

# CNS EQUIPMENT CERTIFICATION AND LOCALIZATION PROCESS IN CHINA

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Air Traffic Regulation Office, CAAC



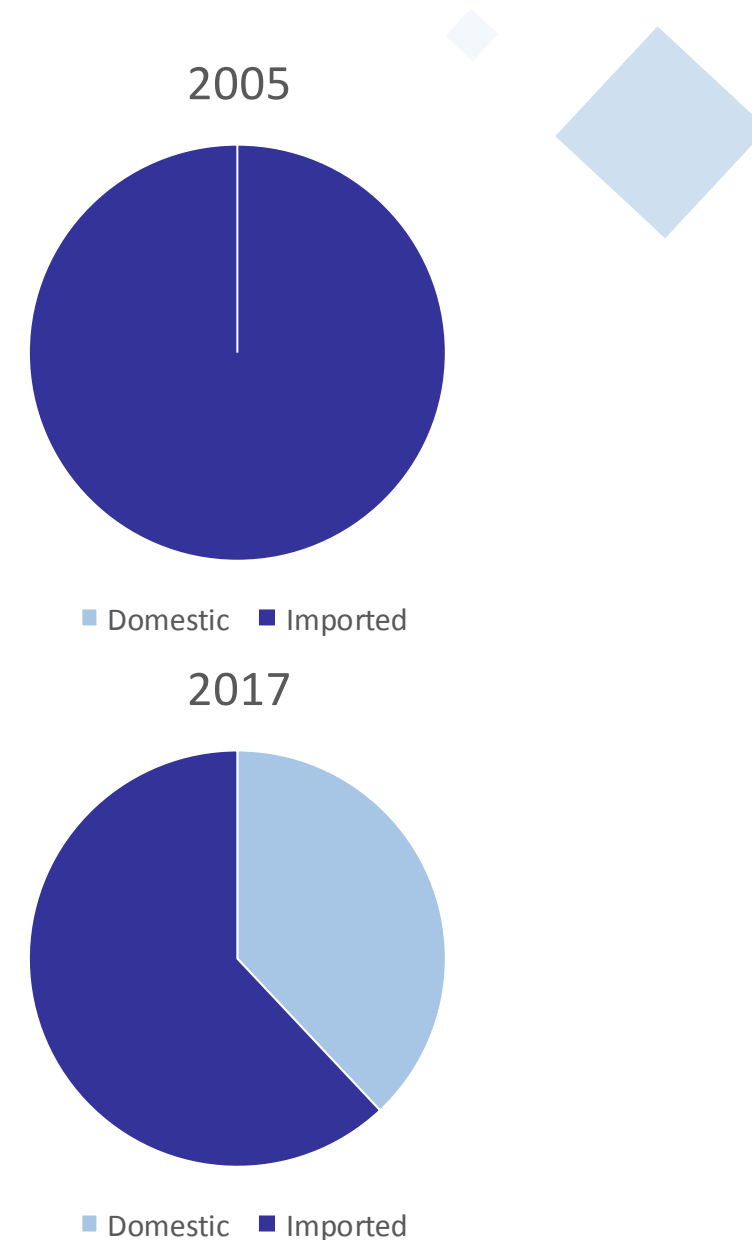
# Intro

## Development of ATM Industry in China

- CNS Equipment Certification
  - Standard, Demand, Supervision
- Rapid Development of CNS Industry
  - Concept, Technology, Service
- Exploring International Markets
  - Asia: Bhutan, Myanmar, Sri Lanka
  - Africa: Kenya, Angola, Zambia
  - South America: Venezuela, Ecuador



