

2.Sample Information

2.1 Client information

Name	Xiaomi Communication Technology Co. LTD
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

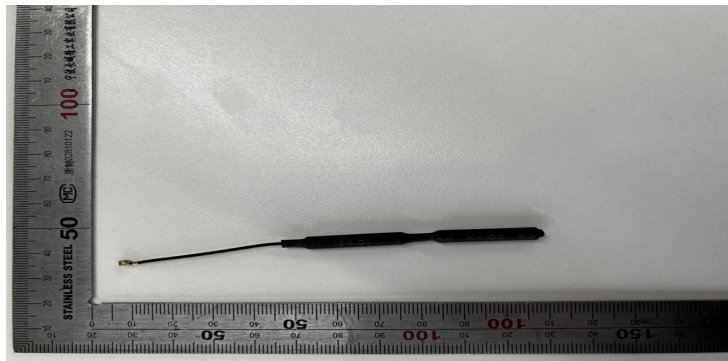
2.2 Description of Sample

Product Name	2.4GHz WIFI/BT Module
Sample Modle	MHCWB8S-IB
Test Item	VSWR, Peak Gian, Radiation Efficiency, Radiation pattern
Frequency Range	2400-2480MHz
Received Date	2024.5.17
Test Date	2024.5.17
Remark	RF Cable: cable length=100mm, IPEX

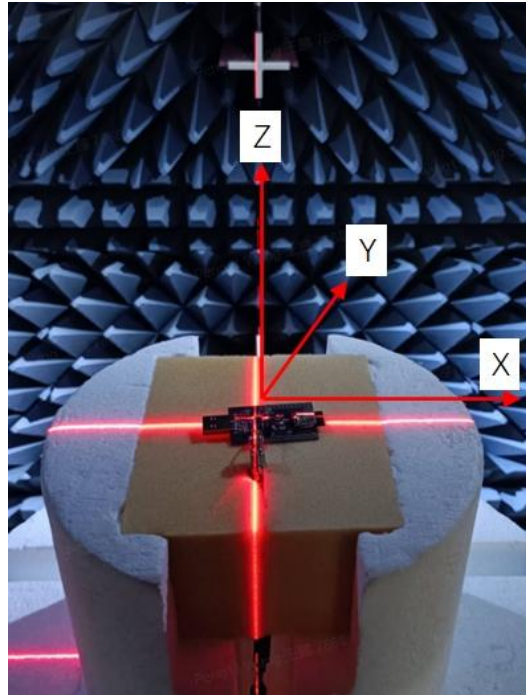
2.3 Sample appearance



2.4 Antenna size



2.5 DUT setup photo of free space OTA testing



3. Test Results

3.1 Test standard

Name	Parameter	Method	Standard no.
Mobile communication antenna	VSWR	Generic specification for antennas used in the mobile communications	GB/T 9410-2008
	Antenna gain		
	Radiation pattern		
Antenna	Radiation efficiency	IEEE Standard Test Procedures for Antennas	ANSI/IEEE Std 149-1979

