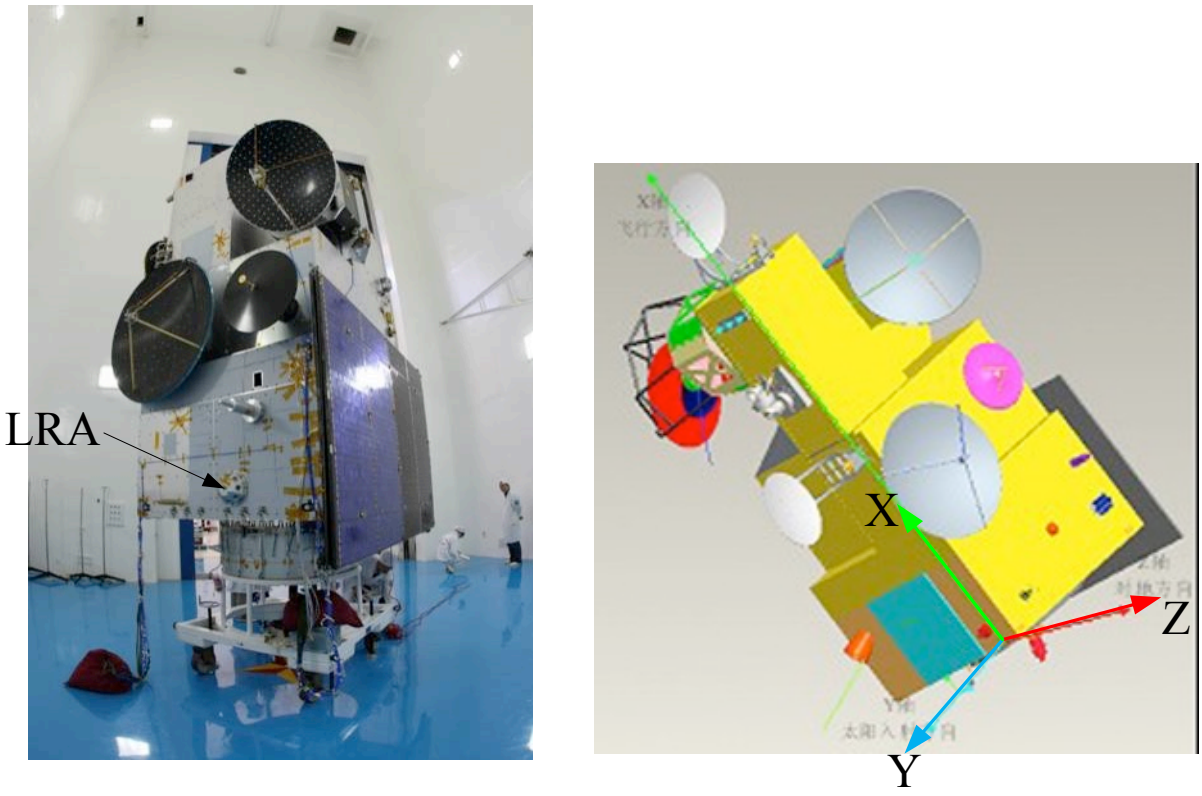

Fig.1 HY-2A satellite and the LRA

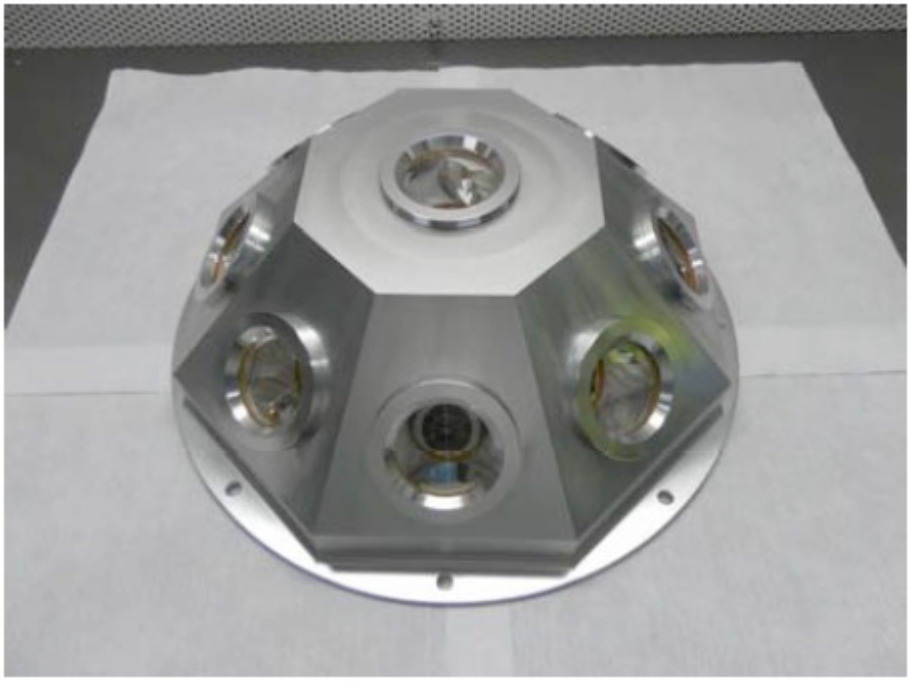

Fig.2 LRA configuration for HY-2A

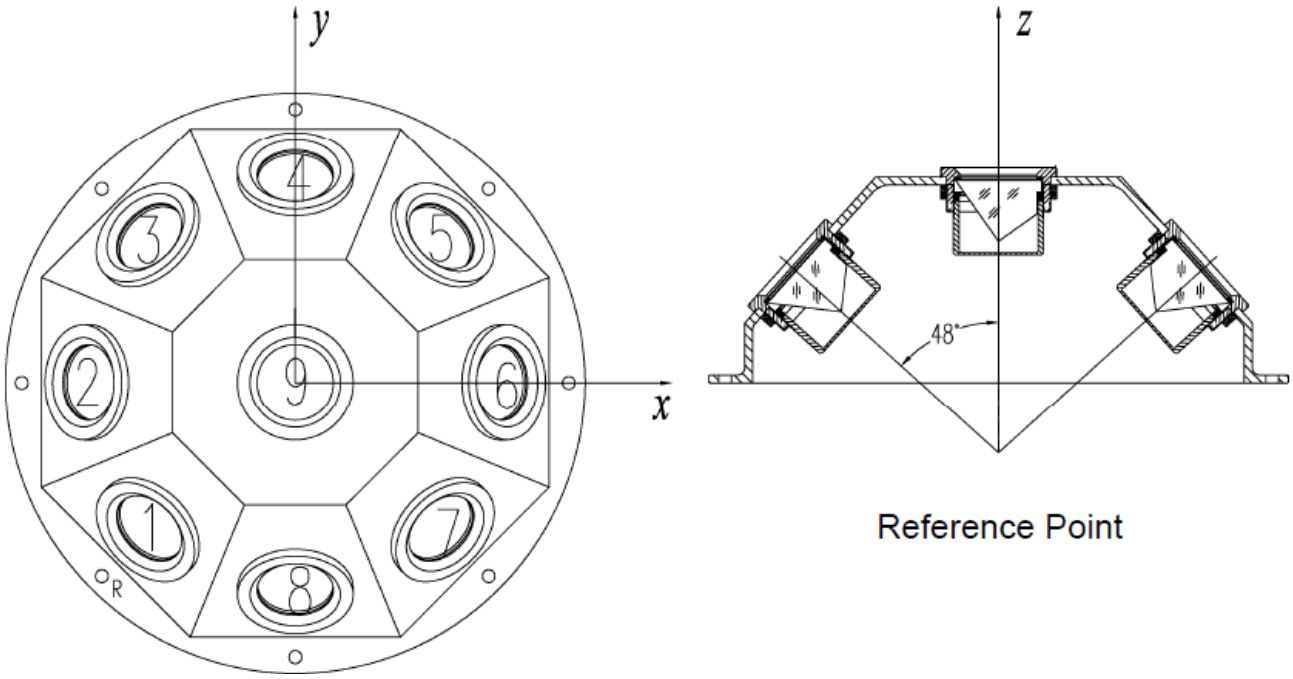

Fig.3 The structural profile of LRA for HY-2A

