

Skynet n48/n77/n78 antenna T1 sample measurement

2024/12/19

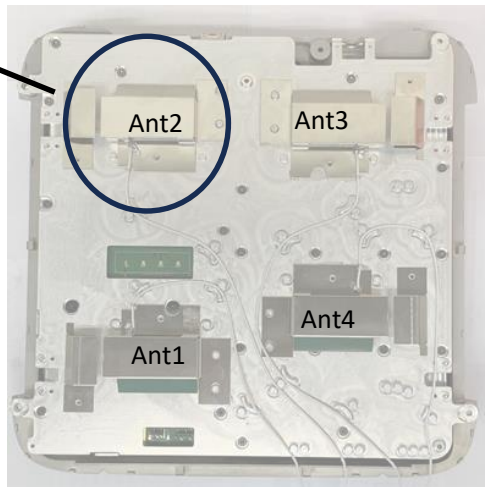
核心研發中心-無線通訊處-天線研發一部

Wireless Communication Div. Ant Dep.

Antenna structure , measurement condition and specification display

✓ We measured the n48 /n77/n78 antenna structures with Skynet mockup environment.

Model	n48 /n77/n78 band only
Antenna structure	
Frequency band	3.3~4.2 GHz
Antenna type	PIFA antenna
Antenna size (mm)	40*30*13
Ant1 No.	1415-0B0A000
Ant2 No.	1415-0B0B000
Ant3 No.	1415-0B0C000
Ant4 No.	1415-0B0D000
Antenna peak gain spec.	6 dBi
Efficiency spec.	> -3 dB
2D Radiation pattern (150°) spec.	> -2 dBi



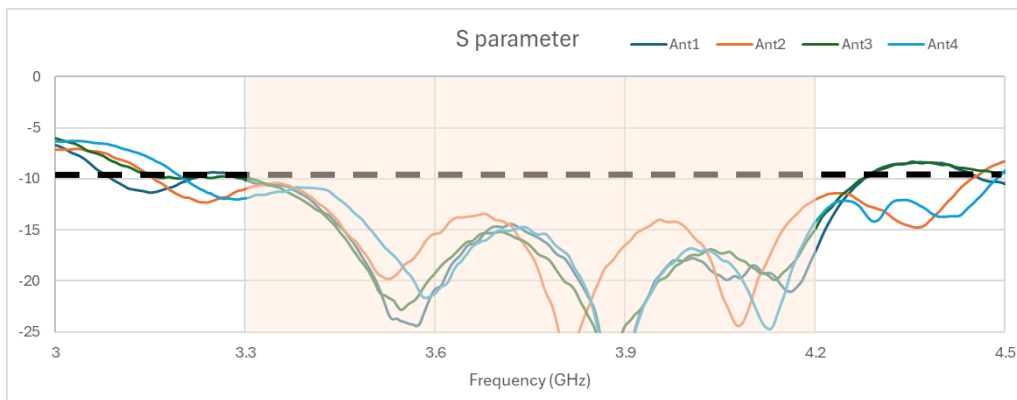
S parameter

- ✓ The measured results of all antenna models could meet under -10 dB spec.

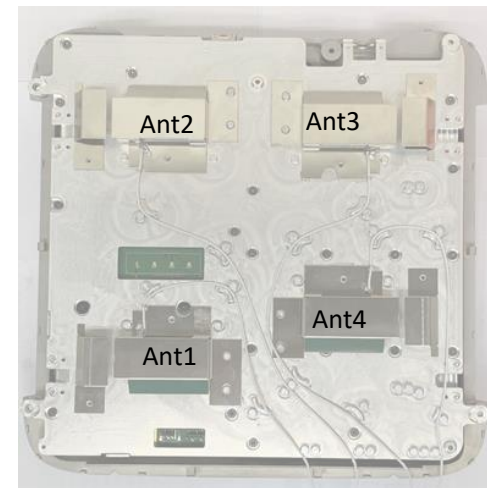
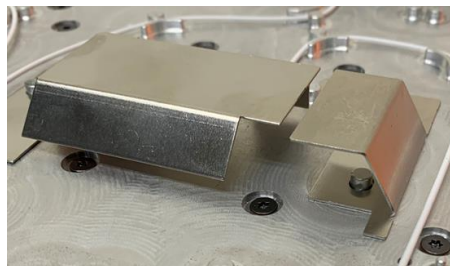
Model

n48 /n77/n78 band

S11 results



Freq.	N77: 3.3 ~ 4.2 GHz			
	Port 1	Port 2	Port 3	Port 4
SPEC	Under -10 dB			
Result	Pass	Pass	Pass	Pass