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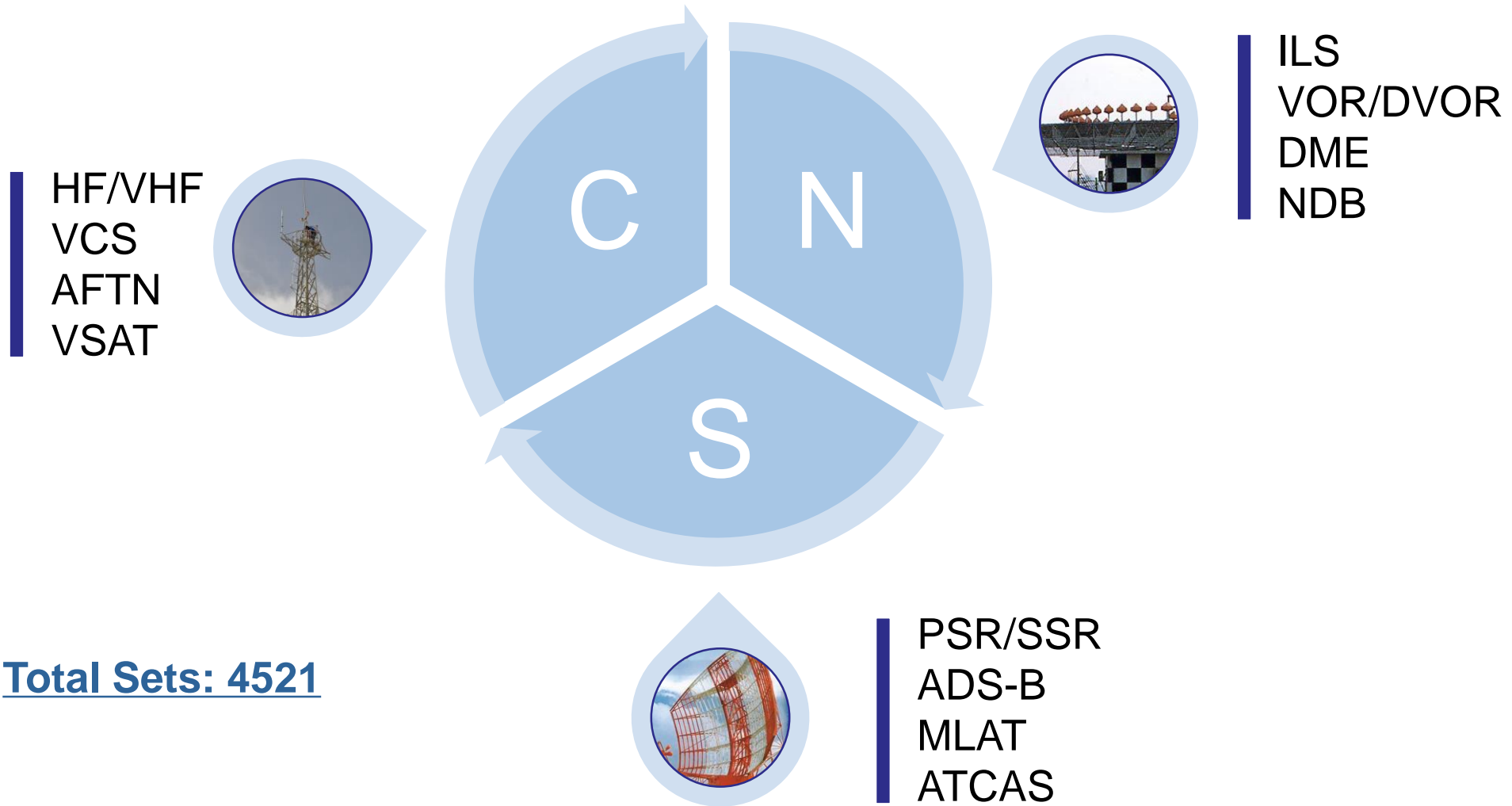
# Part ONE



