Test Report

5G Network Trial at Smart lamppost RBS at Lot no. TKT 1734,

Wing Shun Street, Kwai Chung, N.T.

Temporary Permit No. T00753

China Mobile Hong Kong Co. Ltd (CMHK)

30-Mar-2023
Version 1.0

1. Introduction

CMHK has set up a Smart Lamppost RBS trial site located at Lot no. GLA-TKT 1734, Wing Shun Street, Kwai Chung, N.T. The test report will describe the setup and trial result of 5G C-band (n78) performance conducted on 24-Nov-2022 of one carriers with 60MHz bandwidth. The trial period approved in temp permit T00753 is from 1-Oct-2022 to 31-Mar-2023.

2. Trial Location

- Location: Lot no. GLA-TKT 1734, Wing Shun Street, Kwai Chung, N.T
- Testing Area: Lot no. GLA-TKT 1734, Wing Shun Street, Kwai Chung, N.T
- 5G site type: Outdoor

5G 3.5GHz AAU is installed at Smart lamppost, Lot no. GLA-TKT 1734, Wing Shun Street as shown below.

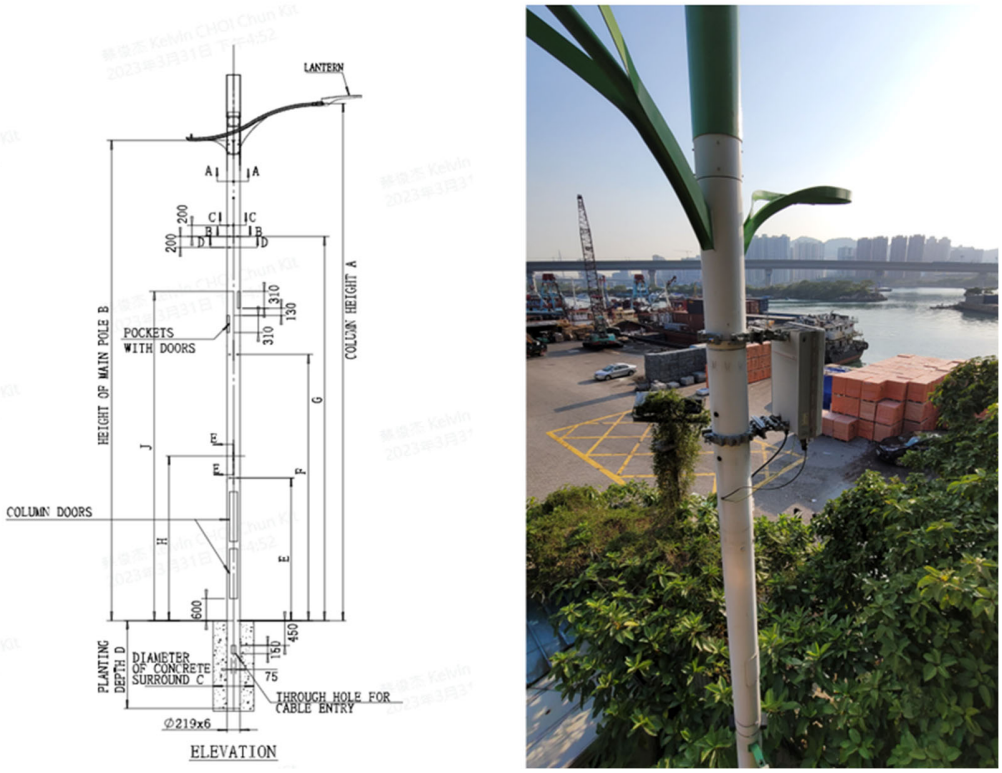

Figure 2-1 AAU trail location at Wing Shun Street Smart lamppost

3. Trial Setup

3.1 Test Equipment

Figure 3-1 AAU exterior

Item	Device or software	Count
1	AAU5339w	1 sets
2	Samsung Galaxy S21 Ultra	1 set

3.5GHz Huawei AAU specification:

