



Antenna Radiation Pattern Test Report

liu gang

Approved by: Liu Gang

1. Information of Equipment under Test

Equipment	BT Antenna
Brand Name	NOKIA
Model Name	5Gmm28-A
Part Number	3TG03336AAAA
Applicant	NOKIA
Manufacturer	NOKIA

2. Testing Location

Testing Location	
NOKIA SBELL	ADD: 389#, Ningqiao Road, Pudong District, China (Shanghai)

Test Condition	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	Liu Gang	20-24 / 45-60	03.11.2024~03.12.2024



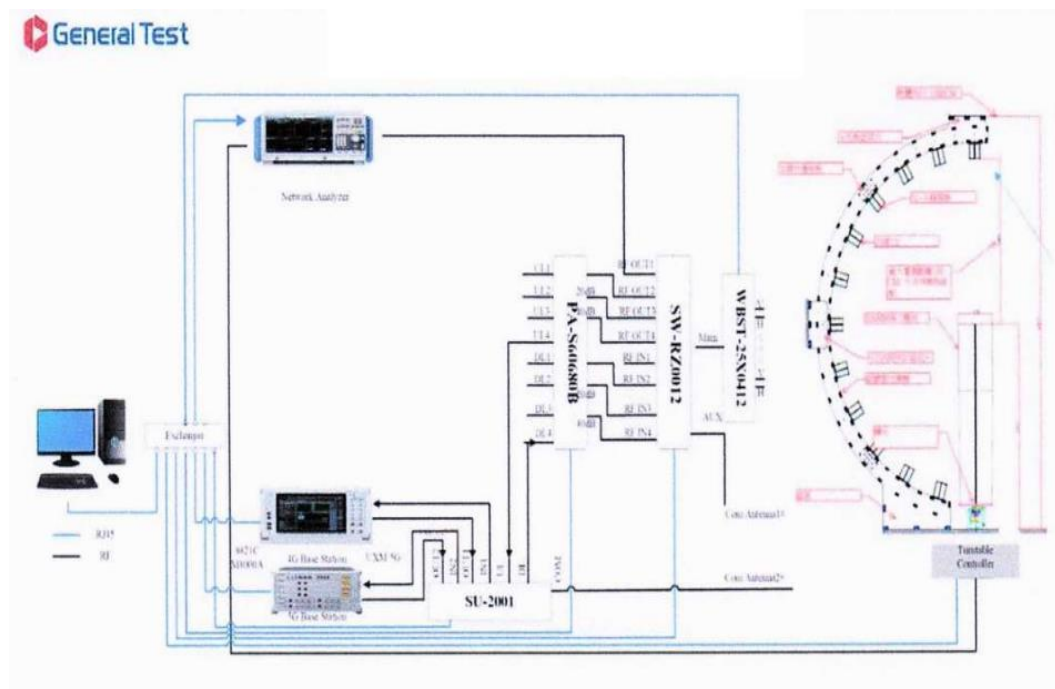
3. Test Frequency

Band (MHz)	Test Frequency (MHz)
2400-2485	2400/2480

4. Antenna Information

Ant. Position	Brand Name	Model name	Ant. Type	Connector
BT Antenna	NOKIA	5Gmm28-A	Dipole	i-PEX

5. Test Configuration





6. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date
Chamber	GTS	2800	CT10122090B5105	2022.9.1	2024.8.31
VNA	Keysight	E5071C	RN1406	2023.2.3	2025.2.2
SW	GTS	MaxSign LibraV1.1.17	NA	NA	NA

7. Test Method

The “great circle” cut method, whereby the Measurement Antenna remains fixed and the EUT is rotated about two axes in sequential order. The radiated RF performance of the Equipment Under Test (EUT) is measured by sampling the radiated transmit power of the mobile at various locations surrounding the device. A three-dimensional



characterization of the 'transmit' performance of the EUT is pieced together by analyzing the data from the spatially distributed measurements.