Certification

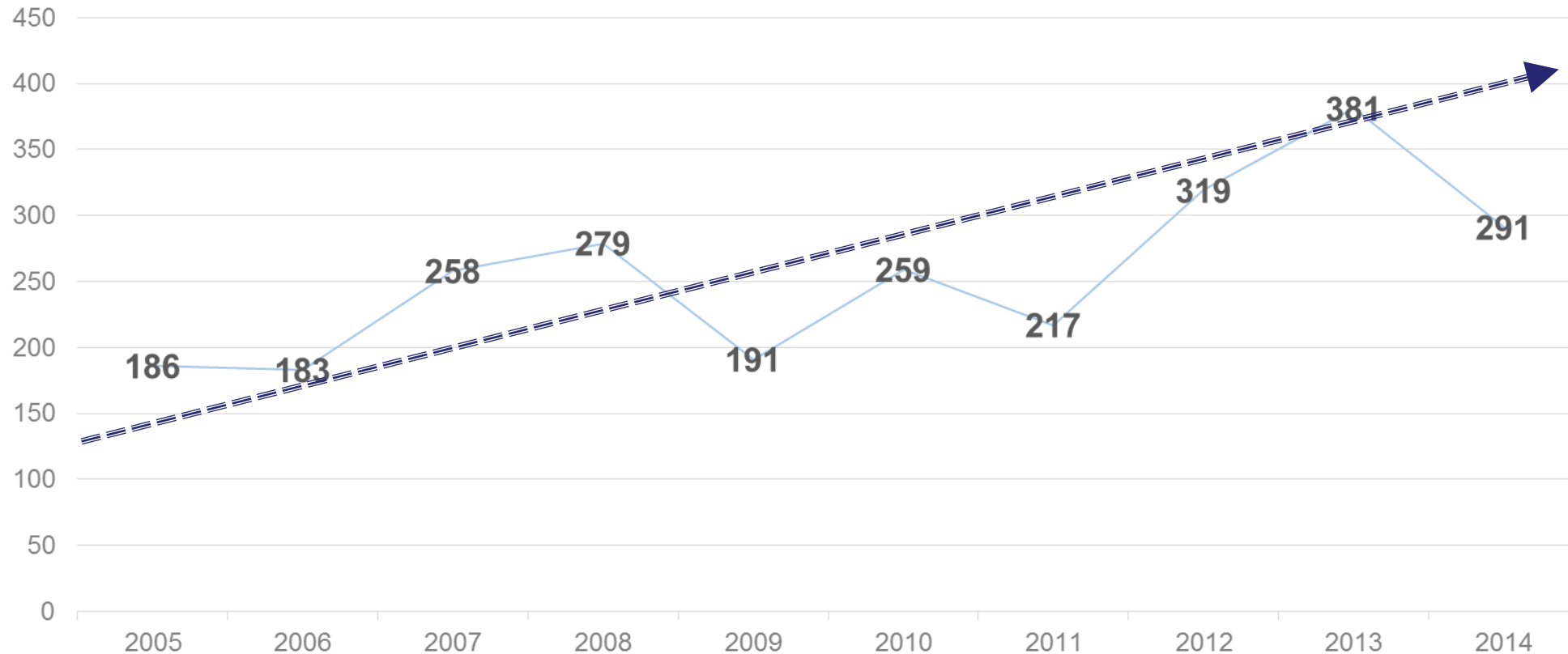
# CNS Equipment Certification

## Development



**Total Sets: 4521**

✈ How to guarantee the equipment to be safe and reliable?



# CNS Equipment Certification

## Certification System



- ✓ To ensure the CNS equipment compliance with ICAO's SARPs and meeting the operational requirements, CAAC established the CNS equipment certification system in 2002 and continued to improve it.

**Certification Approval**

**Review, Checking and Evaluation**

**Technical Testing**

### Civil Aviation Communication, Navigation and Surveillance Work Rule (CCAR-115TM-R1)

Administrative Rule on CNS Equipment Maintenance Personnel Licensing (CCAR-65TM-I-R3)

Civil Aviation CNS Equipment Certification Rule (CCAR-87)

Administrative Rule on Civil Aviation Navigation Systems Operational Approval (CCAR-85-R1)

Flight Inspection Rule on Civil Aviation CNS Systems (CCAR-86)

Civil Aviation CNS Equipment Certification Procedure (AP-87-TM-2011-01)

- Level
  - GB (1)
  - MH (72)
- Technical standards in CNS/ATM is set under the actual situation in China, and according to the relevant ICAO documents. Standards of EUROCAE and RTCA is also considered as a reference.
- CAAC, ATMB, research institutions and industry all participated in the standard setting.