	Gain and directivity	
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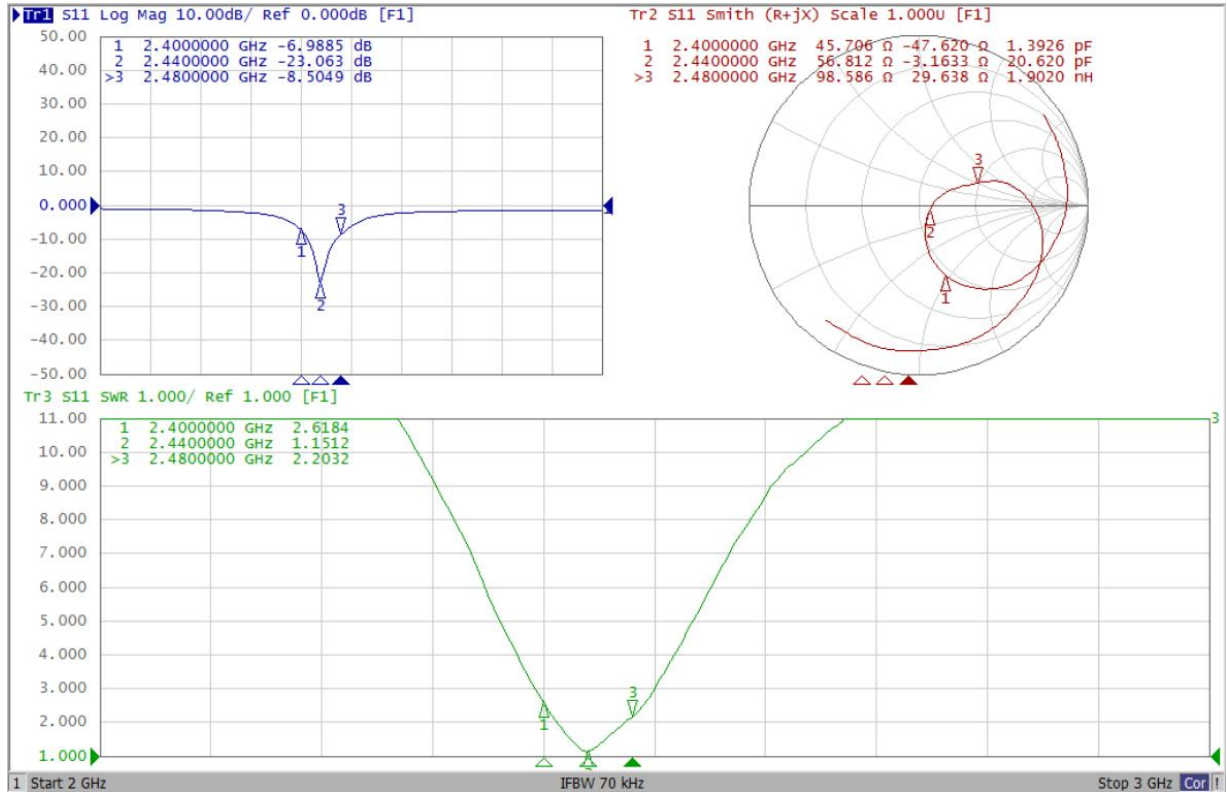
3.2 Test uncertainty

The uncertainty was calculated on the basis of the GUM published by ISO, using the inclusion factor of K=2 and the 95% confidence level to express the extended uncertainty.

Item	Uncertainty
VSWR	± 0.3
Antenna gain	$\pm 1.0 \text{ dBi}$
Radiation efficiency	$\pm 10\%$