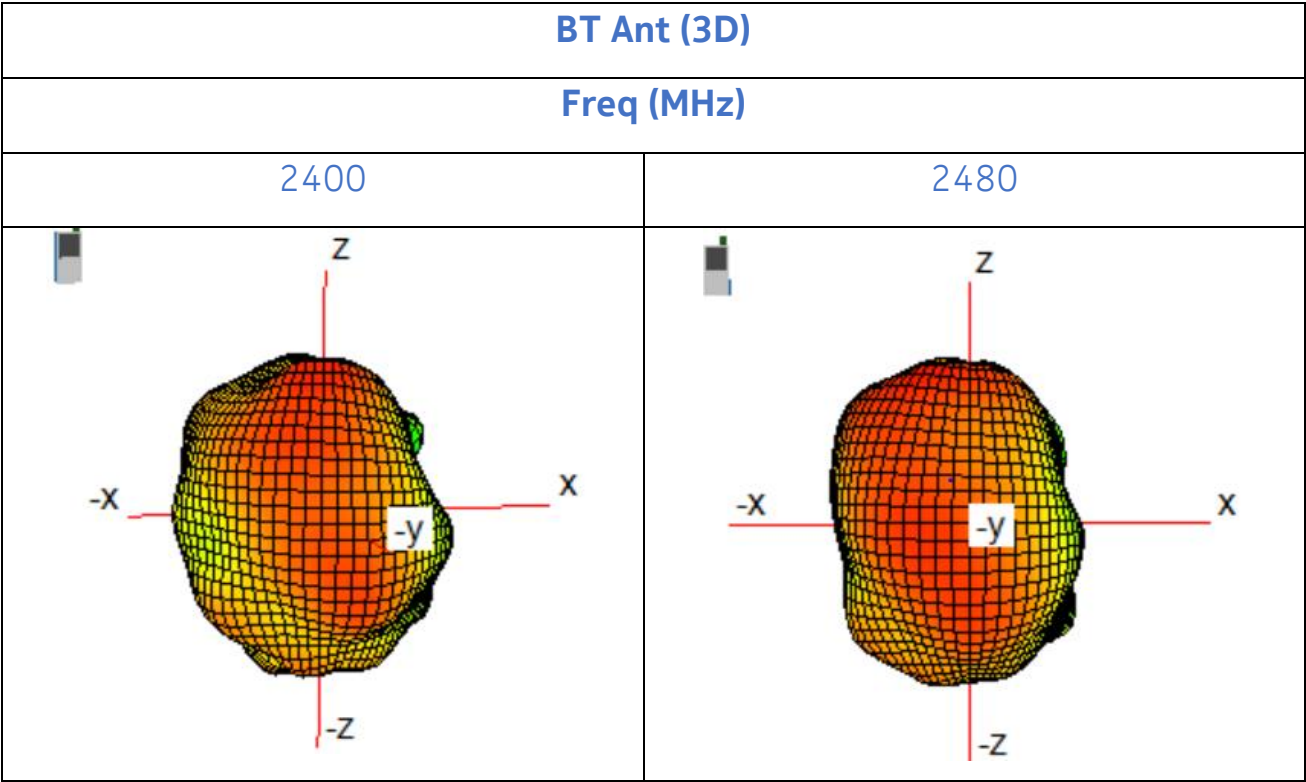
Data points taken every 15 degrees in the theta and in the phi axes are deemed sufficient to fully characterize the EUT's Far-Field radiation pattern and total radiated power All of the measured power values will be integrated

8. Measured Values and Calculation of Correlated Gains

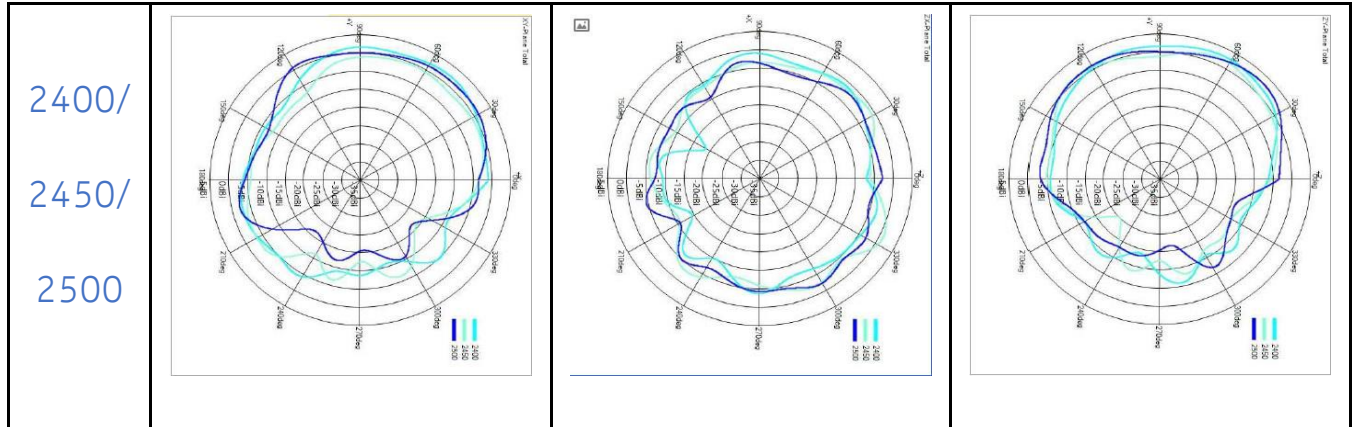
Antenna Peak Gain Table (Ant. Position: BT Antenna)

