

SAR/BDS Service Status

China Transport Telecommunications & Information Center

Zehua He ICG13, Xi'an, Nov 2018

Outline





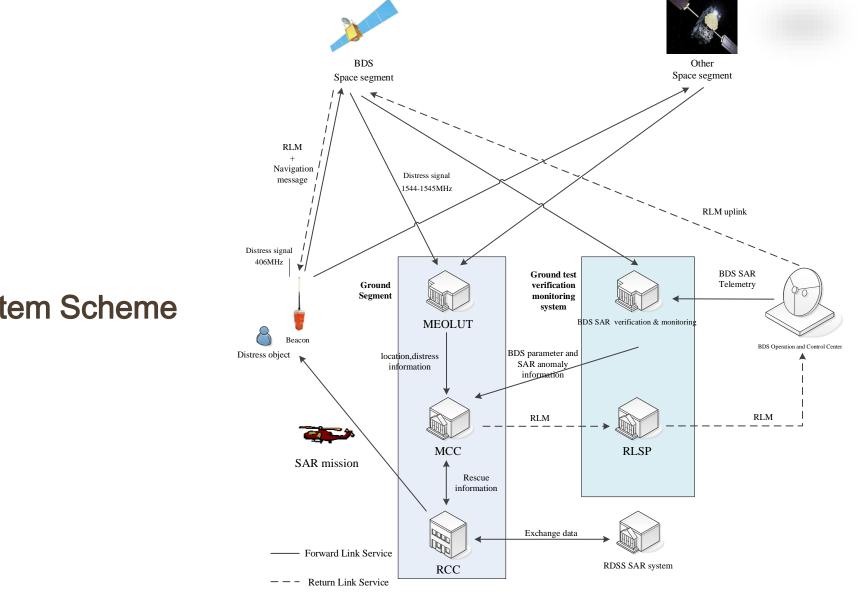
- SAR/BDS system Introduction
- •SAR/BDS Forward Link Service Overview
- •SAR/BDS Return Link Service Overview
- •IOT for BD-3-M13, BD-3-M14
- International cooperation
- Road Map



SAR/BDS Introduction







System Scheme

SAR/BDS Introduction





SAR/BDS Service Space Segment Deployment

- 24 MEO in total
- 6 MEOSAR in 3 planes
- 55° inclination
- 775 minutes period
- More details in JC-32-Inf-54.pdf DEVELOPMENT PLAN FOR SAR/BDS



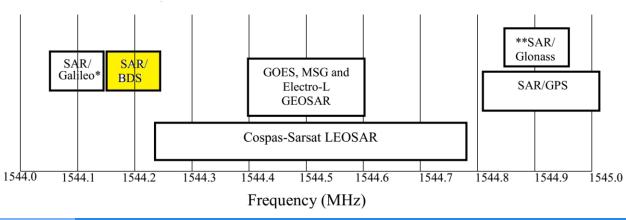
Satellite	Plane and slot	Launch Date
BD-3-M13, BD-3-M14 (632, 633)	B1, B3	2018/09/19
BD-3-M21, BD-3-M22	A6, A8	TBD
BD-3-M23, BD-3-M24	C3, C5	TBD

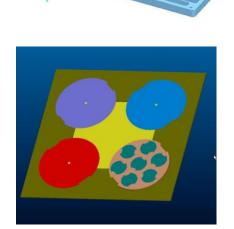




Space Infrastructure: SAR Repeater on board BDS satellite

- RX: 406.05MHz , RHCP
- TX: 1544.21MHz, RHCP, 48 dBm EIRP
- Operating modes:
 - Narrow Band (50kHz) / Wide Band (90kHz)
 - Default Mode : ALC / 90kHz
- Designed under C/S standard T.016
- More detail JC-32-Inf-55.pdf
 CHARACTERISTICS OF THE SAR/BDS PAYLOADS





SAR/BDS Forward Link Service Overview



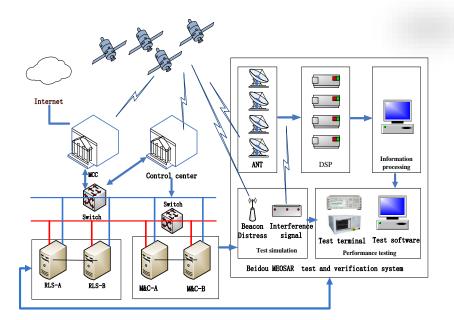


Ground Infrastructure: MEOLUT

- NEW Beijing MEOLUT: 6 pairs of 2.4m dish antennas
- SAR/BDS, SAR/GPS, SAR/GALILEO and SAR/GLONASS supported
- Deployment by the end of 2019
- Qualification in 2020
- Designed under C/S standard T.020



