Discovering New Missions

Speakers:

Tian Ye, CAST
Hoyt Davidson, Near Earth
Peter Mabson, exactEarth
Bryan McGuirk, Vivisat
Robbie Schingler, Planet Labs
Stephen Tucker, Fitzpatrick & Hunt
DFH Series Spacecraft
Future Development

Tian Ye

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Up to now, **50** DFH series GEO satellites have been launched.

**DFH Series Bus Family**

- **DFH-4**
  - Under construction DFH-4S

- **DFH-3**
  - 30

- **DFH-2/2A**
  - 9

- **DFH-4**
  - 11
  - R&D
  - DFH-4E

- **DFH-5**

- **DFH-4**
  - 48 transponders Li Battery
  - Under development
  - Two (2) other projects

- CHINASAT-11
  - Self-developed units & tech. for mass benefit

- APSTAR-9
  - Maximum number of payloads ever launched CAST PF+TAS PL

- VENESAT-1
  - 1st successful DFH-4 bus satellite

- CHINASAT-10
  - 48 transponders Li Battery
  - Under development
  - Two (2) other projects

**Four (4) other commercial communication satellites based on DFH-4 bus have formally signed the contract.**
DFH-4 Future Development: Bus Road Map

Satellite mass  Satellite power  Payload mass  Payload power
3800kg  7kW  5100kg  5500kg
7kW  10kW  10kW  16kW
450kg  600kg  1000kg
4000W  8000W  10000W

Satellite mass  Satellite power  Payload mass  Payload power
3800kg  7kW  5100kg  5500kg
7kW  10kW  10kW  16kW
450kg  600kg  1000kg
4000W  8000W  10000W

DFH-4S and DFH-4E are inherited from DFH-4.

Avionics  Li-ion battery  Electrical propulsion optional  Shorter cylinder  LM-3C launch
100V bus  GaAs solar cells  4.5" Ni-H2 battery  V type MW  LM-3B launch
Longer central cylinder optional  Multi-floor CM optional  Large propellant tank optional  Larger power supply optional

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Qualification & Heritage on Evolvent Development

Innovative Technology

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Time Saving from EMs Verification Run in Parallel

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Cost Effective for Future Bus Development

- CAST self-financial support for initial demonstration
- Critical Item Identification & Qualification
- Affordable tech. demo to be cost effective
- Pre-order from strategic partnerships

DFH-4S | DFH-4E | DFH-4SP | DFH-5

Mini-Thermal Model

Tube Static Loading
Potential Customer Needs Pushing Bus Evolution

DFH-4S | DFH-4E | DFH-4SP | DFH-5

- All electric propulsion for orbit raising missions and station keeping
- Specially designed for low cost telecommunications satellite with options for dual-payload launch.
- Ultra-large capacity COMSAT
- Meet the future demand from domestic customer
- Flexible PL reconfiguration
- Match with LM-5 Launching Capability

Push Electric Thruster Development

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Conclusion

On the basis of 46 years experience in development of spacecraft and ground equipment, CAST has had high capability of spacecraft research and development.

DFH Series Bus constituted a complete platform product line, comply with more comprehensive application. A continuous product improvement plan is in place to further extend this range and maintain a state-of-the-art product line.

CAST committed to the development and delivery of customer solutions that respond to the needs of the evolving space industry.
Ye TIAN

Associate Chief Engineer – CAST ITS

Ye TIAN is Associate Chief Engineer of Institution of Telecommunication Satellite, CAST. She joined CAST ITS in 2010 and serves in system design department.

Ye received a MSc degree in Aerospace Vehicle Design from Cranfield University, the UK, in 2009; And another MSc degree in Aircraft Design from Beihang University, P.R.China, in 2010.

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China Academy of Space Technology, established on February 20th, 1968, is a primary spacecraft research center and development base of China.

As a leading space company, CAST committed to the development and delivery of customer solutions that respond to the needs of the evolving space industry.

CAST has developed & manufactured more than 140 spacecraft from 1970 to 2014.

- Telecommunications Spacecraft
- Navigation Spacecraft
- Recoverable Spacecraft
- Earth Observation Spacecraft
- Spaceship and Space Laboratory
- Space Science Spacecraft
- Small & Micro Spacecraft

- Subsystems & Equipment
- Satellite Application
Institute of Telecommunication Satellites (ITS), established on July 18th, 2008, integrates the resources of telecommunication satellite within CAST.

ITS provides a total satellite communications system capability, from communication system architecture design, frequency & orbit application, spacecraft and payload design, manufacture and test to in-orbit operation and services.

Serving operators in domestic and international satellite market with:
- Fixed services
- Broadcast, DTH TV
- Mobile services
- GEO remote sensing
- Tracking and Data relay services
Thanks for your attention!

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