NETGEAR®

MR6400 Mobile Hotspot
Antenna Specification

FCC ID: PY322100558

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Revision history

| Rev	Date	Author(s)	Summary of changes
1.0	May 2nd, 2022	Kwong Lem	First Release

1 Introduction

The MR6400 is a multi-band multi-mode 5GNR-LTE-WLAN device that supports modem and hotspot functionalities. The MR6400 is equipped with radios that supports LTE and FR1 with 2-, 3-, 4-, 5-CA for LTE, LTE+FR1 and ENDC modes respectively. In addition, the MR6400 supports 5GNR in SA and NSA mode. MR6400 supports QPSK, 16QAM, 64QAM and 256QAM in uplink and downlink respectively.

The MR6400 uses internal integral custom designed antenna. The antenna is constructed on flexible printed circuit board material. The antennas for each band have a frequency response tuned to their specific range of operation.

2   Antenna Specification

There are 6 internal antennas on the board for LTE, 5GNR and WiFi operation. The antenna placement is shown below.
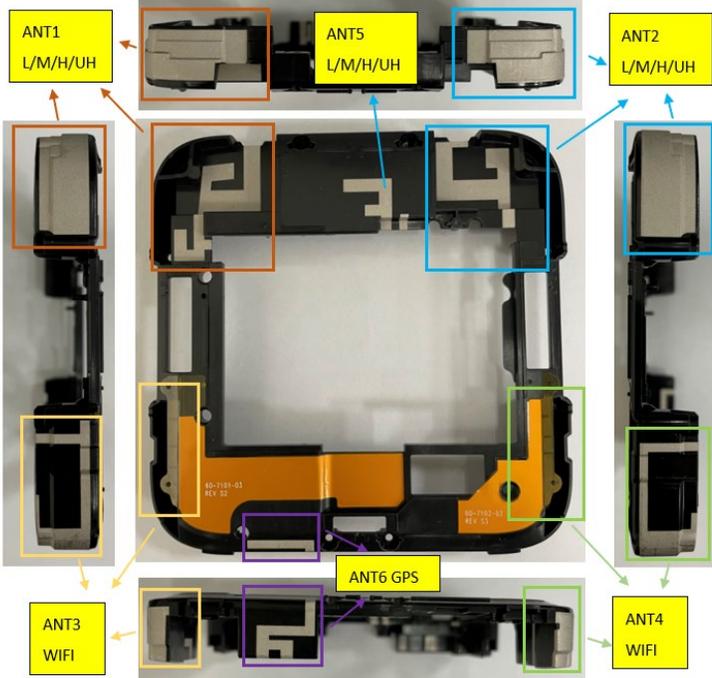
3   Measurement of antenna gain and performance

The antenna peak gain is tested by Agilent E5071C Network Analyzer in normal ETS-Lindgren AMS8500 Chamber. The test method used is 3D direct gain measurement, and DUT test setup references from the free space test in CTIA OTA test plan. The ETS test software version 1.08 Build 119869

The diagram below provides the setup of the measurement,

ETS-Lindgren Chamber Setting (Measurement Peak Gain)
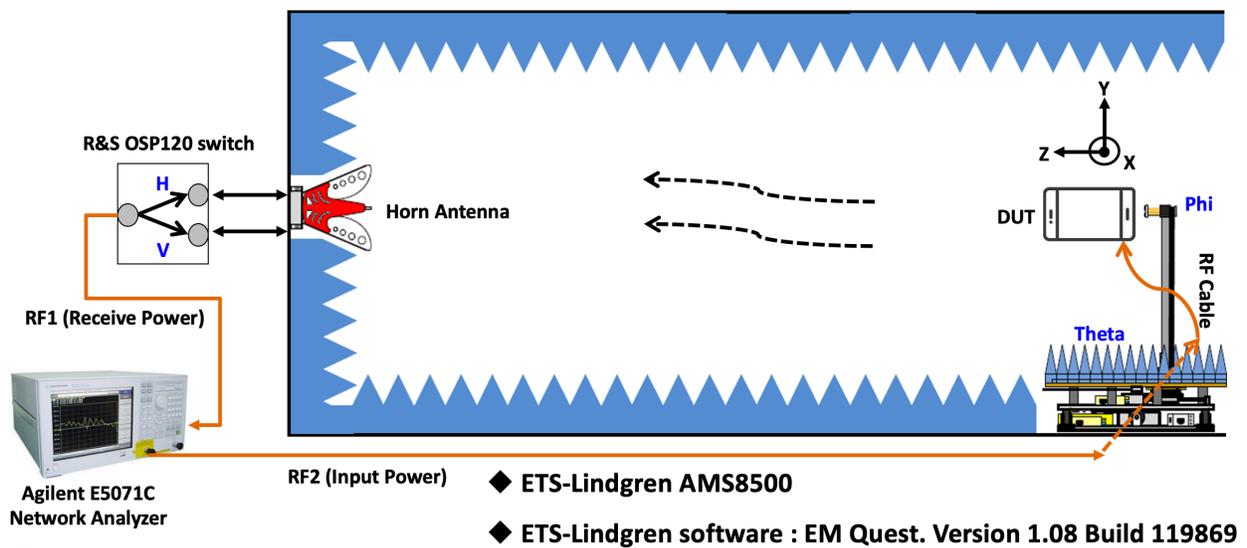
The list of test equipment and software used are as follows,

