



中国认可
国际互认
检测
TESTING
CNAS L5313



DEKRA

RF Exposure Evaluation Declaration

Product Name : Xiaomi Router 3 Pro
Model No. : R3P
FCC ID : 2AIMRMIWIFIR3P

Applicant : Beijing Xiaomi Electronics Co.,Ltd
Address : Room 707,7F, Building 5, No 58, JinghaiWulu Road,
Beijing, China

Date of Receipt : Apr. 26 , 2017
Test Date : Apr. 26 , 2017~ May. 25, 2017
Issued Date : Aug. 16, 2017
Report No. : 1742141R-RF-US-P20V01
Report Version : V1.1

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : Aug. 16, 2017


Report No. : 1742141R-RF-US-P20V01




Product Name : Xiaomi Router 3 Pro
Applicant : Beijing Xiaomi Electronics Co.,Ltd
Address : Room 707,7F, Building 5, No 58, JinghaiWulu Road,
Beijing, China
Manufacturer : Nanning Fugui Precision Industrial Co.,Ltd.Shajing
Branch
Address : No. 51 Tongle Road, Foxconn Industrial Park .District
Jiangnan .NanNing City,GuangXi China
Model No. : R3P
FCC ID : 2AIMRMIWIFIR3P
Brand Name : MI
EUT Voltage : DC12V, 1.5A
Applicable Standard : KDB 447498D01V06
FCC Part1.1310
Test Result : Complied
Performed Location : DEKRA Testing and Certification (Suzhou) Co., Ltd.
Corporation - Suzhou EMC Laboratory
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,
215006, Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: 800392

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Reviewed By : 

(Senior Engineer: Frank He)

Approved By : 

(Engineering Manager : Harry Zhao)

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18 and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	:	Xiaomi Router 3 Pro
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

Antenna Information:

2.4G:

Antenna manufacturer	Dongguan renfeng electronic technology co., LTD							
Antenna Delivery	<input checked="" type="checkbox"/>	1*TX+1*RX	<input checked="" type="checkbox"/>	2*TX+2*RX	<input type="checkbox"/>	3*TX+3*RX	<input checked="" type="checkbox"/>	4*TX+4*RX
Antenna technology	<input checked="" type="checkbox"/>	SISO						
	<input checked="" type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic				
			<input type="checkbox"/>	Sectorized antenna systems				
			<input type="checkbox"/>	Cross-polarized antennas				
			<input type="checkbox"/>	Unequal antenna gains, with equal transmit powers				
			<input type="checkbox"/>	Spatial Multiplexing				
			<input checked="" type="checkbox"/>	CDD				
		<input checked="" type="checkbox"/>	Beam-forming					
Antenna Type	<input checked="" type="checkbox"/>	External	<input checked="" type="checkbox"/>	Dipole				
	<input type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA				
			<input type="checkbox"/>	PCB				
			<input type="checkbox"/>	Ceramic Chip Antenna				
			<input type="checkbox"/>	Metal plate type F antenna				
			<input type="checkbox"/>	Cross-polarize Antenna				
Antenna Gain 0	1.47dBi							
Antenna Gain 1	1.46dBi							
Antenna Gain 2	1.42dBi							
Antenna Gain 3	1.43dBi							
Beamforming Antenna Gain	7.47dBi							

5G:

Model No.	N/A			
Antenna manufacturer	Dongguan renfeng electronic technology co., LTD			
Frequency Range	2400-2483.5MHz,5150-5350MHz,5725-5850MHz			
Antenna Delivery	<input checked="" type="checkbox"/> 1*TX+1*RX	<input type="checkbox"/> 2*TX+2*RX	<input type="checkbox"/> 3*TX+3*RX	<input checked="" type="checkbox"/> 4*TX+4*RX
Antenna technology	<input checked="" type="checkbox"/> SISO			
	<input checked="" type="checkbox"/> MIMO	<input type="checkbox"/> Basic		
		<input checked="" type="checkbox"/> CDD		
		<input checked="" type="checkbox"/> Beam-forming		
Antenna Type	<input checked="" type="checkbox"/> External	<input checked="" type="checkbox"/> Dipole		
	<input type="checkbox"/> Internal	<input type="checkbox"/> PIFA		
		<input type="checkbox"/> PCB		
		<input type="checkbox"/> Ceramic Chip Antenna		
		<input type="checkbox"/> Metal plate type F antenna		
Antenna Gain 0	1.77dBi			
Antenna Gain 1	1.77dBi			
Antenna Gain 2	1.76dBi			
Antenna Gain 3	1.77dBi			
Beamforming Antenna Gain	7.77dBi			

- Output Power into Antenna & RF Exposure Evaluation Distance:

Standalone modes

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Power Density Limit at R = 20 cm (mW/cm ²)
802.11b/g/n(20MHz)	2412 ~ 2462 MHz	26.96	7.47	0.5517	1.0
802.11n(40MHz)	2422 ~ 2452 MHz	26.86	7.47	0.5392	1.0
802.11a/n/ac (20MHz)	5180-5240MHz 5745-5825 MHz	19.57	7.77	0.1078	1.0
802.11n/ac (40MHz)	5190-5230MHz 5755-5795 MHz	18.29	7.77	0.0803	1.0
802.11ac(80MHz)	5210MHz 5775MHz	13.17	7.77	0.0247	1.0

Simultaneous transmission:

Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Power Density Limit at R = 20 cm (mW/cm ²)
2412 ~ 2462	26.96	7.47	0.5517	1.0
5180-5240 5745-5825	19.57	7.77	0.1078	1.0
Simultaneous transmission power density			0.6595	1.0

Note: The simultaneous transmission power density is 0.6595mW/cm² for Xiaomi Router 3 Pro without any other radio equipment.

_____ The End _____