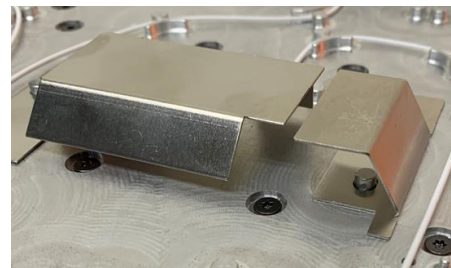
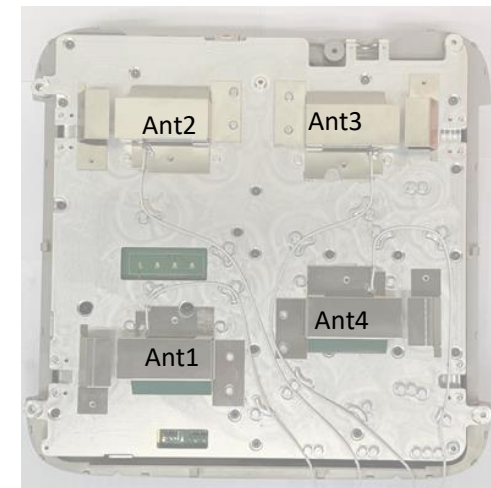
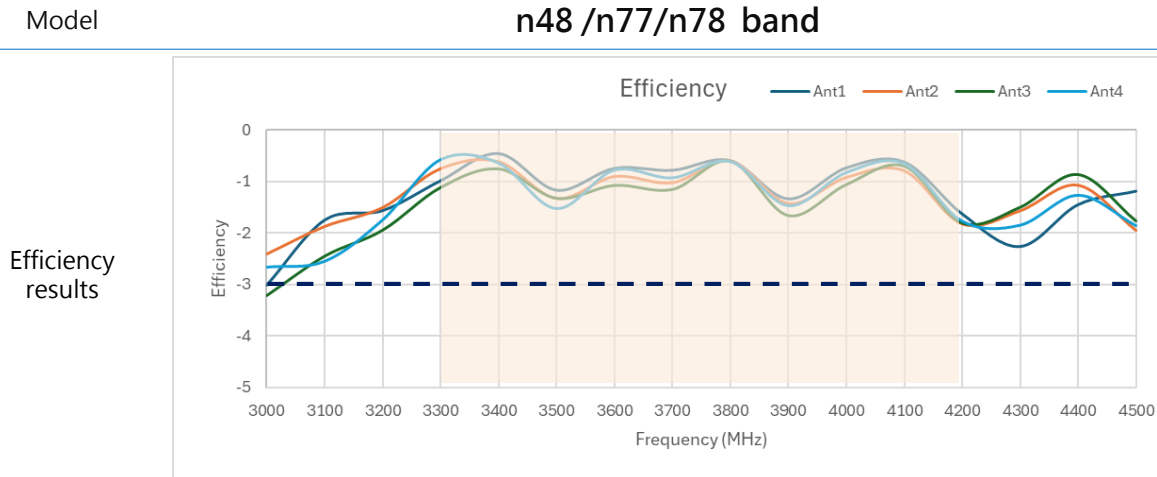
Envelope correlation coefficient (ECC)

✓ The measured ECC of n48 /n77/n78 internal antenna T1 sample are under 0.063 dB.

n77	Freq.(MHz)	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950	4000	4050	4100	4150	4200
ANT 1 - ANT 2	ECC	0.013736	0.027994	0.012762	0.000691	0.027477	0.018709	0.014745	0.038546	0.009785	0.005412	0.035299	0.010811	0.026647	0.051687	0.002694	0.015419	0.018222	0.004080	0.022782
ANT 1 - ANT 3	ECC	0.000120	0.000897	0.000152	0.001460	0.001967	0.000234	0.000007	0.000885	0.000303	0.000080	0.000399	0.000878	0.000359	0.000696	0.000078	0.000894	0.000835	0.001439	0.000422
ANT 1 - ANT 4	ECC	0.000574	0.000833	0.003748	0.002021	0.000246	0.001499	0.001945	0.001361	0.000541	0.000084	0.000343	0.002426	0.000861	0.000623	0.000949	0.000147	0.001998	0.003596	0.000234
ANT 2 - ANT 3	ECC	0.000988	0.000187	0.000820	0.000487	0.000820	0.004458	0.000087	0.000944	0.000007	0.002134	0.005480	0.000222	0.001585	0.000203	0.000558	0.001362	0.002432	0.001197	0.000061
ANT 2 - ANT 4	ECC	0.000571	0.000876	0.000348	0.002248	0.000902	0.000143	0.000648	0.000331	0.000362	0.000587	0.001375	0.000686	0.000336	0.000723	0.000546	0.000180	0.000299	0.000017	0.000078
ANT 3 - ANT 4	ECC	0.050232	0.033443	0.000517	0.038582	0.056252	0.002858	0.045486	0.013697	0.011423	0.045987	0.032838	0.001677	0.062064	0.005479	0.033423	0.057862	0.010458	0.028119	0.019511

Efficiency

- ✓ The results of all antenna models could meet above -3 dB spec.