3.3 Test data

3.3.1 Network analyzer S parameter



3.3.2 S11 Data

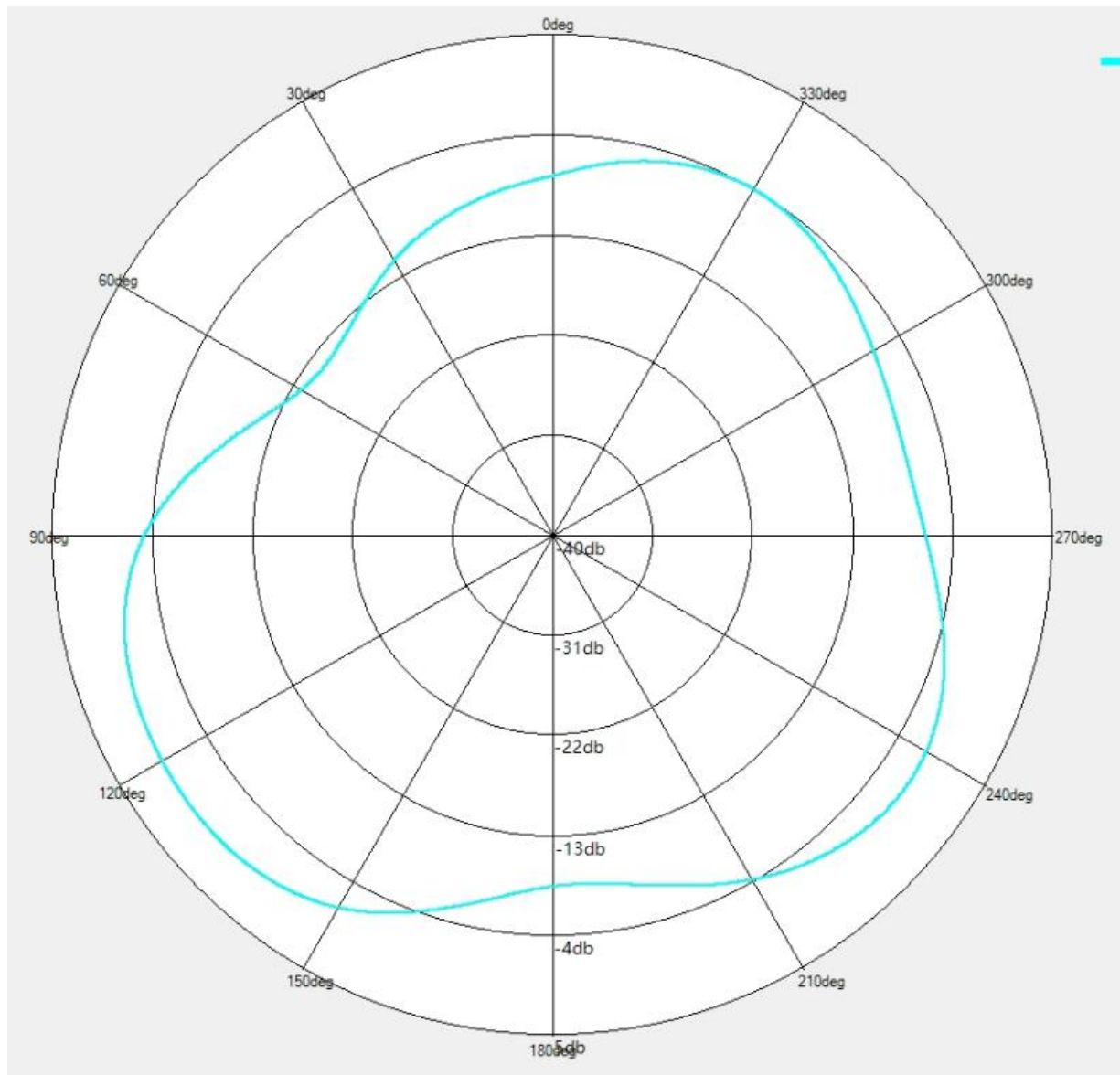
Frequency/MHz	2400	2440	2480
VSWR	2.6	1.2	2.2

