

GLI Sensor Development Status

Nov. 14, 2001

GLI Workshop @ EORC

ADEOS-II Project Team

National Space Development Agency of Japan

ADEOS-II/GLI Status

- GLI Mission Data Evaluation Test (GLI特別点検)
 - From Dec. 2000 to March 2001
 - At Fujitsu Nasu Factory
- ADEOS-II End-to-End Test
 - June 2001
 - From EORC Observation Request
(→ EOC → TACC → SN Feeder Link Station → ADEOS-II → SN Feeder Link Station → EOC →)
 - To L1B Products delivery to EORC
- ADEOS-II Transportation to Tanegashima
 - Sep. 2001
- ADEOS-II Launch Preparation
 - Integration and Final Electrical Performance Test (EPT) is ongoing.

→ ADEOS-II/GLI is ready for Launch in Feb 2002

ADEOS-II/GLI Schedule

ADEOS-II & GLI Schedule

[illegible]

GLI Mission Data Evaluation Test (GLI特別点検)

- GLI Leaders Meeting for GLI Saturation Problem
 - June 23, 2000 @ EORC Roppongi
 - H/W Modification was **NOT** required
 - More detailed GLI characterization was required
- CAL-WG was formed within GLI science Team
 - Chaired by Prof. Senga of Tokai University
 - GLI calibration issue discussion

→ Based on CAL-WG discussion, “GLI Mission Data Evaluation Test (GLI特別点検)” was conducted.

GLI Mission Data Evaluation Test (GLI特別点検)

- A) Calibration of the Integrating Sphere using the Fixed Point Black Body source.
 - Before “GLI Mission Evaluation Test”: for VN wavelength
 - After “GLI Mission Evaluation Test” : for VN and SW wavelength

- B) GLI PFM Sensor test
 - Integrating Sphere Test
 - Collimator Test
 - Others

- C) Re-analysis of PFT data

- D) Others

GLI Mission Data Evaluation Test (GLI特別点検)

		Proto-Flight Test (PFT) 1998-1999				GLI特別点検		
		Ambient		T/V		Mission Data Evaluation Test		Additional PFT Data Analysis
		VN/SW	MT	VN/SW	MT	Health Check (*)	User Req.	
1	Scan Angle	○	◇	◇	◇	Confirmation using MTF Data	—	—
2	S/N	○	—	○	—	PFT Equivalent	—	—
3	NEΔT	—	◇	—	○	—	—	—
4	Dynamic Range, Linearity	○	—	○	○	PFT Equivalent	Additional Measurement	Re-Analysis
5	MTF	○	◇	○	○	PFT Equivalent (CT)	—	—
6	Polarization Sensitivity	○	—	—	—	—	—	Re-Analysis
7	Stray Lights	○	○	—	—	—	—	Re-Analysis
8	Flare	◇	—	—	—			
9	Optical Alignment	○	○	—	—	Analysis using MTF Data	—	—
10	Inter-Band Registration	○	○	○	○	Analysis using MTF Data	—	—
11	Deviation of the Sensitivity	○	◇	○	○	PFT Equivalent	—	—
12	Internal Lamp Calibration	○	—	○	—	PFT Equivalent	—	—
13	Black Body Calibration	—	—	—	○	—	—	—
14	Solar Light Calibration	◇	—	—	—	—	—	—
15	Thermal Bands Output	—	◇	—	—	PFT Equivalent	—	—

