300 019-2-4 Class T4.1E
Humidity	Temperature Cycling Cabinet	24h	IEC 60068-2-30
Rain	Raining Chamber	2h	ETS 300 019-1-4 Class 4.1E
Vibration	Vibration Bench	2h	IEC 600068-2-6:2007, EN300 019-2-4
Salt Mist	Salt mist Chamber	Up to 672h	IEC 68-2-11
Static Wind Load	Static Wind load Bench	48h	NGMA BASTA
Shock	Shock Bench	1h	IEC 60068-2-27:2008
UV/Weather Exposure	UV aging chamber	1344h	IEC 68-2-18, NGMN BASTA

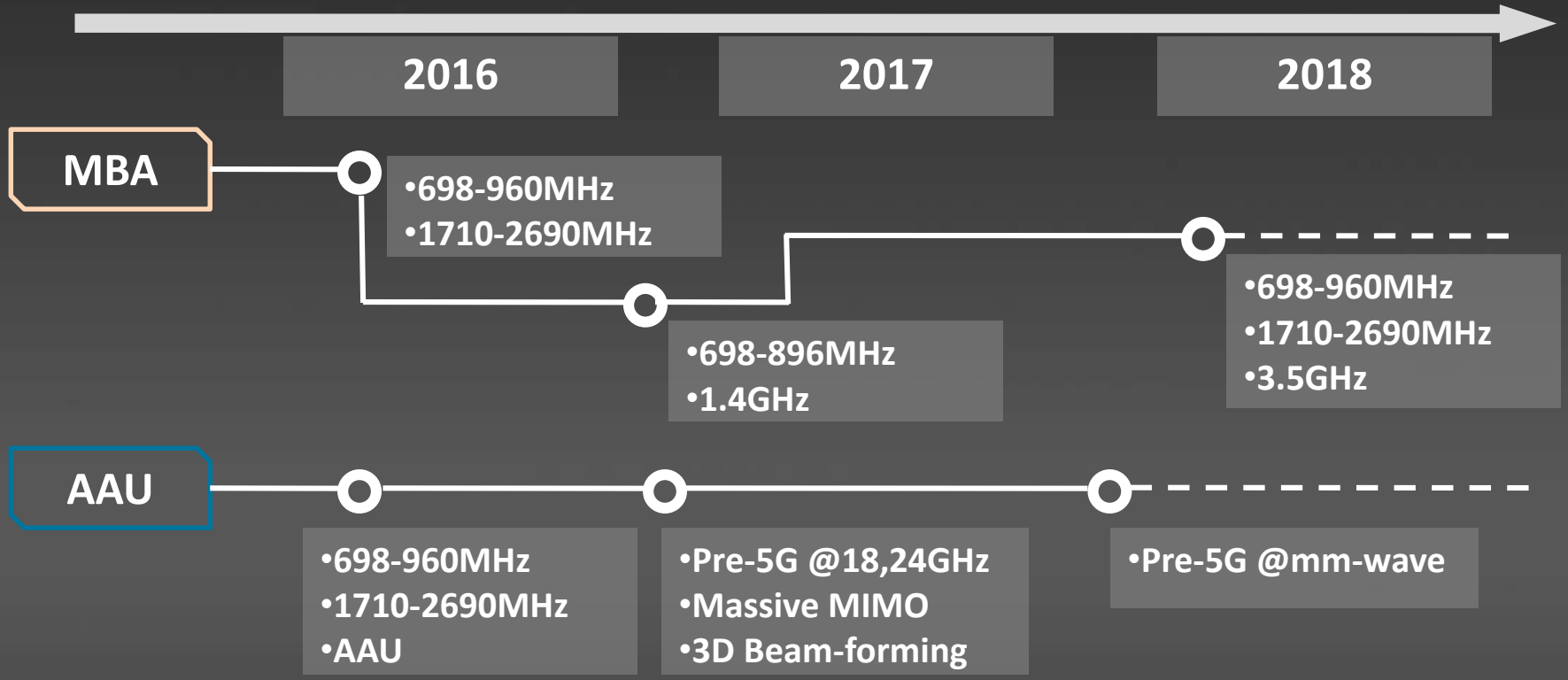
Services

Professional Training

Global logistics

24 hours *7 Customers Care

Roadmap


2016
2017
2018
MBA
•698-960MHz
•1710-2690MHz
•698-896MHz
•1.4GHz
•698-960MHz
•1710-2690MHz
•3.5GHz
AAU
•698-960MHz
•1710-2690MHz
•AAU
•Pre-5G @18,24GHz
•Massive MIMO
•3D Beam-forming
•Pre-5G @mm-wave

Why MOBI?

- ✓ Company Strength & Sustainability
- ✓ Product Matching
- ✓ Quality
- ✓ Project Experience & Footprint
- ✓ Capacity & Delivery & Support
- ✓ TCO


Thank you

Following Issues

1. Antenna types to test
2. Time line of antenna testing
3. May vendor participate the test?
4. Any contract or NDA needed for testing?
5. Sample’s calling back after test
6. Payment of testing fee