No. I21Z61156-SEM01

for

TCL Communication Ltd.

LINKHUB

Model Name: HH42NK1

Hardware Version: V02

Software Version: HH42LITENK1_00_02.00_02

FCC ID: 2ACCJB160

Issued Date: 2021-6-23

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Issue Date	Description
I21Z61156-SEM01	Rev.0	2021-6-23	Initial creation of test report

CONTENTS

1. Test Laboratory

1.1. Testing Location

Company Name:	CTTL(Shouxiang)
Address:	No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191
Postal Code:	100191
Telephone:	00861062304633
Fax:	00861062304793

1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	20-75%

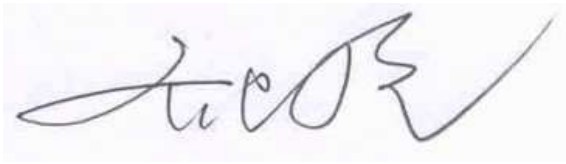
1.3. Project data

Project Leader:	Lin Hao
Testing Start Date:	2021-6-21
Testing End Date:	2021-6-21

1.4. Signature

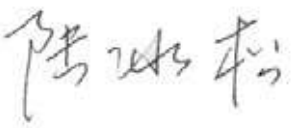
Lin Hao

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax:	0086-755-36612000-81722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax:	0086-755-36612000-81722

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	LINKHUB
Model name	HH42NK1
Operation mode	WCDMAB1/2/4/5/8 LTE Band 2/3/4/5/7/8/12/13/17/28/66 WIFI2.4

3.2. Internal Identification of EUT

EUT ID*	IMEI	HW Version	SW Version
EUT1	/	V02	HH42LITENK1_00_02.00_02

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

AE ID*	**Description**	**SN**
AE1	/	/

*AE ID: is used to identify the test sample in the lab internally.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

KDB 447498 D01 General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

Canadian RSS-102： Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

Standard for uncontrolled environment requires the RF-exposure value in W/m2 unit, therefore the MPE limit value determined in mW/cm2 unit, should be multiplied by 10 to have the required unit. The MPE limits are the same like on FCC § 1.1301 at table 1.

5. RF Exposure Limit

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	**(100)***	30
1.34-30	824/f	2.19/f	**($180/f^2$)***	30
30-300	27.5	0.073	**0.2**	30
300-1500	--	--	**f/1500**	30
1500-100,000	--	--	**1.0**	30

f = frequency in MHz *Plane-wave equivalent power density

Friis transmission formula: $P_d = \frac{P_{out} * G}{4 * \Pi * r^2}$

where

P_d =power density (mW/cm^2)
P_{out} = output power to antenna (mW)
G = gain of antenna (linear scale)
r = distance between antenna and observation point (cm)

6. Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

7. Test Results

7.1. The maximum antenna gain

The maximum gain for each frequency band is:

Frequency band	Antenna gain (dBi)
WCDMA B2	1.8
WCDMA B4	1.6
WCDMA B5	0.5
LTE B2	1.8
LTE B4	1.6
LTE B5	0.5
LTE B7	1.2
LTE B12	0.3
LTE B13	0.4
LTE B17	0.4
LTE B66	1.6
WiFi 2.4G ANT1	1.4
WiFi 2.4G ANT2	1.4

7.2. The maximum rated power limits

Maximum peak output power for antenna:

Frequency band	Maximum Rated Power (dBm)
WCDMA B2	24
WCDMA B4	24
WCDMA B5	24
LTE B2	23.5
LTE B4	23.5
LTE B5	23.5
LTE B7	23.5
LTE B12	23.5
LTE B13	23.5
LTE B17	23.5
LTE B66	23.5
WiFi 2.4G ANT1	18.5
WiFi 2.4G ANT2	18.5

7.3. Output Power Into Antenna & RF Exposure value at distance 20cm

The worst cases conducted output power for every frequency band is:

Frequency band	Maximum Rated Power (dBm)	Maximum Rated Power (mW)	Antenna gain (dbi)	Antenna gain	d (cm)	Power Density (mW/cm²)	Limit (mW/cm²)	Conclusion
WCDMA B2	24	251.189	1.8	1.5	20	0.076	1.0	PASS
WCDMA B4	24	251.189	1.6	1.4	20	0.072	1.0	PASS
WCDMA B5	24	251.189	0.5	1.1	20	0.056	0.558	PASS
LTE B2	23.5	223.872	1.8	1.5	20	0.067	1.0	PASS
LTE B4	23.5	223.872	1.6	1.4	20	0.064	1.0	PASS
LTE B5	23.5	223.872	0.5	1.1	20	0.050	0.558	PASS
LTE B7	23.5	223.872	1.2	1.3	20	0.059	1.0	PASS
LTE B12	23.5	223.872	0.3	1.1	20	0.048	0.472	PASS
LTE B13	23.5	223.872	0.4	1.1	20	0.049	0.521	PASS
LTE B17	23.5	223.872	0.4	1.1	20	0.049	0.473	PASS
LTE B66	23.5	223.872	1.6	1.4	20	0.064	1.0	PASS
WIFI2.4G ANT1	18.5	70.795	1.4	1.4	20	0.019	1.0	PASS
WIFI2.4G ANT2	18.5	70.795	1.4	1.4	20	0.019	1.0	PASS

According above test result, the device complies with the exposure requirements.

7.4. Simultaneous transmission evaluation

According to the KDB 447898 D01, Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0, according to calculated/estimated, numerically modeled, or measured field strengths or power density.

	WWAN	WLAN ANT1	WLAN ANT2	SUM	MPE ratio limit	Conclusion
Power Density (mW/cm²)	0.049	0.019	0.019	/	/	/
Limit (mW/cm²)	0.473	1.0	1.0	/	/	/
MPE ratio	0.103	0.019	0.019	0.141	1.0	PASS

Note: we have chosen the worse MPE ratio of WWAN (LTE B17).

*****END OF REPORT*****