○ : Test Data、◇ : Reference Data、— : Not Applied

* : All Tests for VN/SW except Thermal Bands Output test

GLI VN/SW Performance Summary

		λ_c [nm]	$\Delta \lambda$ [nm]	Lstd	Lmax [W/m ² /sr/μm]				Lcloud	S/N	
					Mod Req ^{*1}	Linear Max ^{*2}	Lmax ^{*3}	Over Sat ^{*4}	GLI Design	Spec.	Test Results ^{*5}
		Specification									
VN1-1km	CH-01	380	10	59	365		683		365	600	455
	CH-02	400	10	70	139		162		515	800	1137
	CH-03	412	10	65	130		130		529	800	1406
	CH-04H	443	10	54	109		110		560	800	809
	CH-04L	443	10	54	560		680		560		
	CH-05H	460	10	54	108		124		624		
	CH-05L	460	10	54	624		769		624	800	847
	CH-06	490	10	43	86	95	64		608	800	1392
	CH-07H	520	10	31	64		92		539	600	656
	CH-07L	520	10	31	539		569		539		
	CH-08H	545	10	28	56		96		549	600	609
	CH-08L	545	10	28	549		596		549		
	CH-09	565	10	23	47	60	39		510	800	1194
VN2-1km	CH-10	625	10	17	33	47	28	39	493	800	935
	CH-11	666	10	13	26	40	22	31	454	800	1181
	CH-12	680	10	12	24	37	23	33	438	800	1274
	CH-13	678	10	12	438		342	522	438	200	244
	CH-14	710	10	10	18	31	16	24	311	700	1351
	CH-15	710	10	10	311		233	369	311	250	313
	CH-16	749	10	7	14	24	11	17	295	550	984
	CH-17	763	8	6	350		246	473	350	130	290
	CH-18	865	20	5	9	14	8	13	304	450	1204
	CH-19	865	10	5	304		211	339	304	130	351
VN1-250m	CH-20	460	70	36	624			691	624	200	206
	CH-21	545	50	25	549			585	549	150	155
VN2-250m	CH-22	660	60	14	150		115	156	448	100	279
	CH-23	825	110	21	257		210	287	257	140	271
SW1-1km	CH-24	1050	20	8	203			227	203	300	356
	CH-25	1135	70	8	200			184	200	350	424
	CH-26	1240	20	5.4	138			208	138	70	315
	CH-27	1380	40	1.5	94			153	94	120	258
SW2-250m	CH-28	1640	200	5	69			76	69	109	262
	CH-29	2210	220	1.3	30			32	30	105	166

*1 Specified Value by Ocean User for GLI Dynamic Range Modification Study (Feb. 2000)

*2 Maximum Radiance for Linear Response (VN2)

