

南極 12m テラヘルツ望遠鏡(ATT12)の感度一連続波一

(2021. 8. 9)

$D = 12$ [m], $\eta = 0.95$, $\eta_0 = 0.70$, $T_{atm} = T_{amb} = 200$ [K],

NEP= 1×10^{-17} [W Hz^{-1/2}]@300-500GHz, 5×10^{-17} @850GHz, 1×10^{-16} @>1THz

$\eta_{op}=0.3$ @300-500GHz, 0.2 @850GHz, 0.1 @>1THz

	Freq. [GHz]	HPBW [“]	η_A	B [BHz]	NEFD [mJy s ^{1/2}]	Sensitivity 5 σ_{rms} [mJy]		Confusion 5 σ [mJy]
						$\tau = 1hr$	10 hr	
PWV=0.14mm (冬季 50% level)								
$\epsilon = 20 \mu m$	100	61.8	0.695	30	10.75	0.896	0.283	
	230	26.9	0.674	35	10.62	0.885	0.280	1.38
	300	20.6	0.657	35	10.53	0.877	0.278	1.89
	350	17.7	0.642	35	12.20	1.017	0.322	2.055
	400	15.5	0.626	40	13.89	1.158	0.366	2.28
	460	13.4	0.603	46	17.88	1.490	0.471	2.43
	500	12.4	0.587	50	23.33	1.944	0.615	2.445
	650	9.5	0.521	65	22.67	1.889	0.598	1.965
	850	7.3	0.422	85	44.33	3.694	1.169	2.49
	1000	6.2	0.347	50	488.14	40.678	12.866	1.71
	1300	4.8	0.306	65	460.95	38.413	12.150	0
	1500	4.1	0.144	75	978.70	81.558	25.796	0
	2000	3.1	0.060	50	8594.30	716.191	226.523	0
$\epsilon = 15 \mu m$	850		0.526		35.57	2.96	0.94	2.62
	1000		0.472		358.86	29.91	9.46	3.32
	1300		0.360		391.81	32.65	10.33	2.28
	1500		0.288		489.35	45.78	12.90	
	2000		0.206		2503.19	208.60	65.98	
PWV=0.10mm (冬季 25% level)								
$\epsilon = 20 \mu m$	850				37.25	3.10	0.98	2.49
	1000				132.10	11.01	3.48	1.71
	1300				136.69	11.39	3.60	
	1500				300.31	25.03	7.92	
	2000				1878.72	156.56	49.52	
$\epsilon = 15 \mu m$	850		0.526		29.89	2.49	0.79	2.49
	1000		0.472		202.06	16.84	5.33	1.71
	1300		0.360		233.27	19.44	6.15	

	1500		0.288		292.20	24.44	7.70	
	2000		0.206		1025.31	85.44	27.02	