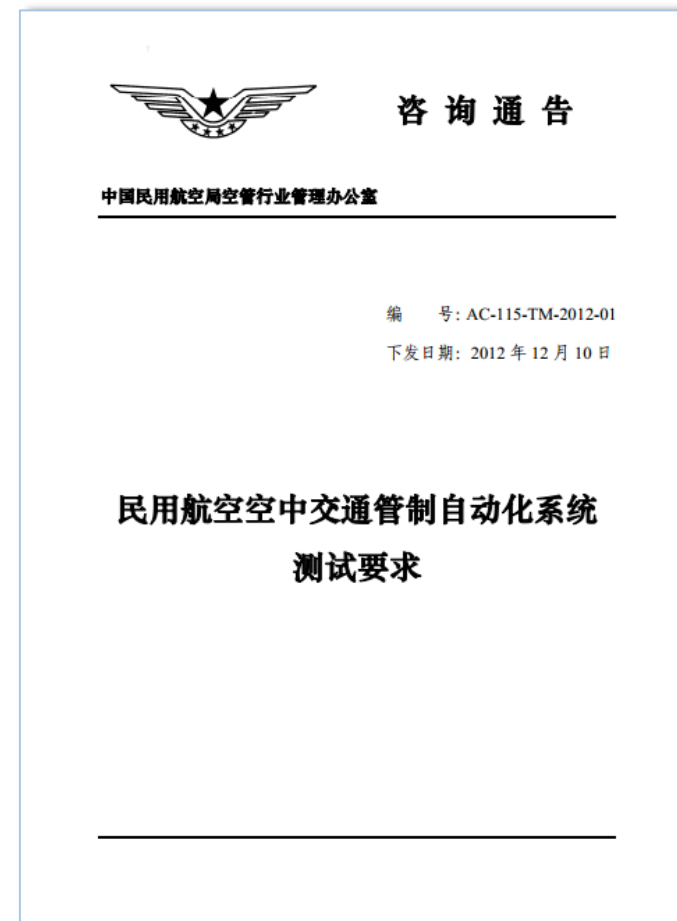


# CNS Equipment Certification

## Standard System



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# 1 CNS Equipment Certification

Part

Procedure



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- 1 System Design Review
- 2 Factory Checking
- 3 Quality Control System Evaluation
- 4 System Factory Testing
- 5 Onsite Stability and Reliability Testing
- 6 Pre-operation Testing

**GB/T 27025-2008 《标准和检验实验室能力的通用要求》**

*General Requirements for the Competence of Calibration and Testing Laboratories*

**ISO/IEC/EN 17025 《标准和检验实验室能力的通用要求》**

*General Requirements for the Competence of Calibration and Testing Laboratories*

**国家级电子工业安全与电磁兼容检测中心**

*National Safety and EMC Testing Center of Electronic Industry*

**国家电子产品质量监督检测中心**

*National Electronic Products Quality Supervising Test Center*

**国家级计量检测实验室**

*National Calibration and Testing Laboratories*



**CAAC**

民用航空空中交通通信导航监视设备  
CIVIL AVIATION COMMUNICATION/NAVIGATION/SURVEILLANCE EQUIPMENT

**使用许可证**  
CERTIFICATE OF APPROVAL

证书编号:  
CERTIFICATE NO.: **Z-S-ATCAS-(NUMEN-2000)-LES**

设备生产厂家: 南京莱斯信息技术股份有限公司  
MANUFACTURER: NANJING LES INFORMATION TECHNOLOGY CO., LTD.

设备类型: 民用航空空中交通管制自动化系统  
EQUIPMENT TYPE: Air Traffic Control Automation System

设备型号及产地: NUMEN-2000 中国  
MODEL AND ORIGIN: NUMEN-2000 China

根据《民用航空空中交通通信导航监视设备使用许可管理办法》(CCAR-87)及有关规定要求,经审查,该设备符合取得民用航空空中交通通信导航监视设备使用许可证条件。  
特发此证,以兹证明。  
THIS IS TO CERTIFY THAT THE EQUIPMENT MENTIONED ABOVE COMPLIES WITH THE CIVIL AVIATION CNS EQUIPMENT CERTIFICATION RULES (CCAR-87) AND RELEVANT PROVISIONS, AFTER NECESSARY REVIEW AND TEST.

颁发日期: 2017年12月14日  
DATE OF ISSUE: 14/12/2017

有效期至: 2022年12月13日  
VALID UNTIL: 13/12/2022

发证机关:  
AUTHORIZED BY: 

**许可证载明信息**  
CERTIFICATION INFORMATION

一、设备适用范围(Scope of Application):  
适用于民用航空空中交通管制指挥和管理(中小型系统)  
Suitable For Civil Aviation Air Traffic Control And Management. (Small-Sized And Medium-Sized System)

