# RF Exposure Evaluation Report

| | |
|---|---|
| **APPLICANT** | BUILDING 36 TECHNOLOGIES, LLC |
| | 35 HIGHLAND CIRCLE<br>SUITE 300<br>NEEDHAM MA 02494 USA |
| **FCC ID** | 2AC3T-H200BRA |
| **MODEL NUMBER** | B36-H200-B |
| **PRODUCT DESCRIPTION** | GATEWAY |
| **STANDARD APPLIED** | CFR 47 Part 2.1091 |
| **PREPARED BY** | Cory Leverett |

We, TIMCO ENGINEERING, INC. would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and meets the requirements.

The attached report shall not be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

# GENERAL REMARKS

## Attestations

This equipment has been evaluated in accordance with the standards identified in this report. To the best of my knowledge and belief, these evaluations were performed using the procedures described in this report.

I attest that the necessary evaluations were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, Fl 32669

## Authorized Signatory Name:

Cory Leverett

Engineering Project Manager

**Date:** **4/16/2015**

# RF Exposure Requirements

## General information

Device type: GATEWAY

Devices that operate under Part 90 of this chapter are subject to RF exposure evaluation prior to equipment authorization or use.

## Antenna

The manufacturer does not specify an antenna, but a typical antenna has a gain of 0 dBi.

| Configuration | Antenna p/n | Type | Max. Gain (dBi) |
|---|---|---|---|
| Integrated | PCB Trace | Di-Pole | 2.15 |
| | | | |

## Operating configuration and exposure conditions:

The conducted output power is shown in the table below.  Typical use qualifies for a maximum duty cycle factor of 100%.

Operation:  The EUT uses a fixed PCB trace antenna, therefore there is no cable loss.

## MPE Calculation:

The minimum separation distance is calculated as follows:

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power density: } P_d(mW/cm^2) = \frac{E^2}{3770}$$

The limit for general uncontrolled exposure environment is shown in FCC rule Part 1.11310, Table 1.

| **Minimum Separation Distance for Mobile or Fixed Devices** |
|:---:|
| **General Population/Uncontrolled Exposure** |

| **Insert values in yellow highlighted boxes to determine Minimum Separation Distance** |
|:---:|

| | | | | | | |
|---|---|---|---|---|---|---|
| Max Power | 0.0039 | W | *equals* | Max Power | 3.9 | mW |
| Duty Cycle | 100 | % | *equals* | Duty Factor | 1 | numeric |
| Antenna Gain | 2.81 | dBi | *equals* | Gain numeric | 1.909853 | numeric |
| Coax Loss | 0 | dB | | Gain - Coax Loss | 1.909853 | numeric |
| Power Density | 0.6 | mW/cm$^2$ | | | | |

**Enter power Density from the chart to the right**

Frequency    924 MHz

**Rule Part 1.1310, Table 1**

| Frequency range | Power den | Enter this value |
|:---:|:---:|:---:|
| MHz | mW/cm$^2$ | mW/cm$^2$ |
| 0.3-1.34 | 100 | **100** |
| 1.34-30 | 180/f$^2$ | **0.0** |
| 30-300 | 0.2 | **0.2** |
| 300-1,500 | f/1500 | **0.6** |
| 1,500-100,000 | 1 | **1** |

f = frequency in MHz

| **Minimum Separation Distance** | **1 cm** | **0.01 m** |
|:---:|:---:|:---:|

Minimum Seperation in Inches        0.391008 Inches

Applicant: BUILDING 36 TECHNOLOGIES, LLC
FCC ID:    2AC3T-H200BRA
Report:    B\BUILDING 36\411AUT15\411AUT15TestReport.docx