- ETS-Lindgren fully anechoic antenna test chamber
- Agilent E5071C Network analyzer
- ETS-Lindgren software: EM Quest software version 1.08 Build 119869

The measured internal antenna gain of the device are shown in the table below.

Frequency (MHz)	Bands	Ant1 Gain	Ant2 Gain	Ant5 Gain	Ant6 Gain
1850-1919	LTE B2	0.67 dBi	0.45 dBi		
1710-1755	LTE B4	0.67 dBi	0.54 dBi		
824-849	LTE B5	-0.88 dBi	-1.60 dBi		
2500-2570	LTE B7	0.39 dBi	-0.53 dBi		
698-716	LTE B12	-0.83 dBi	-1.60 dBi		
777 - 787	LTE B13	-0.83 dBi	-1.60 dBi		
788-798	LTE B14	-0.83 dBi	-1.60 dBi		
1850 - 1915	LTE B25	0.67 dBi	0.45 dBi		
814 – 849	LTE B26	-0.88 dBi	-1.60 dBi		
717 – 728	LTE B29 (RX)	-0.83 dBi	-1.60 dBi		
2305-2315	LTE B30	1.03 dBi	1.05 dBi		
2496 - 2690	LTE B41	0.39 dBi	-0.53 dBi		
3550-3700	LTE B48	0.17 dBi	0.47 dBi		
1710-1780	LTE B66	0.67 dBi	0.54 dBi		
663 - 698	LTE B71	-0.83 dBi	-1.60 dBi		

Frequency (MHz)	Bands	Ant1 Gain (dBi)	Ant2 Gain (dBi)	Ant5 Gain	Ant6 Gain
1850-1919	n2	0.67 dBi	0.45 dBi		
824-849	n5	-0.88 dBi	-1.60 dBi		
698-716	n12	-0.83 dBi	-1.60 dBi		
788-798	n14	-0.83 dBi	-1.60 dBi		
1850 -1915	n25	0.67 dBi	0.45 dBi		
2305-2315	n30	1.03 dBi	1.05 dBi		
2496 - 2690	n41	0.39 dBi	-0.53 dBi		
3550 - 3700	n48	0.17 dBi	0.47 dBi		
1710-1780	n66	0.67 dBi	0.54 dBi		
663 - 698	n71	-0.83 dBi	-1.60 dBi		
3300-4200	n77	0.17 dBi	1.66 dBi	0.98 dBi	3.31 dBi

Remark: Ant5 and Ant6 are received only, for 5GNR SRS and GPS signal

Frequency (MHz)	Ant3 Gain (dBi)	Ant4 Gain (dBi)
2400~2483.5MHz	2.63 dBi	2.15 dBi
5150~5250MHz	3.29 dBi	2.59 dBi
5250~5350MHz	3.29 dBi	2.59 dBi
5470~5725MHz	3.29 dBi	2.59 dBi
5725~5850MHz	2.90 dBi	1.95 dBi
5925~6425MHz	3.40 dBi	1.54 dBi
6425~6525MHz	3.40 dBi	1.54 dBi
6525~6875MHz	3.40 dBi	1.54 dBi
6875-7125MHz	3.40 dBi	1.54 dBi

The performance of the transmitting antennas is shown below.

Antenna 1

X-Y plan

X-Z plan

Y-Z plan

Antenna 2

X-Y plan

X-Z plan

Y-Z plan

Antenna 3

X-Y plan

X-Z plan

Y-Z plan

Antenna 4

X-Y plan

X-Z plan

Y-Z plan