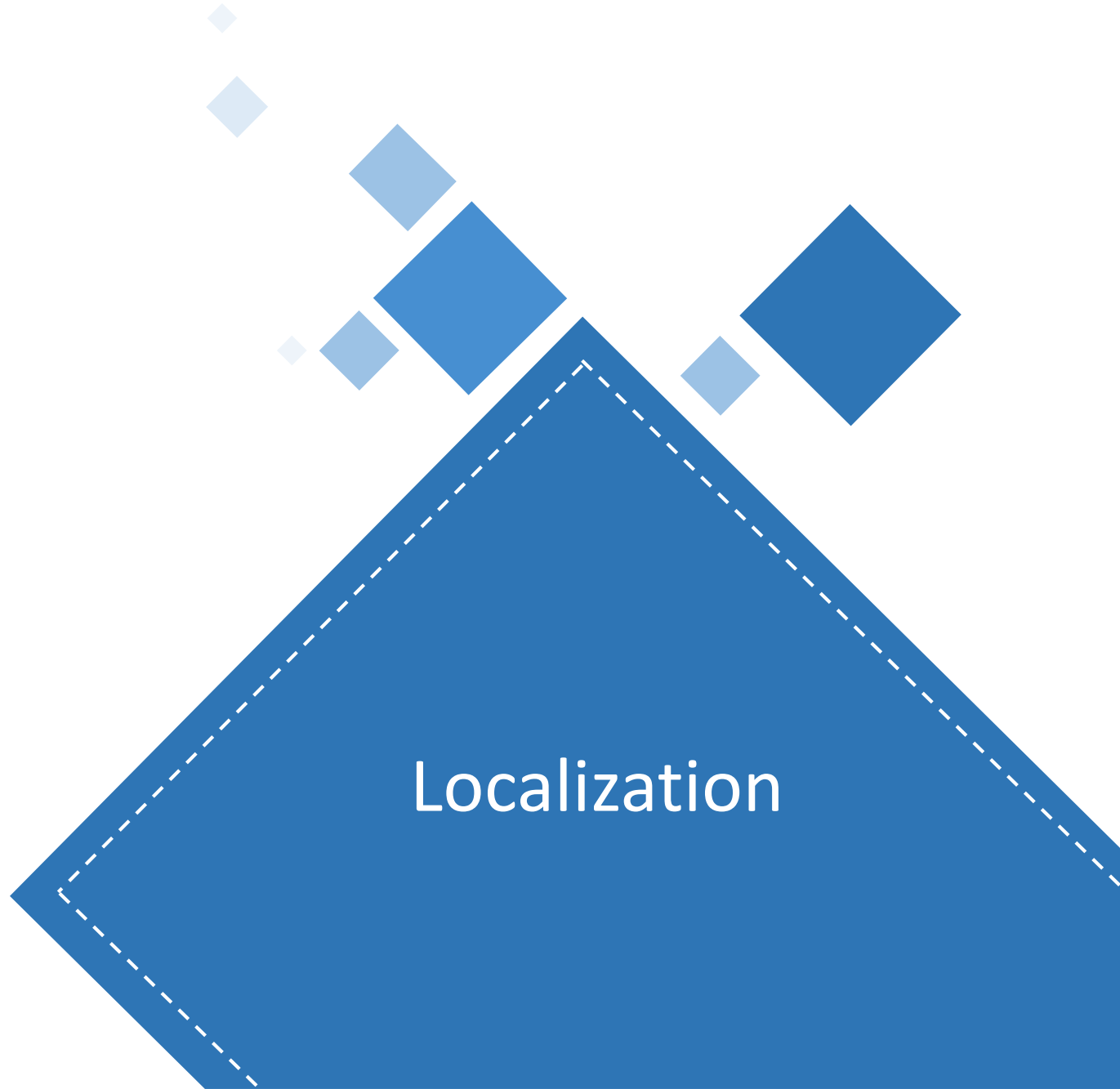
二、售后服务提供 (After-sales Service Provider):  
南京莱斯信息技术股份有限公司  
NANJING LES INFORMATION TECHNOLOGY CO., LTD.

三、设备包含要素 (Essential Information of Equipment):  
监视数据源类型: 一次监视雷达、二次监视雷达、广播式自动相关监视系统  
Data Type: Primary Surveillance Radar, Secondary Surveillance Radar, Automatic Dependent Surveillance - Broadcast System

操作系统: UNIX  
Operating System: UNIX

主要功能模块: 监视数据接收与处理、飞行数据接收/发与处理、气象数据接收与处理、雷达数据接收与处理、飞行态势显示、记录与回放、系统监视与控制、系统对时、雷达/ADS-B数据质量监控、适应性数据管理  
Main Modules: Surveillance Data Receiving And Processing, Flight Data Receiving / Sending And Processing, Meteorological Data Receiving And Processing, Radar Data Receiving And Processing, Flight Situation Display, Record And Playback, System Monitoring And Control, System Timing, Radar / ADS-B Data Quality Monitoring, Adaptive Data Management