*3 Predicted Maximum Obs. Radiance for DN=4095 or Output Saturation

*4 Over-Saturation Radiance equivalent to Lcloud

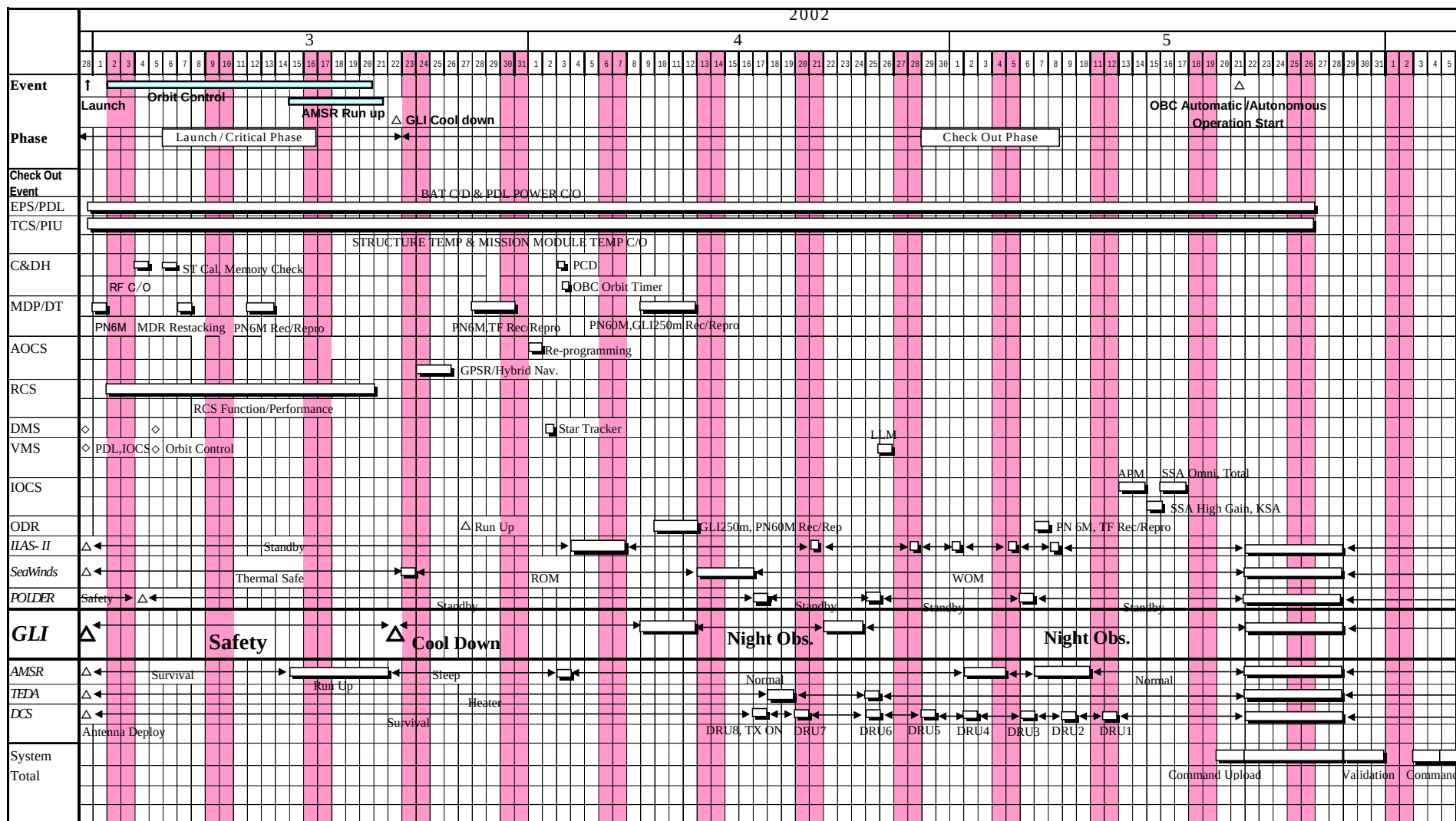
*5 S/N Test Results for GLI Mission Data Evaluation Test (GLI特別点検) in ambient condition.

