



# RF EXPOSURE REPORT

**REPORT NO.:** SA121120C08  
**MODEL NO.:** C41W-100  
**FCC ID:** G95C41W  
**RECEIVED:** Nov. 20, 2012  
**TESTED:** Dec. 14, 2012 ~ Jan. 03, 2013  
Jan. 17 ~ Jan. 21, 2013  
**ISSUED:** Jan. 23, 2013

**APPLICANT:** Technicolor U.S.A. Inc.  
**ADDRESS:** 101 West 103rd Street, INH500 Indianapolis, IN  
46290, U.S.A.

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch

**LAB ADDRESS:** No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist.,  
New Taipei City, Taiwan, R.O.C.

**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei  
Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA121120C08	Original release.	Jan. 23, 2013



## 1. CERTIFICATION

**PRODUCT:** DirecTV Setop box

**MODEL:** C41W-100

**BRAND:** DirecTV

**APPLICANT:** Technicolor U.S.A. Inc.


**TESTED:** Dec. 14, 2012 ~ Jan. 03, 2013  
Jan. 17 ~ Jan. 21, 2013

**TEST SAMPLE:** ENGINEERING SAMPLE

**STANDARDS:** **FCC Part 2 (Section 2.1091)**  
**FCC OET Bulletin 65, Supplement C (01-01)**  
**IEEE C95.1**

The above equipment (Model: C41W-100) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY :

  
Pettie Chen / Senior Specialist

, DATE : Jan. 23, 2013

APPROVED BY :

  
Ken Liu / Manager

, DATE : Jan. 23, 2013

## 2. RF EXPOSURE

### 2.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (mW/cm <sup>2</sup> )	AVERAGE TIME (minutes)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE CALCULATION FORMULA

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

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

### 2.3 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

FREQUENCY BAND (GHz)	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5.180-5.240	16.89	1.7	20	0.014	1
5.260-5.320	23.60	1.7	20	0.067	1
5.500-5.700	23.85	1.7	20	0.071	1
5.745-5.805	29.88	1.7	20	0.286	1
Zigbee (2.4GHz)	3.00	5.5	20	0.0014	1

### CONCLUSION:

Both of the Zigbee & WLAN 5.0G can transmit simultaneously, the formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$1. \text{ Zigbee} + \text{WLAN 5.0G} = 0.0014 + 0.286 = 0.2874$$

Therefore, the maximum calculation of this situation is 0.2874, which is less than the "1" limit.