# Part TWO



Localization

➤ Communication (6):

HF, VHF, VCS, AFTN-MS,  
ATIS, DR

➤ Navigation (5):

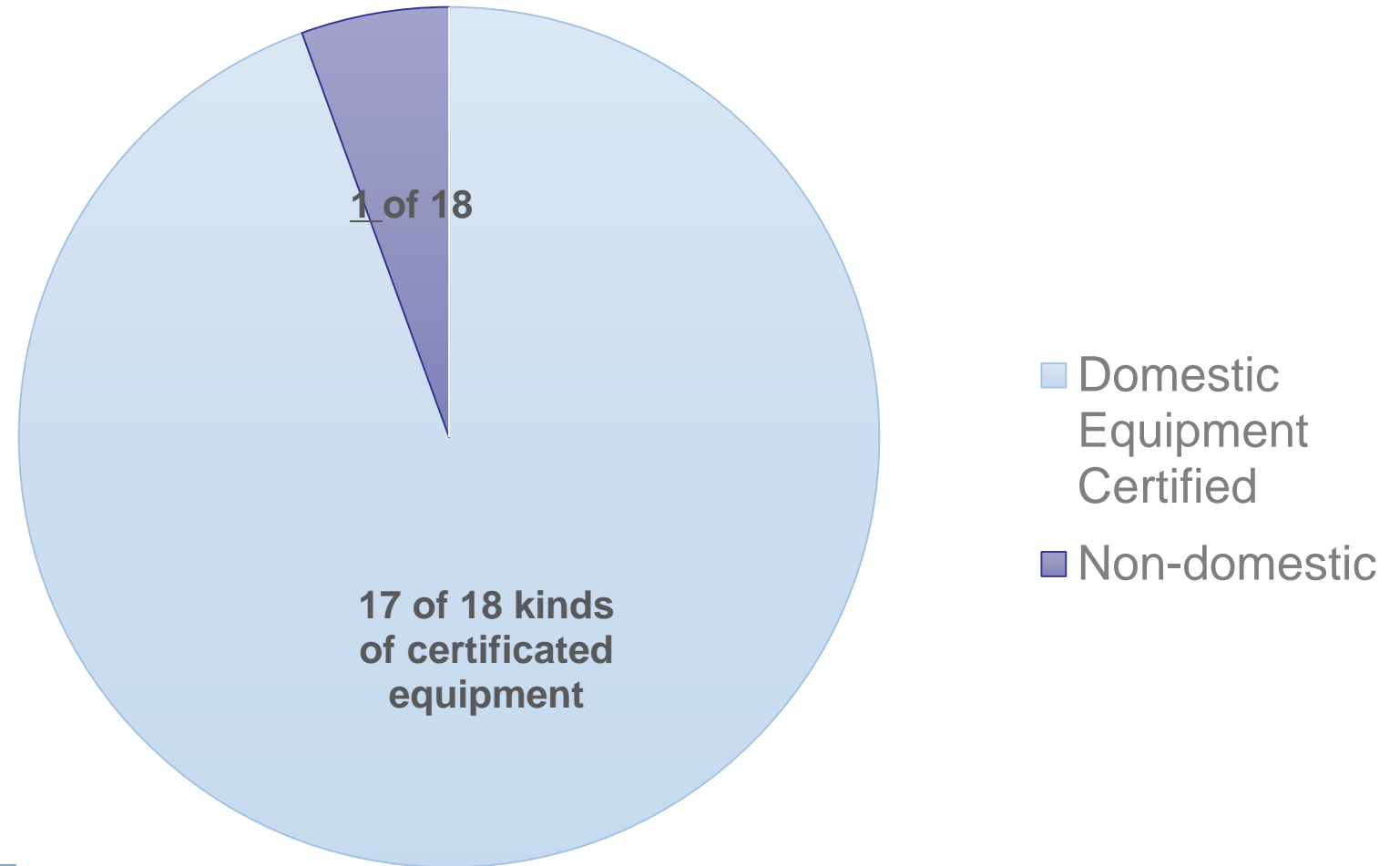
ILS, MB, VOR, DME, NDB

➤ Surveillance (7):

