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2024.4.15	A	Initial sheet	Haiou.Zhu

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1 Antenna description

It summarize BT 5.3 antennas for project S3PRO antenna's frequency band is 2400-2480MHz. BT 5.3 antenna's type is Monopole

1.1 Part number

Part number of antenna: S3PRO

1.2 Antenna pictures



2 Electrical Performance

2.1 Specification

BT	
Frequency Range	2400MHz~2500MHz
Return Loss	<-5
Efficiency	>25

2.2 Measurement Set-up

2.2.1 VSWR and Return Loss

VSWR measurements (S_{11}) were performed using an Agilent ENA series Network Analyzer and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

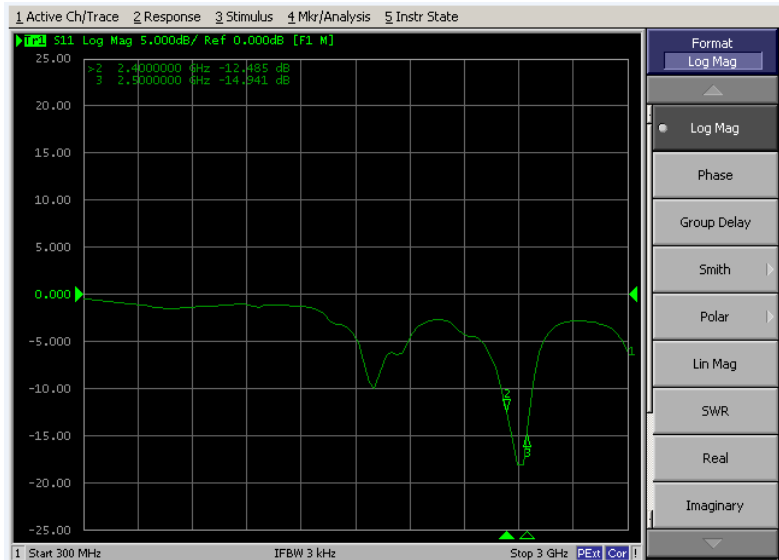
2.2.2 Efficiency and Gain

The gain of the antenna was measured in OPO's 3D anechoic chamber in Shenzhen, China. The chamber is a ETS system capable of doing tests from 380MHz to 6GHz. Coaxial chokes on the feed cable were used to mitigate surface currents during passive tests. The measurement results are calibrated using dipole standards. For TRP and TIS the chamber uses a 8960 / MT8820C to establish the connection with the mobile device and read the power.

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3 Reference measurement data

3.1 Passive



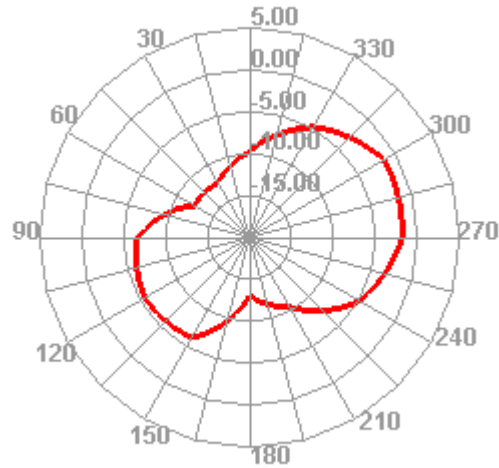
Return SWR

3.2 Active

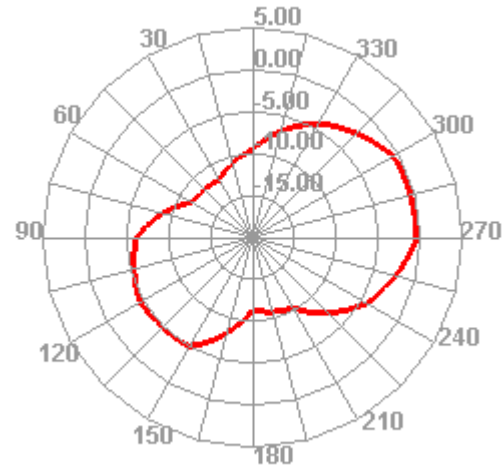
Test Result	Bluetooth TRP		
	0	39	78
Frequency (MHz)	2402	2441	2480
Txp Ave (dBm)	-4.99	-4.07	-4.09
NHPRP (dBm)	NULL	NULL	NULL
MAX (dBm)	-1.49	-0.44	-0.28
EIRP peak	-1.49	-0.44	-0.28
Min (dBm)	-13.09	-12.09	-13.55
Attenuation Horizontal		43.67	43.01

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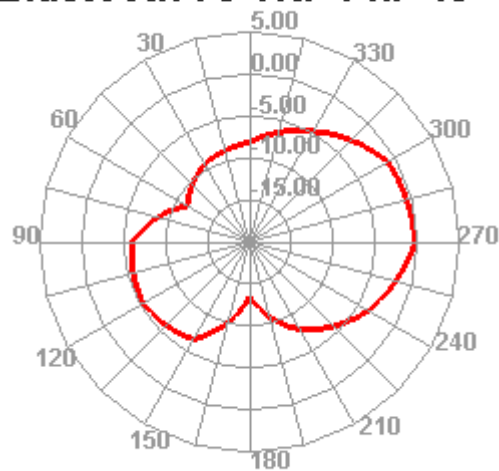
Bluetooth 0 TRP Phi=45



Bluetooth 39 TRP Phi=45



Bluetooth 78 TRP Phi=45



Passive Test For BT			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	25.67	-5.91	-1.16
2410	23.08	-6.37	-1.63
2420	22.4	-6.5	-1.69
2430	18.61	-7.3	-2.48
2440	22.47	-6.48	-1.59
2450	19.74	-7.05	-2.16
2460	23.88	-6.22	-1.29
2470	18.07	-7.43	-2.76
2480	22.83	-6.41	-1.88
2490	18.32	-7.37	-3.07
2500	20.56	-6.87	-2.96

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