GLI MT-Band Performance Summary

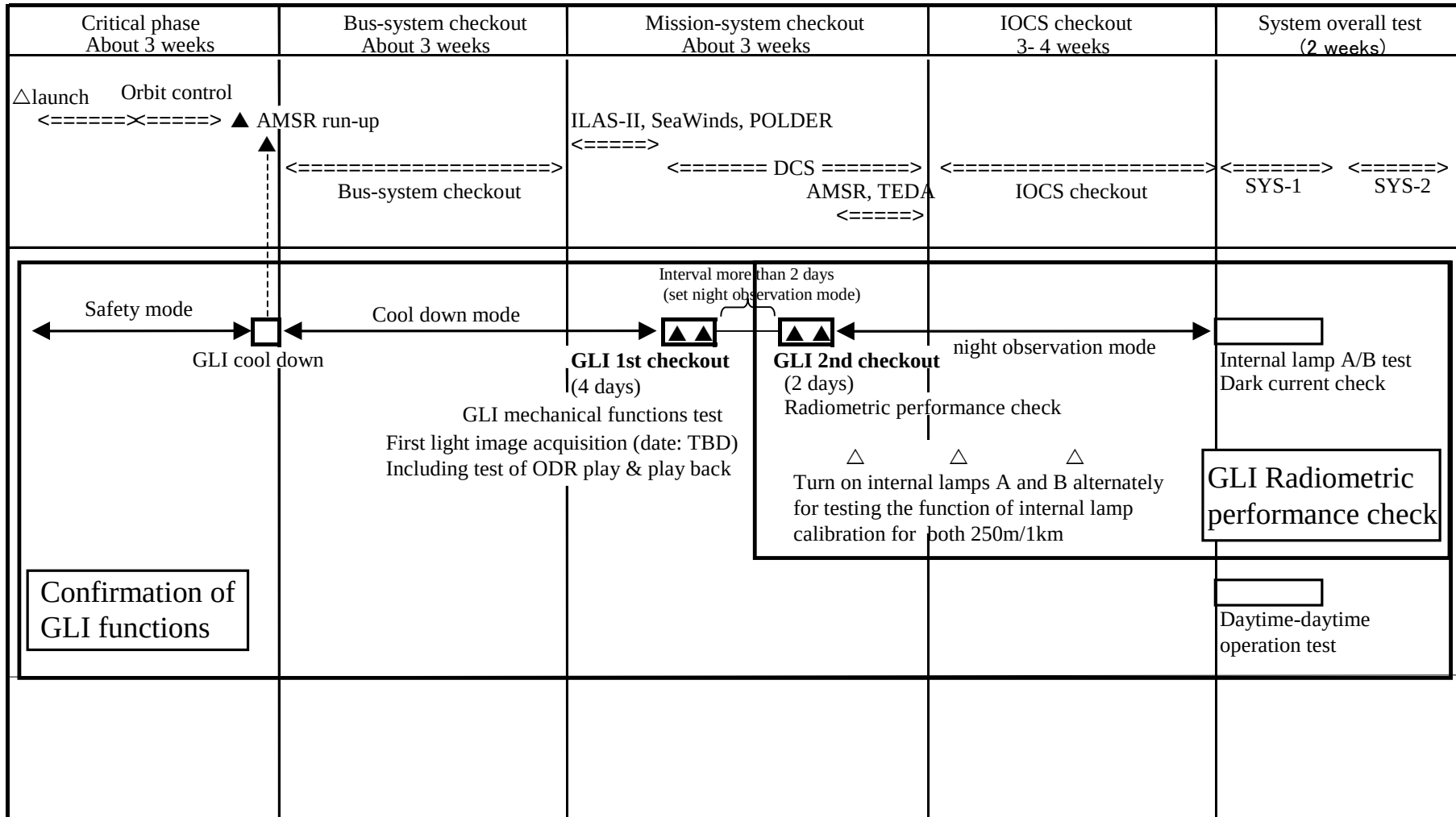
		λ_c	$\Delta \lambda$	High Temp. Target				Low Temp. Target				DynamicRange [K]		
		[μm]	[nm]	Target [K]	NE ΔT [K]			Target [K]	NE ΔT [K]			Spec	On-Orbit* ¹	Results
					Spec	Cold T/V	Hot T/V		Spec	Cold T/V	Hot T/V			
MT-1km	CH-30	3.715	0.33	300	0.15	0.07	0.07	250	1.8	0.71	0.78	340		345
	CH-31	6.7	0.5	285	0.1	0.02	0.03	200	1.5	0.27	0.32	296	265	307
	CH-32	7.3	0.5	300	0.1	0.02	0.03	200	1.0	0.24	0.27	322	290	322
	CH-33	7.5	0.5	300	0.1	0.02	0.02	200	1.0	0.21	0.24	326	293	324
	CH-34	8.6	0.5	300	0.1	0.03	0.05	180	0.5	0.47	0.49	340		350
	CH-35	10.8	1.0	300	0.1	0.04	0.05	180	0.5	0.24	0.30	340		354
	CH-36	12.0	1.0	300	0.1	0.04	0.06	180	0.5	0.23	0.27	340		358

*1 Predicted on-orbit maximum obs. Temperature using MODTRAN simulation for Water Vapor Bands.