3.3.3 Typical free space efficiency and gain

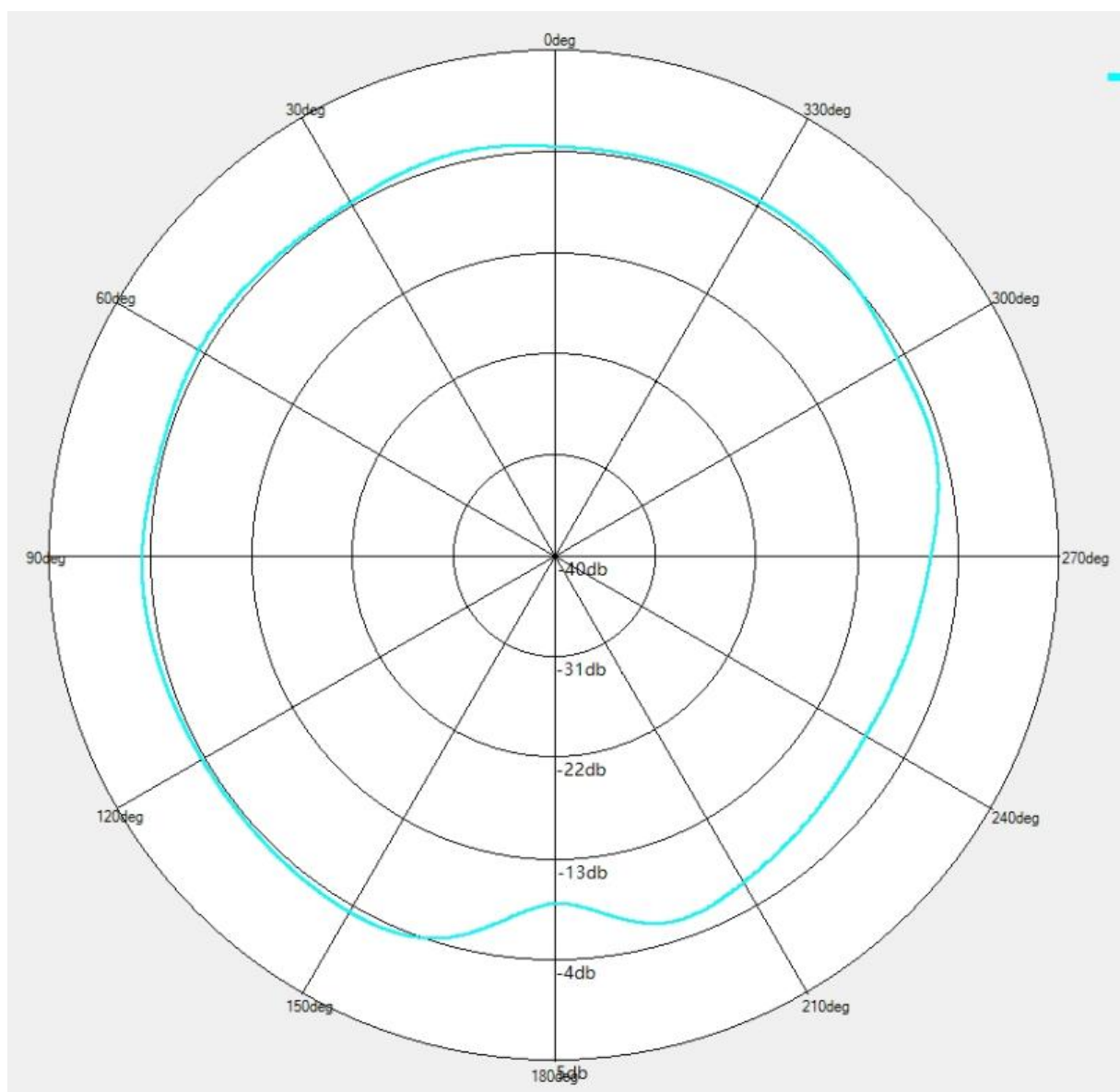
Frequency/MHz	2400	2410	2420	2430	2440	2450	2460	2470	2480
Peak Gain/dBi	-0.3	0.0	0.4	0.7	0.7	0.6	0.3	0.1	0.2
Efficiency/%	35.2	38.9	42.1	44.7	45.1	43.7	41.2	41.0	42.7