PSR, SSR, SMR, MLAT, A-  
SMGCAS, ADS-B, ATCAS

➤ Total: 18

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# CNS Localization in China

## Key Equipment



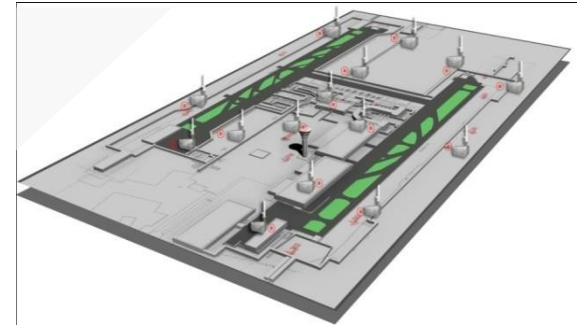
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VHF



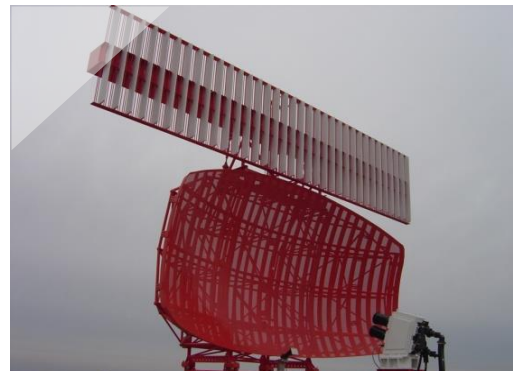
VOR/DME



MLAT



VCS



PSR/SSR



ATC SYSTEM



AFTN



ADS-B



Recorder

- 100% Domestic



NDB



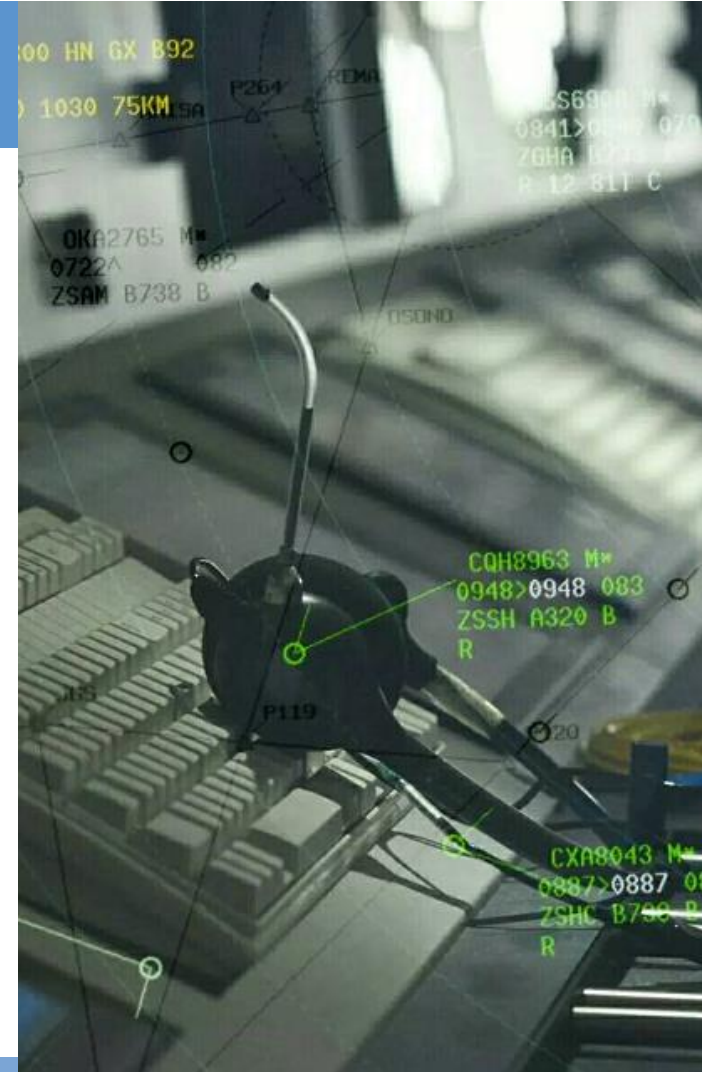
## ADS-B Localization

- Key Element in ICAO ASBU
- Completed 3 ADS-B Test Projects
- Over 600 ADS-B Ground Stations Will Be Installed in China Till 2020
- More Strict Certificate Criteria
- Up to 7 Certified Domestic Manufacturers
- Market Share in China: 100%



