IEEE C95.1

KDB 447498 D01 v06

47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

IP Phone

Model: OBi2182

Data Applies To: OBi2162

Trade Name: OBIHAI

Issued for

Obihai Technology, Inc.

51 E Campbell Ave. Campbell CA 95008 United States

Issued by

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
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1. TEST REPORT CERTIFICATION

We hereby certify that:

The equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirement of the applicable standards. The test record, data evaluation and Equipment under Test (EUT) configurations represented herein are true and accurate accounts of the measurement of the sample's RF characteristics under the conditions specified in this report.

APPLICABLE STANDARD	
Standard	**Test Result**
IEEE C95.1 KDB 447498 D01 v06 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted

Approved by: ***Prepared by:***

Rueyyan Lin
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Report coordinator

2. Limit

According to §15.247(i), 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 of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

3. EUT Specification

Product Name	IP Phone
Model Number	OBi2182
Data Applies To	OBi2162
Identify Number	T170919S08
Received Date	September 19, 2017
Frequency band (Operating)	IEEE 802.11b/g/gn HT20 Mode: 2412MHz ~ 2462MHz IEEE 802.11gn HT40 Mode: 2422MHz ~ 2452MHz IEEE 802.11a, 802.11ac VHT20 Mode: 5180 MHz ~ 5240 MHz / 5745 MHz ~ 5825 MHz IEEE 802.11ac VHT40 Mode: 5190 MHz ~ 5230 MHz / 5755 MHz ~ 5795 MHz IEEE 802.11ac VHT80 Mode: 5210 MHz / 5775 MHz Bluetooth 2.1 + EDR / 4.0 Mode: 2402 ~ 2480 MHz
Device category	Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna Specification	WiFi 2.4GHz Antenna, Gain: 2.68dBi WiFi 5GHz Antenna, Gain: 4.25dBi Bluetooth Antenna, Gain: 2.68dBi

Maximum average output power	IEEE 802.11b Mode: 20.60 dBm IEEE 802.11g Mode: 17.55 dBm IEEE 802.11gn HT20 MCS0 Mode: 17.58 dBm IEEE 802.11gn HT40 MCS0 Mode: 15.36 dBm UNII Band 1: IEEE 802.11a Mode: 11.60 dBm IEEE 802.11ac VHT20 NSS1/MCS0 Mode: 11.64 dBm IEEE 802.11ac VHT40 NSS1/MCS0 Mode: 12.47 dBm IEEE 802.11ac VHT80 NSS1/MCS0 Mode: 9.73 dBm UNII Band 3: IEEE 802.11a Mode: 15.21 dBm IEEE 802.11ac VHT20 NSS1/MCS0 Mode: 15.13 dBm IEEE 802.11ac VHT40 NSS1/MCS0 Mode: 15.23 dBm IEEE 802.11ac VHT80 NSS1/MCS0 Mode: 14.86 dBm Bluetooth 2.1+EDR Mode: 4.47 dBm Bluetooth 4.0 Mode: 4.50 dBm
Evaluation applied	MPE Evaluation*

Remark:

1. For more details, please refer to the User's manual of the EUT.

2. This submittal(s) (test report) is intended for FCC ID: 2ADXF-OBI2182 filing.

4. Test Results

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5. Maximum Permissible Exposure

Substituting the MPE safe distance using d = **20** cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

Mode	Frequency (MHz)	Power (dBm)	Ant. Gain (dBi)	Distance (cm)	Power density (mW/cm²)	Limit (mW/cm²)
IEEE 802.11b	2437	20.60	2.68	20	0.0423	1
IEEE 802.11g	2437	17.55	2.68	20	0.021	1
IEEE 802.11gn HT20 MCS0	2437	17.58	2.68	20	0.0211	1
IEEE 802.11gn HT40 MCS0	2437	15.36	2.68	20	0.0127	1
UNII Band 1						
IEEE 802.11a	5240	11.60	4.25	20	0.0077	1
IEEE 802.11ac VHT20 NSS1/MCS0	5180	11.64	4.25	20	0.0077	1
IEEE 802.11ac VHT40 NSS1/MCS0	5230	12.47	4.25	20	0.0093	1
IEEE 802.11ac VHT80 NSS1/MCS0	5210	9.73	4.25	20	0.005	1
UNII Band 3						
IEEE 802.11a	5825	15.21	4.25	20	0.0176	1
IEEE 802.11ac VHT20 NSS1/MCS0	5825	15.13	4.25	20	0.0172	1
IEEE 802.11ac VHT40 NSS1/MCS0	5795	15.23	4.25	20	0.0176	1
IEEE 802.11ac VHT80 NSS1/MCS0	5775	14.86	4.25	20	0.0162	1
Bluetooth 2.1+EDR	2480	4.47	2.68	20	0.001	1
Bluetooth 4.0	2402	4.50	2.68	20	0.001	1

Simultaneously MPE

Simultaneously MPE = MPE 1 / Limit 1 + MPE 2 / Limit 2 + ……..

2.4GHz + 5GHz Mode

Simultaneously MPE = (0.0423 / 1) + (0.0176 / 1) = **0.0599 mW/cm²**