Freq.	N77: 3.3 ~ 4.2 GHz			
	Port 1	Port 2	Port 3	Port 4
SPEC	Above -3 dB			
Result	Pass	Pass	Pass	Pass

Peak gain

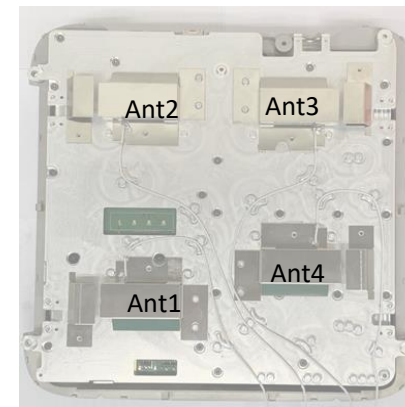
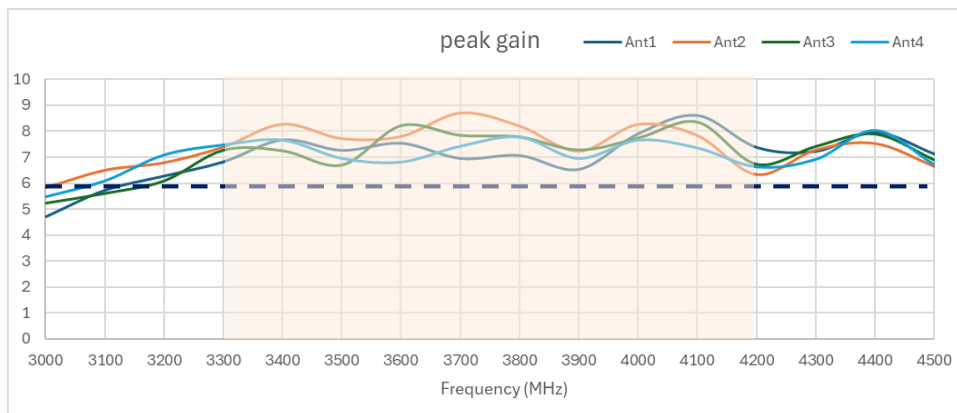
- ✓ Peak gain of n48 /n77/n78 band T1 sample get from 6.33 dBi to 8.72 dBi at 3.3 ~ 4.2 GHz



Model

n48 /n77/n78 band

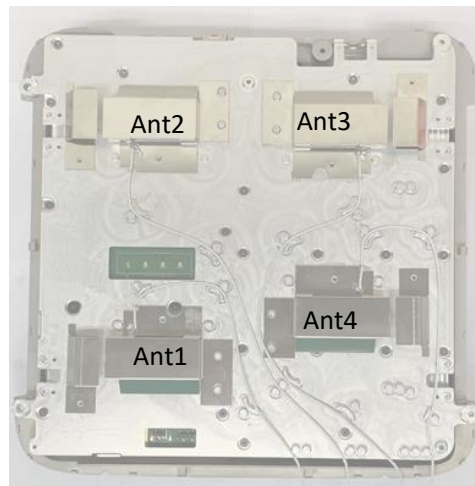
Peak gain results



Freq.	3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4	4.1	4.2	4.3	4.4	4.5
Ant1	4.69	5.72	6.27	6.82	7.67	7.27	7.55	6.95	7.07	6.53	7.91	8.62	7.38	7.23	7.97	7.13
Ant2	5.82	6.50	6.79	7.40	8.28	7.72	7.81	8.72	8.21	7.24	8.27	7.84	6.33	7.28	7.53	6.64
Ant3	5.24	5.61	6.09	7.27	7.24	6.70	8.21	7.84	7.78	7.28	7.74	8.35	6.73	7.42	7.89	6.89
Ant4	5.47	6.08	7.08	7.47	7.65	6.94	6.80	7.41	7.76	6.94	7.65	7.35	6.62	6.91	8.02	6.70