Band (MHz)	2400-2485	
Freq (MHz)	2400	2480
Max Gain (dBi)	3.2	3.85

9. Radiation Pattern



Freq (MHz)	BT Ant (2D)		
	X_Y	X_Z	Y_Z



Appendix_Radiated Total Gain Result

2400MHz													
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-2.35	-3.23	-5.64	-6.41	-9.02	-	-	-	-6.81	-1.81	-3.77	-2.21	-5.89
15	-2.06	-5.22	-7.84	-5.39	-6.99	-	-	-	-5.34	-2.68	-4.07	-2.04	-5.89
30	-1.76	-7.21	-	-4.36	-4.95	-	-	-8.87	-3.86	-3.54	-4.36	-1.86	-5.89
45	-1.89	-5.41	-7.14	-4.46	-6.91	-	-9.13	-6.78	-4.84	-5.82	-5.77	-1.64	-5.89
60	-2.01	-3.61	-4.24	-4.56	-8.86	-6.58	-6.27	-4.68	-5.82	-8.10	-7.18	-1.41	-5.89
75	-2.14	-3.17	-3.38	-3.96	-6.62	-6.50	-8.13	-4.35	-2.59	-4.40	-9.35	-1.22	-5.89
90	-2.27	-2.73	-2.51	-3.36	-4.38	-6.41	-9.99	-4.01	0.64	-0.69	-	-1.02	-5.89
105	-2.13	-3.37	-1.67	-3.80	-5.19	-5.88	-7.10	-3.13	-0.09	-2.47	-8.56	-0.05	-5.89
120	-1.99	-4.01	-0.83	-4.24	-6.00	-5.34	-4.20	-2.24	-0.82	-4.24	-5.61	0.93	-5.89
135	-1.82	-3.92	-1.60	-2.15	-3.38	-4.82	-4.99	-4.27	-3.48	-4.65	-3.09	1.52	-5.89
150	-1.64	-3.83	-2.36	-0.05	-0.75	-4.30	-5.77	-6.29	-6.14	-5.06	-0.57	2.10	-5.89
165	-1.83	-1.87	-1.29	0.27	-0.70	-3.17	-3.66	-4.39	-4.38	-4.23	-1.37	1.24	-5.89
180	-2.01	0.09	-0.22	0.59	-0.64	-2.04	-1.55	-2.48	-2.61	-3.40	-2.16	0.38	-5.89
195	-2.21	-0.27	-0.30	0.76	0.32	-1.10	-1.77	-2.16	-0.60	-1.38	-3.10	-2.97	-5.89
210	-2.41	-0.63	-0.38	0.92	1.28	-0.15	-1.99	-1.84	1.42	0.65	-4.04	-6.31	-5.89
225	-2.06	-1.12	1.80	2.18	2.38	1.19	-0.03	-0.31	0.47	0.52	-0.98	-5.00	-5.89
240	-1.70	-1.61	3.00	3.24	3.08	2.52	1.94	1.22	-0.49	0.38	2.08	-3.69	-5.89
255	-1.89	-1.38	3.19	2.90	2.89	2.12	2.24	2.23	1.22	0.08	1.30	-2.43	-5.89
270	-2.08	-1.15	3.19	2.35	2.29	1.71	2.54	3.24	2.93	-0.23	0.52	-1.17	-5.89
285	-2.13	-1.54	1.73	0.25	-0.37	-0.33	0.22	0.89	0.32	-1.27	0.63	-1.88	-5.89