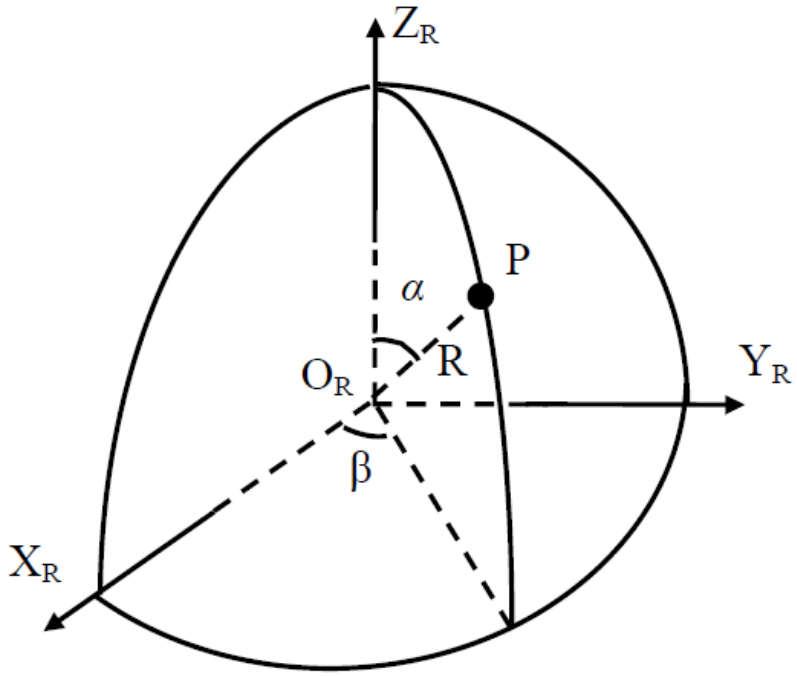

Fig.4 The definition of the orientation (α, β) of each cube **P** with spherical coordinates

The spherical center point (reference point) of LRA is (311, -268, 994) mm.