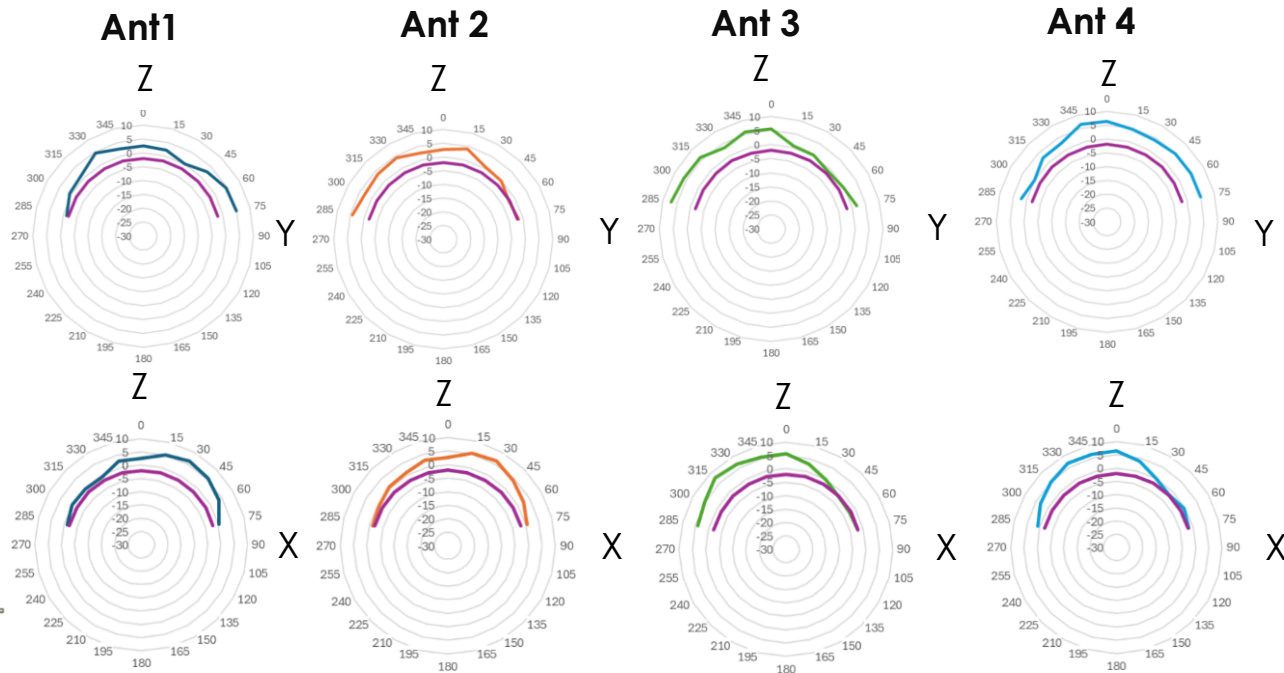
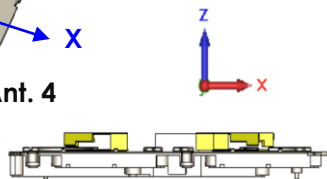
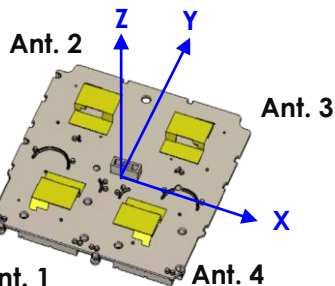
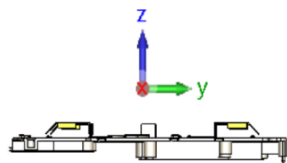
Freq.	N77: 3.3 ~ 4.2 GHz			
	Ant1	Ant2	Ant3	Ant4
SPEC	Above 6 dB			
Result	Pass	Pass	Pass	Pass

n48 /n77/n78 band only model _2D radiation patterns



n48 /n77/n78 band only model 2D radiation patterns

✓ The measured results margin pass the specification.



	Port 1	Port 2	Port 3	Port 4
Spec	-2 dBi			
result	Pass	Pass	Pass	Pass

— minimal gain

Summary

- ✓ This report show the measured results of the n48 /n77/n78 antenna T1 sample at the corners.
- ✓ According to the measured results, all antennas can pass the spec.
- ✓ The following table shows the n48 /n77/n78 band specification.

	SPECIFICATION
Return Loss	< -10 dB
Efficiency	> -3 dB
Peak gain	> 6 dBi
2D Radiation pattern ($\pm 75^\circ$)	> -2 dBi



THANK YOU