

Hangzhou Tuya Information Technology Co.,Ltd

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
NM1

REPORT NUMBER:
190801595SHA-002

ISSUE DATE:
October 28, 2019

DOCUMENT CONTROL NUMBER:
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Manufacturer: Hangzhou Tuya Information Technology Co.,Ltd
Room701, Building 3, More Center, No.87 GuDun Road, Hangzhou,
Zhejiang, China

FCC ID: 2ANDL-NM1

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06

FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:

REVIEWED BY:



Project Engineer
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Reviewer
Wakeyou Wang

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Revision History

Report No.	Version	Description	Issued Date
190801595SHA-002	Rev. 01	Initial issue of report	October 28, 2019

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	NB IOT Module
Type/Model:	NM1
Description of EUT:	EUT is a NB IOT Module and has only one model.
Rating:	DC 5V from USB port
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	22 Sep. 2019
Date of test:	24 Sep. 2019 ~ 12 Oct. 2019

1.2 Technical Specification

Frequency Range:	Uplink: 824MHz-848.9MHz, Downlink: 869MHz-893.9MHz;
Category:	NB1
Type of Modulation:	BPSK, QPSK
Deployment:	stand-alone
Sub-carrier spacing:	3.75KHz, 15KHz
Ntone:	single, multi-tone
Antenna Information:	Whip antenna, 3dBi

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab Registration code No.: 2042B-1
	VCCI Registration Lab Registration No.: R-4243, G-845, C-4723, T-2252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

TEST REPORT**2.2 Assessment Results**

Power density (S) is calculated according to the formula:

$$S = P / (4\pi R^2)$$

Where S = power density in mW/cm²

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 190801595SHA-001:

The maximum radiated power = 24.93dBm= 311.17 mW;

Here R is chosen to be 20cm,

$$S = P / (4\pi R^2) = 311.17 / (4 * 3.14 * 20 * 20) = 0.0619 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

TEST REPORT

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

***** END *****