## ATC Automation System

- Core Equipment in ATM
- Independent Research and Development Started in The 1980s
- Up to 5 Major Certified Domestic Manufacturers
- Market Share in China: 80%
- Deployed in Largest Area Control Center: Shenyang & Urumqi

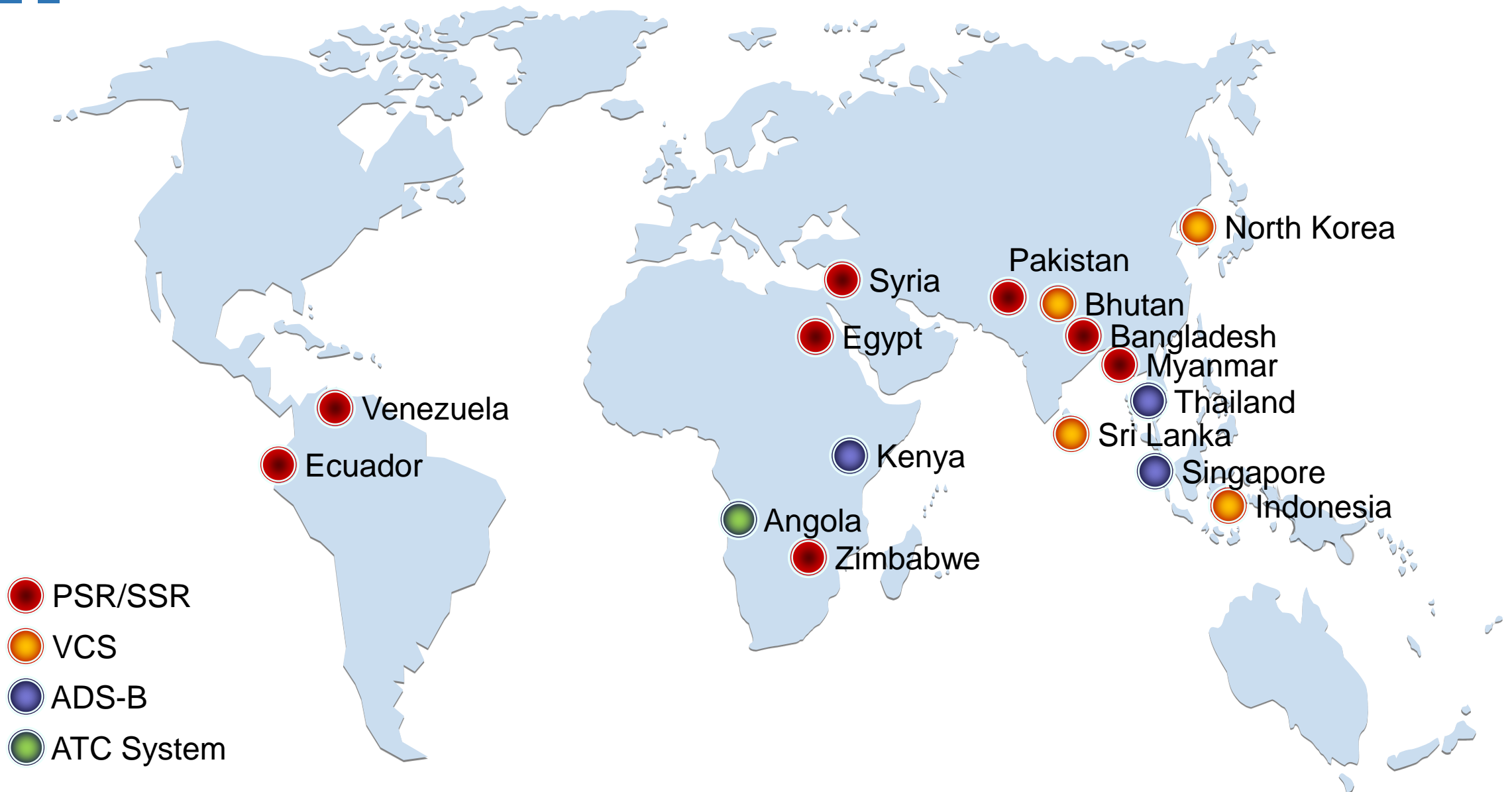


# CNS Localization in China

Worldwide



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Thanks for  
Your Attention



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