3.3.4 Typical free space radiation pattern

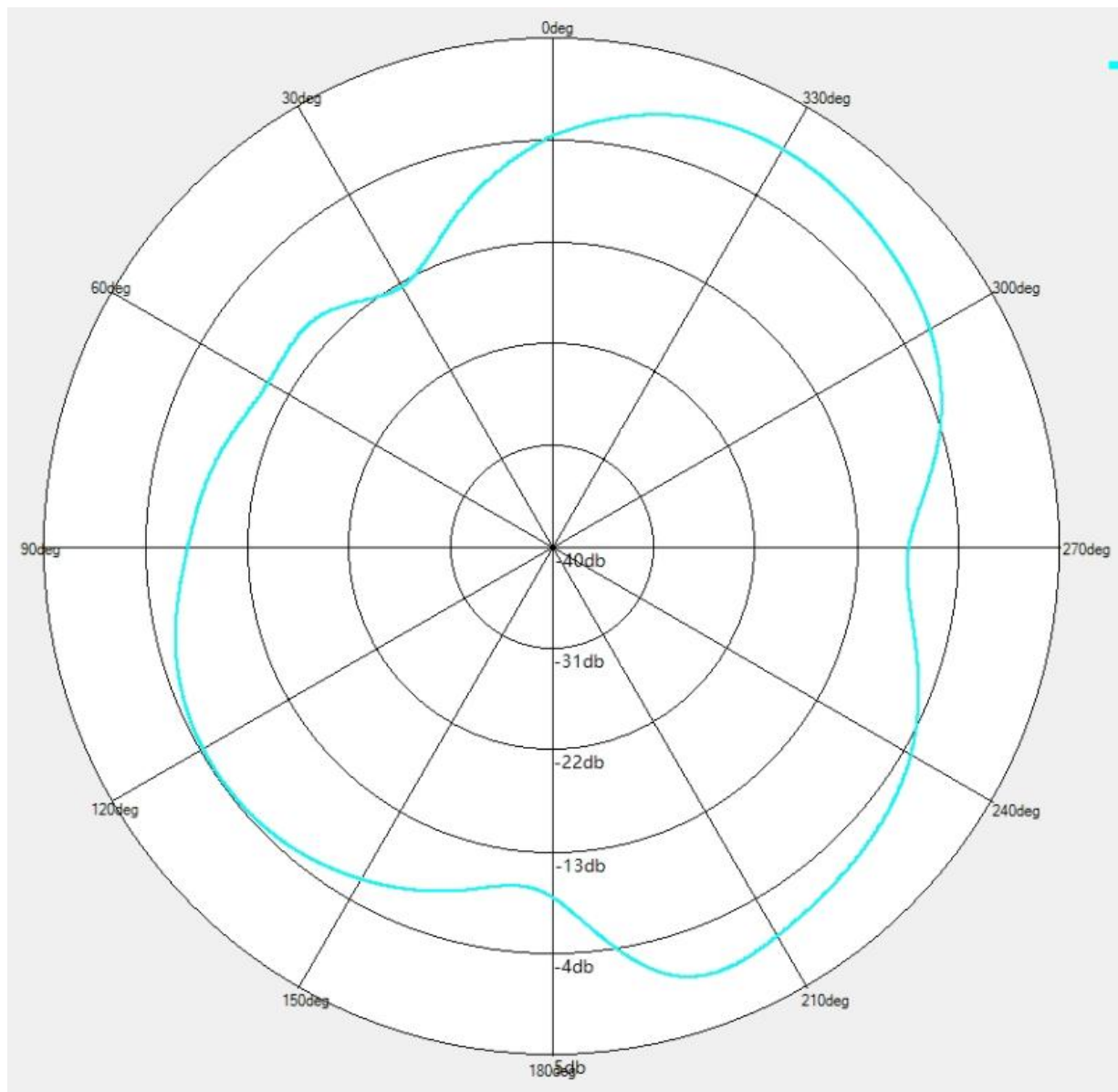
(1) X-Y Plane:



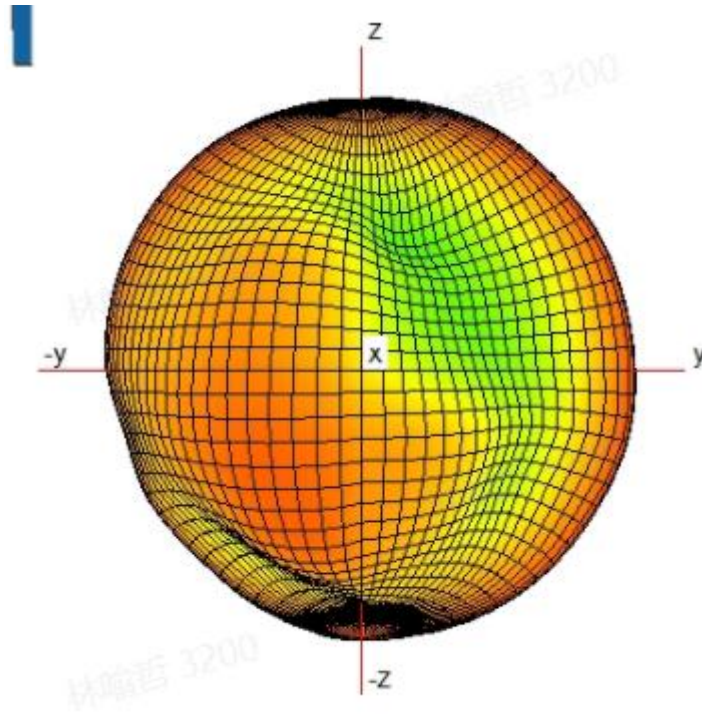
(2) Y-Z Plane:



(3) X-Z Plane:



(4) Typical Free Space 3D Radiation Pattern at 2440MHz:



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