300	-2.17	-1.93	-0.14	-1.85	-3.03	-2.36	-2.11	-1.47	-2.29	-2.31	0.74	-2.59	-5.89
315	-2.13	-2.06	-3.16	-4.05	-6.65	-5.73	-3.64	-2.91	-3.52	-2.49	-1.73	-3.22	-5.89
330	-2.08	-2.19	-6.17	-6.24	-10.26	-9.10	-5.17	-4.34	-4.75	-2.67	-4.20	-3.85	-5.89
345	-2.22	-2.71	-5.91	-6.33	-9.64	-10.10	-10.34	-9.77	-5.78	-2.24	-3.99	-3.03	-5.89
360	-2.35	-3.23	-5.64	-6.41	-9.02	-11.09	-15.50	-15.20	-6.81	-1.81	-3.77	-2.21	-5.89

2480MHz													
Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
0	-2.23	-1.53	-2.70	-5.08	-9.67	13.34	16.30	12.69	-9.28	-3.95	-3.39	-2.35	-4.34
15	-2.59	-2.03	-3.99	-5.70	10.58	12.90	12.76	11.94	-9.22	-5.08	-4.79	-2.72	-4.34
30	-2.94	-2.52	-5.27	-6.32	11.48	12.46	-9.22	11.19	-9.16	-6.20	-6.18	-3.08	-4.34
45	-2.75	-4.57	-3.39	-5.01	-9.51	10.27	-7.93	-9.78	-8.19	-6.81	-6.61	-3.40	-4.34
60	-2.56	-6.61	-1.50	-3.70	-7.54	-8.07	-6.63	-8.36	-7.21	-7.41	-7.04	-3.72	-4.34
75	-2.41	-6.72	-0.85	-3.16	-7.43	-9.15	10.18	-9.77	-5.56	-7.50	-8.72	-3.59	-4.34
90	-2.25	-6.82	-0.19	-2.61	-7.31	10.23	13.72	11.18	-3.91	-7.58	10.39	-3.46	-4.34
105	-2.49	-6.09	-1.06	-2.15	-6.69	-8.83	-9.45	-8.35	-4.79	-7.62	10.01	-2.90	-4.34
120	-2.73	-5.36	-1.92	-1.68	-6.07	-7.43	-5.18	-5.52	-5.67	-7.65	-9.62	-2.33	-4.34
135	-2.83	-2.89	-1.76	-1.91	-4.84	-6.04	-5.67	-5.55	-6.61	-7.04	-6.18	-1.99	-4.34
150	-2.93	-0.41	-1.59	-2.14	-3.60	-4.65	-6.16	-5.58	-7.55	-6.43	-2.73	-1.64	-4.34
165	-2.90	-1.81	-1.51	-1.02	-2.61	-4.62	-6.55	-7.20	-8.92	-8.04	-5.31	-2.36	-4.34
180	-2.86	-3.20	-1.43	0.11	-1.61	-4.59	-6.93	-8.81	10.28	-9.64	-7.89	-3.07	-4.34
195	-2.85	-2.21	0.72	1.27	-0.24	-3.05	-5.34	-6.61	-6.22	-4.63	-4.63	-3.89	-4.34
210	-2.83	-1.21	2.87	2.43	1.13	-1.50	-3.75	-4.40	-2.16	0.38	-1.37	-4.71	-4.34
225	-2.85	0.88	3.09	2.73	2.11	0.90	-0.29	-1.03	-0.48	0.29	0.00	-2.81	-4.34
240	-2.86	2.96	3.31	3.03	3.09	3.30	3.18	2.34	1.20	0.20	1.37	-0.91	-4.34
255	-2.85	3.05	2.79	2.39	3.37	3.75	3.66	3.24	2.51	1.18	1.08	-0.39	-4.34
270	-2.84	3.14	2.26	1.75	3.64	3.85	3.06	3.05	3.82	2.16	0.78	0.14	-4.34
285	-2.94	2.01	1.68	0.87	1.32	1.35	1.70	2.09	2.18	1.13	0.32	-0.04	-4.34
300	-3.04	0.88	1.09	-0.02	-1.01	-1.50	-0.74	0.05	0.54	0.09	-0.15	-0.21	-4.34
315	-2.77	-1.12	-0.34	-1.95	-3.50	-4.68	-4.26	-3.20	-2.77	-1.79	-1.40	-1.19	-4.34
330	-2.50	-3.12	-1.76	-3.87	-5.99	-7.86	-7.78	-6.44	-6.08	-3.67	-2.64	-2.17	-4.34
345	-2.37	-2.33	-2.23	-4.48	-7.83	10.60	12.04	-9.57	-7.68	-3.81	-3.02	-2.26	-4.34
360	-2.23	-1.53	-2.70	-5.08	-9.67	13.34	16.30	12.69	-9.28	-3.95	-3.39	-2.35	-4.34

NOKIA