

# **Test report**

**5G Network Trial at 3.5GHz band  
in Hong Kong Productivity Council (HKPC)**

**Temporary Permit No. T00673 & T00701**

**China Mobile Hong Kong Co. Ltd. (CMHK)**

April-2020

Version 1.1

## 1. Introduction

In 11 July 2019, CMHK and Hong Kong Productivity Council (HKPC) signed a MOU for collaboration on automotive technology development in 5G. Initially, CMHK provided 5G network environment in the Automotive Parts and Accessory System (APAS) R&D Centre to support their Smart Mobility technology development and tests.

This test report will describe the setup and trial result of 5G indoor system installed in APAS R&D Center at HKPC building. The trial period approved in Permit T00673 is from 10-Jul-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: Hong Kong Productivity Council
- Testing Area : APAS R&D Lab in LG2
- 5G site location: Indoor

A 5G indoor lampsite at 3.5GHz band together with an anchored 4G lampsite are installed inside the Lab at LG2 floor as shown below.



### 3. Trial Setup

#### 3.1 Test Equipment

Item	Device	Count
1	5G pRRU5935	1
2	4G pRRU 5923	1
3	5G Samsung Mobile	1

Huawei 5G pRRU5935 specification:

Frequency Band (MHz)	RX Frequency Band (MHz)	TX Frequency Band (MHz)	IBW (MHz)
3500	3400 - 3600	3400 - 3600	100

Mode	Capacity	Tx/Rx Channel
NR	1 carrier	4T4R

Frequency Band (MHz)	Maximum Output Power (mW)
3500	4x250 mW

Frequency Band (MHz)	Gain (dBi)	Polarization Mode	Directionality
3500	4	Linear	Omnidirectional

pRRU5923 supports 1.8GHz, 2.1GHz and 2.6GHz band and acts as the anchored LTE site in this 5G NSA indoor network.

### 3.2 5G Test Equipment Setting

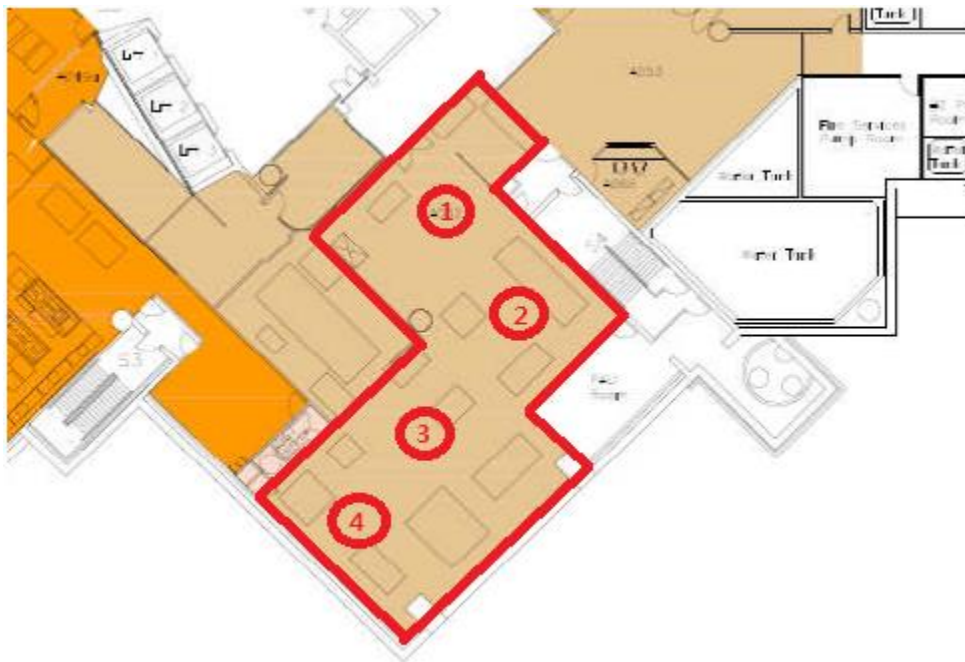
Below is the 5G cell configuration for the test at HKPC APAS Lab.

Site	Pcell PCI	Type
202073	100	NR

Cell Configuration	
Frequency Band	n78
Downlink NARFCN	633400
Downlink Bandwidth	100MHz
Subcarrier Spacing(KHz)	30
Slot Assignment	4:1
Max Transmit Power (EIRP)	30 dBm

### 4. Measurement Result

- 4 test positions at lab was measured for coverage and throughput
- Test area: APAS Lab in LG2



Test mobile (Samsung S10) was used to test the throughput by using OFCA speed test APP.

Test position	RSRP (dBm)	SINR (dB)	Download (Mbps)	Upload (Mbps)	Network Latency (ms)
1	-82	27	691	70.6	17
2	-82	27	695	67.1	16
3	-83	24	665	62.9	17
4	-86	24	683	63.8	16

Overall test summary:

Location	Avg RSRP (dBm)	Avg SINR (dB)	Avg Download (Mbps)	Avg Upload (Mbps)
APAS Lab	-83.25	25.50	683.5	16.5

## 5. Conclusion

The 5G indoor site (lampsite) at 3.5GHz band is successfully deployed and tested in HKPC APAS R&D Lab. The measurement results verified that the coverage and data throughput of 5G NR are satisfactory in the indoor environment, which is good enough to support HKPC for their Smart Mobility test under 5G environment inside the lab at that moment.