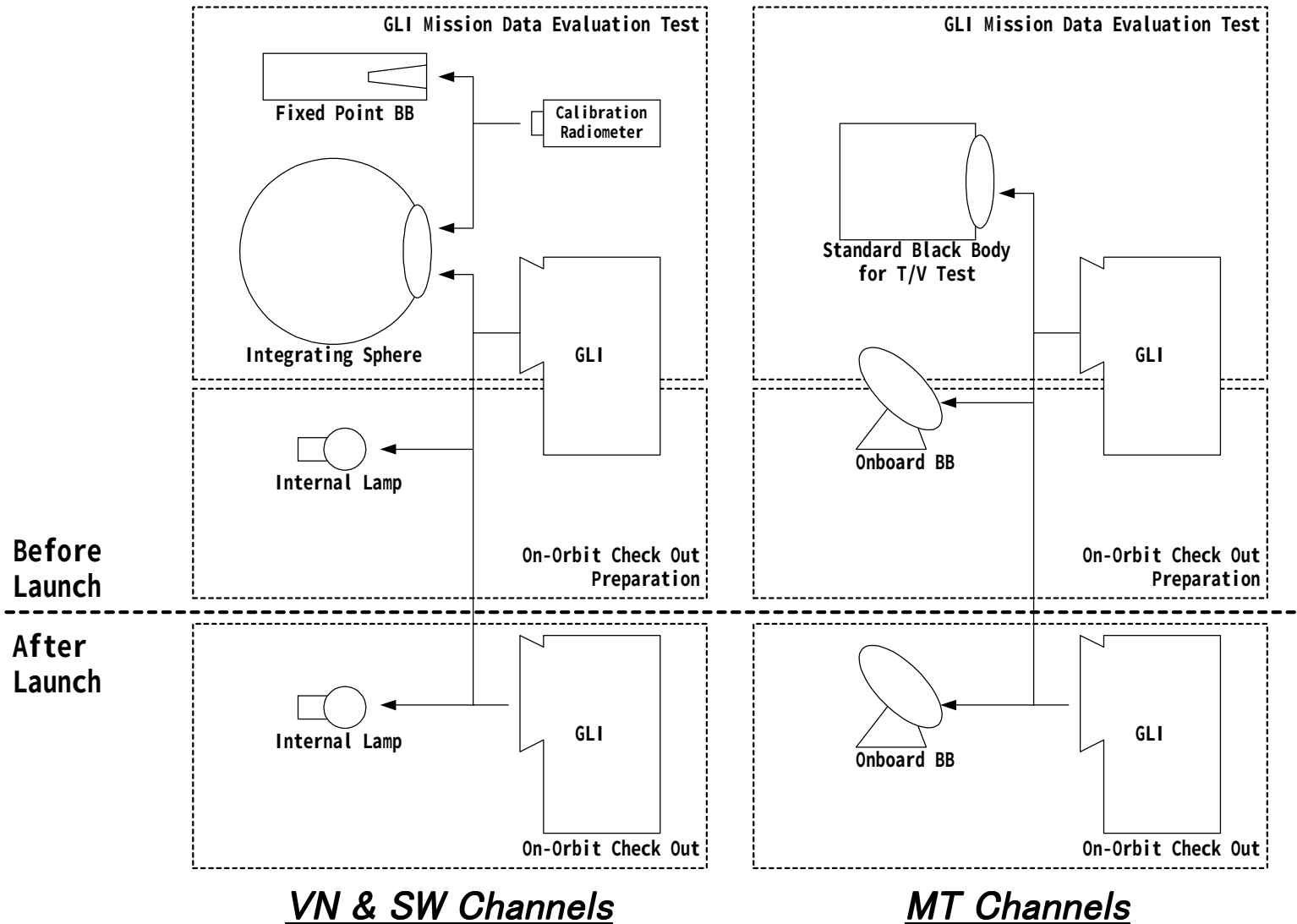
ADEOS-II Initial On-Orbit Checkout



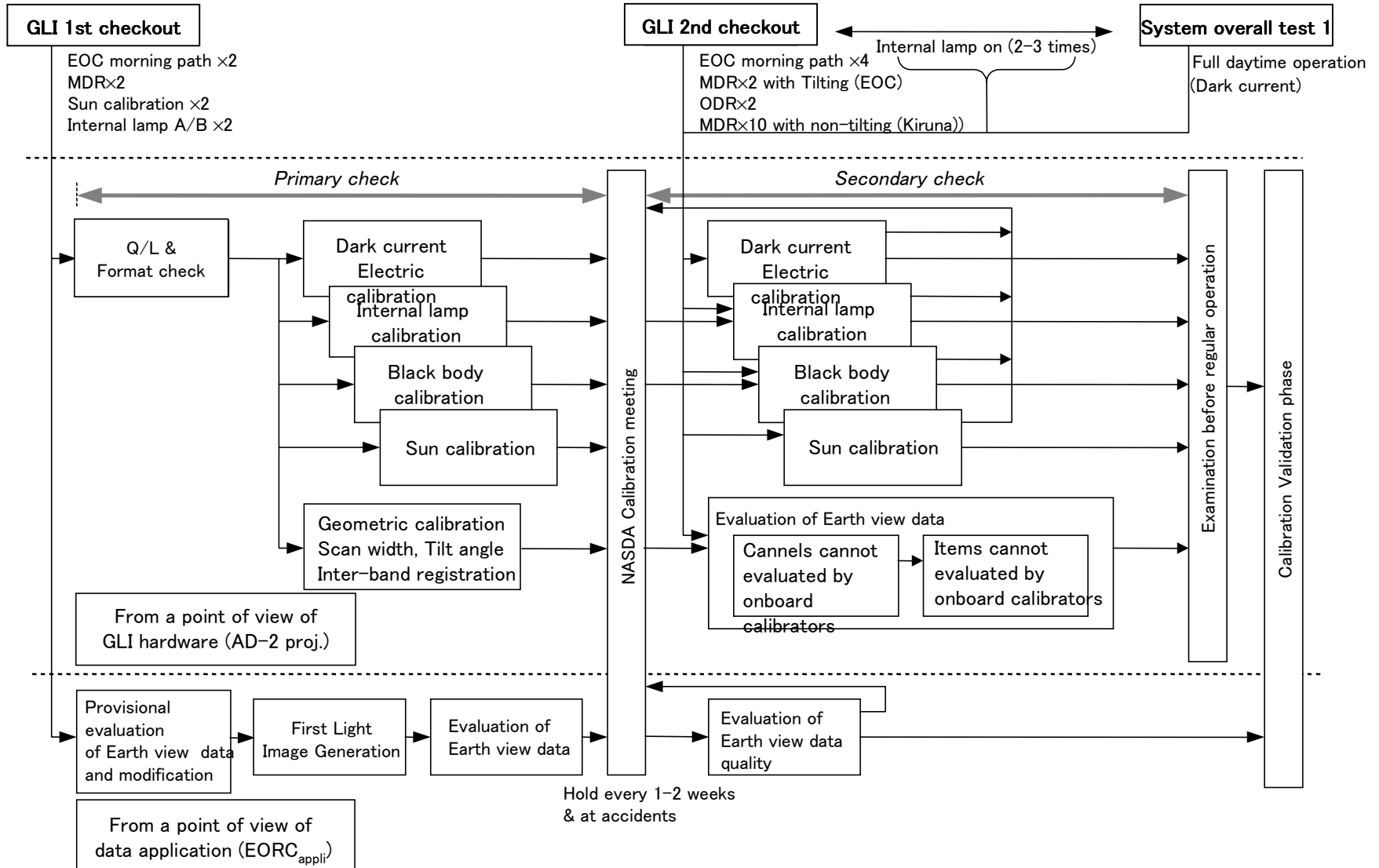
GLI Initial checkout outlines



GLI On-orbit Check Out



Flowchart of GLI initial checkout



Summary

- ADEOS-II/GLI is ready for launch in Feb 2002
- GLI Mission Data Evaluation Test was conducted upon the request from GLI Leaders.
- Preparation for on-orbit GLI performance check out is on-going.