TEST REPORT

Applicant	:	PCD, LLC
Address of Applicant	:	7651 Southland Blvd. Orlando, FL 32809
Product Name	:	Router
Model No.	:	R402
Sample No.	:	E19110011-04#05 E19110011-05#02
FCC ID	:	2ALJJR402
Standards	:	FCC CFR47 Part 2&1.1307(b)(1)
Date of Receipt	:	2019-12-23
Date of Test	:	2019-12-24 ~ 2020-1-19
Date of Issue	:	2020-1-20

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

Prepared by: Jennifer Zhou (Jennifer Zhou) Reviewed by: Jesse (Jesse) Approved by: Guoyou Chi (Authorized signatory: Guoyou Chi)

Revision Record			
Version	**Date**	**Revisions**	**Revised By**
1.0	2020-1-20	Original	--

Contents

1 General Information

1.1 Testing Laboratory

Company Name	ICAS Testing Technology Services (Shanghai) Co., Ltd.
Address	155 Pingbei Rd, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Details of Application

Company Name	PCD, LLC
Address	1500 Tradeport Drive, Suite A Orlando Florida 32824 United States
Contact Person	Mauricio Velasco
Telephone	+1.631.495.7537
Email	mvelasco@pcdlatam.com

1.3 Details of EUT

Product Name	Router
Brand Name	PCD
Model No.	R402
FCC ID	2ALJJR402
Network and Wireless connectivity	WCDMA/HSDPA/HSUPA Band II/V/VIII; LTE FDD Band 2/4/7/28; WLAN 802.11b/g/n(HT20/HT40)
Mode of Operation	WCDMA/HSDPA/HSUPA Band II/V; LTE FDD Band 2/4/7;
Modulation Type	QPSK for WCDMA; QPSK/16QAM for HSDPA/HSUPA/LTE;
Power Class	WCDMA/HSDPA/HSUPA Band II: 3 WCDMA/HSDPA/HSUPA Band V: 3 LTE FDD Band 2: 3 LTE FDD Band 4: 3 LTE FDD Band 7: 3
Antenna Type	External Antenna(for PCB) internal Antennna (for DTS NII)
Antenna Gain	0.5 dBi(for PCB) 1dBi(for WIFI)
Extreme Temperature Range	-10℃~ +55℃

1.4 Test Methodology

47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
47 CFR Part 22 Subpart H	Public Mobile Services
47 CFR Part 24 Subpart E	Personal Communications Services
47 CFR Part 27	Miscellaneous Wireless Communications Services
ANSI/TIA-603-E March 2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
ANSI C63.26:2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
KDB 971168 D01 v03r01	Measurement Guidance for Certification of Licensed Digital Transmitters

Note(s):

All test items were verified and recorded according to the standards and without any addition/deviation/exclusion during the test.

1.5 Test Verdict

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

RF Exposure

Test Requirement : FCC Part 1.1307(b)(1)

Evaluation Method : FCC Part 2.1091

Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

The procedures / limit

(A) Limits for Occupational / Controlled 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)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6

1500-100,000			5	6

(B) 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/ cm2)	Averaging Time |E|2,|H|2 or S
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

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

MPE Calculation Method

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: Pd (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$ From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

Test Result

Item	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Result
LTE B2	1.12	23.88	244.34	**0.0545**	1	Pass
LTE B4	1.12	23.12	205.12	0.0458	1	Pass
LTE B7	1.12	22.43	174.98	0.0391	1	Pass
WCDMA BANDII	1.12	23.12	205.12	0.0458	1	Pass
WCDMA BANDV	1.12	23.05	201.84	0.0451	0.55	Pass
WIFI 2.4G	1.26	18.59	72.28	0.0181	1	Pass
WIFI 2.4G MIMO	2.51	18.59	72.28	0.0361	1	Pass
WIFI 5G: 5180 to 5240MHz	1.26	12.86	19.32	0.0048	1	Pass
WIFI 5G: 5180 to 5240MHz MIMO	2.51	12.86	19.32	0.0096	1	Pass
WIFI 5G: 5745 to 5825MHz	1.26	13.34	21.58	0.0054	1	Pass

WIFI 5G: 5745 to 5825MHz MIMO	2.51	13.34	21.58	0.0107	1	Pass
transmit simultenously		LTE B2+WIFI2.4G MIMO=0.0906			1	Pass

Note : External Antenna(for PCB) internal Antennna (for DTS NII) 0.5 dBi(for PCB) 1dBi(for WIFI) and MIMO for WIFI Gain is 1dBi + 10log(2) =4dBi

End of the report