Prototype of Beijing MEOLUT



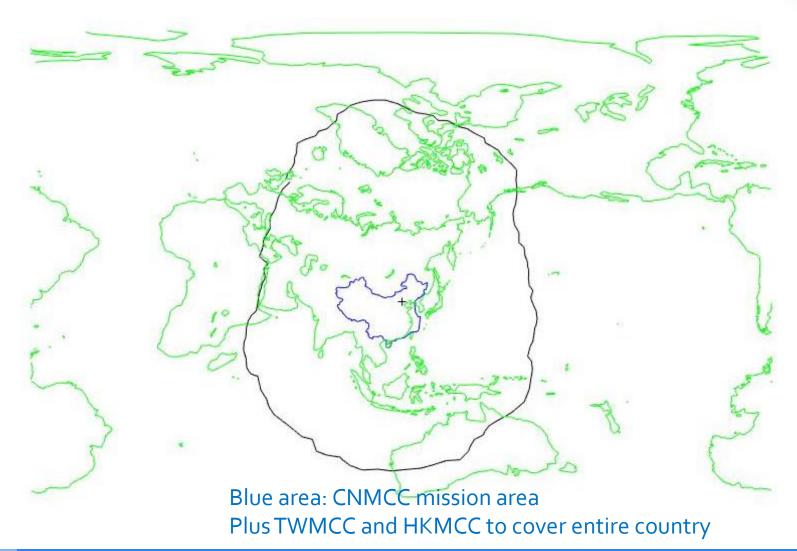


CNMCC

SAR/BDS Forward Link Service Overview



Beijing MEOLUT received distress signal coverage:







RLM and SGB

- Return Link Message
 - Type 1 Acknowledgement: system feedback, alert has been detected and located
 - Type 2 Acknowledgement: RCC feedback, more specific information can be given
 - Frequency TBD
- BDS Second Generation Beacon
 - Developing
 - C/S standard T.018
 - Ready for BDS/RLS, Galileo/RLS

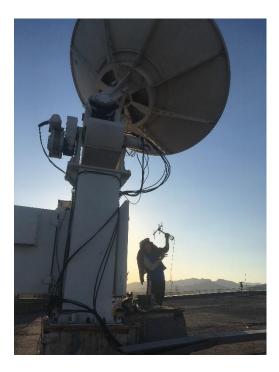


IOT for BD-3-M13, BD-3-M14





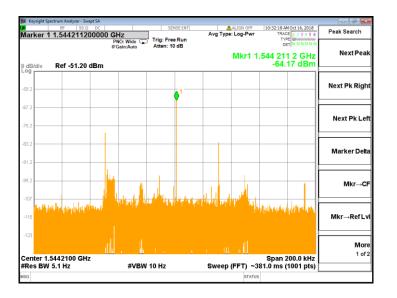
- IOT was started from September 2018. Now is in progressing.
- C/S standard T.017



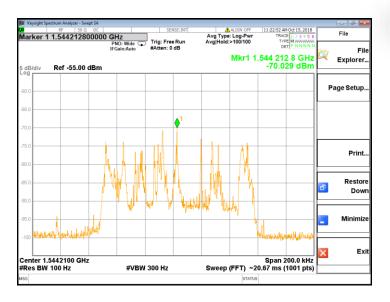
Test								
1	SARR Gain							
2	Translation Frequency							
3	SARR G/T							
4	Axial ratio (optional)							
5	Amplitude Transfer Function in ALC mode							
6	Frequency Response							
7	Linearity/Third Order Intermodulation							
8	SARR EIRP							
9	Forward Group Delay variation in frequency							
10	Spurious Output Level							
11	Beacon Signal Processing							

IOT for MEO-13 MEO-14





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Improve the capability of the International SAR service

- SAR/BDS has been written into COSPAS-SARSAT 406 MHz MEOSAR IMPLEMENTATION PLAN(C/S R.012).
- 2018 October, C/S JC-32 , Submit DEVELOPMENT PLAN FOR SAR/BDS (JC-32-Inf-54) and CHARACTERISTICS OF THE SAR/BDS PAYLOADS (JC-32-Inf-55).







2018:

- Finish IOT
- Construct MEOLUT
- Demonstrate Return Link Service

2019:

- Finish SAR/BDS MEOLUT to meet C/S FOC standard
- Increase performances and coverage with additional MEOSAR

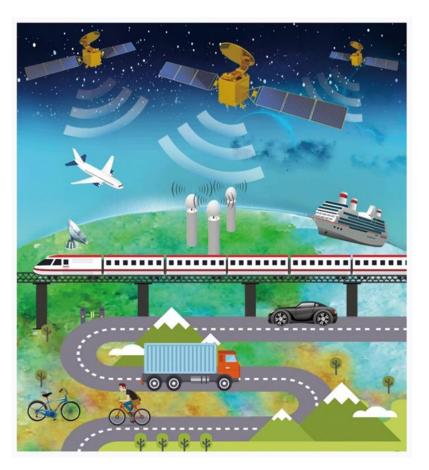
2020: SAR/BDS FULL OPERATIONAL CAPABILITY MILESTONE

- Fully deploy BDS MEO constellation with SARR
- Release BDS second generation beacons
- Enhance Interoperability with other RLS providers

Provide Global SAR Service







Create a Community of Shared Future for Mankind.

Thanks!