

Test report

**5G Network Trial at 3.5GHz band
with new 5G NR Equipment (8T8R RRU)
at Mongkok Flagship shop**

Temporary Permit No. T00681 & T00701

China Mobile Hong Kong Co. Ltd. (CMHK)

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Version 1.1

1. Introduction

CMHK has conducted 5G network field trial at a few locations since October 2018. Besides Massive MIMO AAU for 5G outdoor trial, another 5G site deployment solution was tested by using 8T8R RRU.

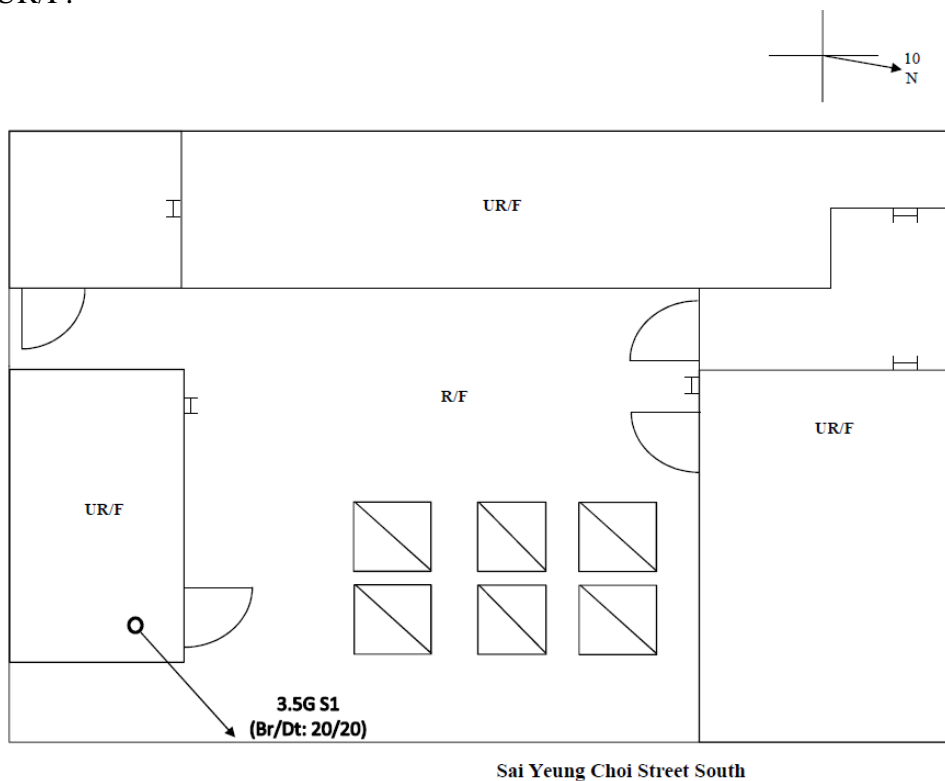
This test report will describe the setup and trial result of 5G 8T8R RRU equipment at Mongkok Flagship shop. The trial period approved in Permit T00681 is from 29-Aug-2019 to 5-Nov-2019, and the trial period approved in Permit T00701 is from 6-Nov-2019 to 31-Mar-2020.

2. Trial Location

- Location: UR/F, CMHK Mongkok Flagship Shop
- Testing Area : Sai Yeung Choi Street South
- 5G site location: Rooftop

The trial is based on 5G NSA network configuration. 5G 3.5GHz 8T8R RRU is installed at rooftop, and anchored to the existing 4G site at the same location.

UR/F:



3. Trial Setup

3.1 Test Equipment

Item	Device	Count
1	Outdoor Antenna (with 8T8R RRU5258)	1
2	5G Huawei Mobile	1

Huawei 3.5G 8T8R RRU5258 specification:

Frequency Band (MHz)	RX Frequency Band (MHz)	TX Frequency Band (MHz)	IBW (MHz)
3500	3400 - 3600	3400 - 3600	200

Mode	Capacity	Tx/Rx Channel
NR	1 carrier	8T8R

Frequency Band (MHz)	Maximum Transmit Power (W)
3500	8x30 W

Outdoor Antenna Huawei_AQU4515R1Vo6 specification:

Frequency Band (MHz)	Gain (dBi)	Polarization Mode	Directionality
3500	13.5	+45°, -45°	Directional

3.2 5G Test Equipment Setting

The spectrum approved for trial in permit T00681 is 3.44GHz to 3.5GHz, and was amended to 3.40GHz to 3.46GHz in permit T00701. The test result is based on 60MHz bandwidth setting approved in T00681.

Below is the 5G cell configuration:

Site	Pcell PCI	Type
5206	0	NR

	Cell Configuration
Frequency Band	n78
Downlink NARFCN	631334
Downlink Bandwidth	60MHz
Subcarrier Spacing(KHz)	30
Slot Assignment	7:3
Max Transmit Power (EIRP)	44.8 dBm
EN-DC	OFF

4. Measurement Result

3 test positions (highlighted in red) at Sai Yeung Choi Street South were measured for coverage and throughput.

Sai Yeung Choi Street South test positions:





5G Test mobile (Huawei Mate20x) was used to test the throughput by OFCA speed test APP.

Sai Yeung Choi Street South

Test position	RSRP (dBm)	SINR (dB)	Download (Mbps)	Upload (Mbps)	Network Latency (ms)
1	-73	5	316	60.2	9
2	-63	20	501	56.8	7
3	-80	7	371	51.5	10

Overall test summary:

Location	Avg RSRP (dBm)	Avg SINR (dB)	Avg Download (Mbps)	Avg Upload (Mbps)	Avg Latency (ms)
Sai Yeung Choi Street South	-72.0	10.6	396	56.1	8.6

5. Conclusion

The 5G outdoor site at 3.5GHz band by using 8T8R RRU is successfully deployed and tested at CMHK Mongkok Flagship shop. The measurement results verified that the coverage and data throughput of 5G NR are satisfactory with 60MHz bandwidth in the outdoor environment, with an achieved peak DL speed of 501Mbps with 60MHz bandwidth at a good position.