Table 3-1 Operating frequency band

Frequency Band (GHz)	Operating Frequency Band (GHz)	Bandwidth (MHz)	IBW (MHz)
3.5	3.4 to 3.6	200	200

Table 3-2 Capacity

Mode	Capacity	Tx/Rx Channel
NR	1 carrier with 60MHz each	32T32R

Table 3-3 Output Power

Frequency Band (GHz)	Maximum Output Power
3.5	38 dBm@60 MHz

Table 3-4 Antenna electrical specifications

Frequency range (GHz)	Gain (dBi)	Polarization Mode	Directionality
3.4 to 3.6	25 dBi	+45 and –45	directional

3.2 Test Configuration

Below is 5G cell configuration for the test at Lot no. TKT 1734, Wing Shun Street, Kwai Chung, N.T.

	NR Cell Configuration
Frequency Band	n78
Downlink NARFCN	628666
Downlink Bandwidth	60MHz
Subcarrier Spacing(KHz)	30
Slot Assignment	7:3
Max Transmit Power (dBm)	38 dBm
EN-DC	ON

4. Measurement Result

6 test positions (highlighted in green) at Lot no. TKT 1734 were measured for coverage and throughput.

Figure 4-1 Test points location

Samsung Galaxy S21 Ultra was being used to test the throughput.

Test Point	Distance to site	RSRP (dBm)	SINR (dB)	Download (Mbps)	Upload (Mbps)	Network Latency (ms)
1	63	-54.0	37.5	510.0	91.5	12.0
2	103	-69.0	34.5	427.0	82.5	11.0
3	110	-80.0	23.5	373.5	63.7	11.5
4	115	-77.0	28.0	310.0	79.9	10.0
5	147	-79.0	27.5	327.0	62.1	11.5
6	160	-85.0	13.5	211.5	55.0	12.0

Overall test summary:

Summary	RSRP (dBm)	SINR (dB)	Download (Mbps)	Upload (Mbps)	Network Latency (ms)
Overall	-74.0	27.4	359.8	72.4	11.3

5. Conclusion

The 5G network trial at Smart lamppost RBS site is successfully deployed and tested at Lot no. TKT 1734, Wing Shun Street, Kwai Chung, N.T. This demonstrates the feasibility of outdoor 5G Smart lamppost RBS deployment at urban area. The measurement results verified that the coverage and data throughput of 5G NR.

Non-Ionizing Radiation Measurement Report

1. Base Station Details

Licence No. : 002 OFCA BASE No. : _____ Cell ID : 5312

Address : G/F, Jwelighting Show Room, Wing Shun Street, Tsuen Wan, New Territories.

2. ERP of Transmitting Antenna

Antenna Location : G/F

Sector	*Actual ERP (dBW)	Sector	*Actual ERP (dBW)
A1	20		

**Actual ERP will be considered as the total maximum permissible ERP of all channels transmitted by the proposed antenna.*

3. Measurement Data

i. Please mark appropriate measurement points around each proposed antenna and at the areas of the antenna site which are accessible by the public.

ii. Measurement should be taken at 2 meters above local ground with all antennas operating at the same time and being set with the above-quoted actual ERP.

Measurement Equipment

Manufacturer : Narda Model : NBM - 550

Measurement Point	E-Field (V/m)	Measurement Point	E-Field (V/m)	Measurement Point	E-Field (V/m)
1	2.47	11		21	
2	2.94	12		22	
3	2.61	13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

ICNIRP Safety Limits for General Public					
Services/ Frequency	VHF & UHF < 400 MHz	PMRS 800 MHz	PMRS 900 MHz	PCS 1800 MHz	3G & others 2 – 300 GHz
E-Field (V/m)	28.0	38.9	41.3	58.3	61.0
☑	Please tick to confirm the measurement results are within the ICNIRP safety limits.				

4. Site Plan

Please mark the following items on the site plan:

i. location of the measurement points of Section 3;

ii. location and bearing of the proposed antenna sectors of Section 2;
iii. location of other licensee's antennas.

Prepared by:

(Signature & Name)

31/3/2023
(Date)

China Mobile Hong Kong Company Limited
(Licensee Name)

Site 5312