The range correction of LRA from spherical center is 73.7 mm.

The LRA reference point is spherical center point of LRA. The position of the center of the front face of each corner cube is as following (Fig.3):

No.1 (-61.74, -61.74, 78.62) mm, No.2 (-87.32, 0, 78.62) mm, No.3 (-61.74, 61.74, 78.62) mm, No.4 (0, 87.32, 78.62) mm, No.5 (61.74, 61.74, 78.62) mm, No.6 (87.32, 0, 78.62) mm, No.7 (61.74, -61.74, 78.62) mm, No.8 (0, -87.32, 78.62) mm, No.9 (0, 0, 117.5) mm

The definition of the orientation (α, β) of each cube with spherical coordinates as following (Fig.4):

No.1(48°, 225°) , No.2 (48°, 180°) , No.3 (48°, 135°) , No.4 (48°, 90°) , No.5 (48°, 45°) , No.6 (48°, 0°) , No.7 (48°, 315°) , No.8 (48°, 270°) , No.9 (0°, 0°)

Dihedral angle offset(s) and manufacturing tolerance:

No.1 (2.0 1.7 1.9) ", No.2 (1.8 1.9 1.9) ", No.3 (1.7 1.9 2.0) ",
No.4 (1.9 1.9 1.8) ", No.5 (1.9 1.9 2.0) ", No.6 (1.7 1.9 2.1) ",
No.7 (2.0 2.1 2.2)", No.8 (1.9 2.1 2.1) ", No.9 (2.1 2.2 2.1)"

Refractive Index and Dispersion:

Conditions: 22 °C, 760 mm Hg, N_2

Wavelength [Vacuum] [nm]	Refractive Index[2] n	Thermal Coefficient $\Delta n/\Delta T$[3] [ppm/C]	Polynomial Dispersion Equation Constants[1], 22 °C	
1128.950	1.448866	9.6	A_0	2.104025406E+00
1014.260 n_t	1.450241	9.6	A_1	-1.456000330E-04
852.344 n_s	1.452463	9.7	A_2	-9.049135390E-03
706.714 n_r	1.455144	9.9	A_3	8.801830992E-03
656.454 n_C	1.456364	9.9	A_4	8.435237228E-05
632.990	1.457016	10.0	A_5	1.681656789E-06
587.725 n_d	1.458461	10.1	A_6	-1.675425449E-08
546.227 n_e	1.460076	10.2	A_7	8.326602461E-10
486.269 n_F	1.463123	10.4		
435.957 n_g	1.466691	10.6	**Sellmeier Dispersion Equation Constants[2], 22 °C**	
404.770 n_h	1.469615	10.8	A_1	0.68374049400
365.119 n_i	1.474539	11.2	A_2	0.42032361300
334.244	1.479764	11.6	A_3	0.58502748000
312.657	1.484493	12.0		
253.728	1.505522	13.9	B_1	0.00460352869
228.872	1.521154	15.5	B_2	0.01339688560
214.506	1.533722	17.0	B_3	64.49327320000
206.266	1.542665	18.1		
194.227	1.558918	20.3	**$\Delta n/\Delta T$ Dispersion Equation Constants[3], 20-25 °C**	
184.950	1.575017	22.7	C_0	9.390590
			C_1	0.235290
			C_2	-1.318560E-03
			C_3	3.028870E-04

Other Optical Properties	
nF'-nC'	0.006797
Stress Coefficient	35.0 nm/cm MPa
Abbe Constants:	
V_e	67.6
V_d	67.8

**1 Polynomial Equation:* $n^2 = A_0 + A_1\lambda^4 + A_2\lambda^2 + A_3\lambda^{-2} + A_4\lambda^{-4} + A_5\lambda^{-6} + A_6\lambda^{-8} + A_7\lambda^{-10}$ *with λ in μm*

**2 Sellmeier Equation:* $n^2-1 = A_1\lambda^2/(\lambda^2 - B_1) + A_2\lambda^2/(\lambda^2 - B_2) + A_3\lambda^2/(\lambda^2 - B_3)$ *with λ in μm*

**3 Δn/ΔT Equation:* $\Delta n/\Delta T\ [ppm/C] = C_0 + C_1\lambda^{-2} + C_2\lambda^{-4} + C_3\lambda^{-6}$ *with λ in μm*

The above dispersion equations for SiO_2 *were fit to the refractive indices of 20 wavelengths from 1129 nm to 185 nm.*