

## RF Exposure Report

**Report No.:** SA170209C07B

**FCC ID:** 2AAEDWP2117

**Test Model:** WiCS-2100

**Received Date:** Feb. 09, 2017

**Test Date:** Mar. 08, 2017

**Issued Date:** May 06, 2017

**Applicant:** Barco NV

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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### Release Control Record

Issue No.	Description	Date Issued
SA170209C07B	Original release.	May 06, 2017

## 1 Certificate of Conformity

**Product:** WiCS-2100

**Brand:** wePresent

**Test Model:** WiCS-2100

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Barco NV

**Test Date:** Mar. 08, 2017

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment 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 :**



**Date:**

May 06, 2017

Wendy Wu / Specialist

**Approved by :**



**Date:**

May 06, 2017

May Chen / Manager

## 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)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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 Antenna Gain

For 2.4GHz & BT					
Antenna No.	Brand	Model	Antenna Net. Gain(dBi)	Frequency range (GHz)	Antenna Type
1 (Main-WLAN+BT combo Ant)	Pegatron Corp.	Pegatron P/N: 1415- 05VU000 (Hong-Bo P/N: 290- 30536 )	2.85	2.4~2.4835	PCB
2 (Aux-WLAN Ant)			1.76	2.4~2.4835	
For 5GHz					
Antenna No.	Brand	Model	Antenna Net. Gain(dBi)	Frequency range (GHz)	Antenna Type
1 (Main-WLAN Ant)	Pegatron Corp.	Pegatron P/N: 1415- 05VU000 (Hong-Bo P/N: 290- 30536 )	2.58	5.15~5.25	PCB
			3.37	5.25~5.35	
			3.68	5.47~5.725	
			3.58	5.725~5850	
2 (Aux-WLAN Ant)	Pegatron Corp.	Pegatron P/N: 1415-05VT000 (Hong-Bo P/N: 290- 30535 )	2.76	5.15~5.25	PCB
			3.4	5.25~5.35	
			3.26	5.47~5.725	
			2.07	5.725~5850	

## 2.5 Calculation Result of Maximum Conducted Power

For 2.4GHz, 5GHz (U-NII-1 & UNII-3 band) and bluetooth data was copied from the original test report (Report No.: SA170209C07)

### For WLAN:

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	399.052	5.33	20	0.27087	1
5180-5240	126.192	5.68	20	0.09285	1
5260-5320	105.958	6.4	20	0.09202	1
5500-5580 & 5660-5700	102.479	6.48	20	0.09065	1
5745-5825	200	5.87	20	0.15373	1

NOTE:

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.33\text{dBi}$

5GHz:

UNII-1: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.68\text{dBi}$

UNII-2A: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.4\text{dBi}$

UNII-2C: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.48\text{dBi}$

UNII-3: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.87\text{dBi}$

### For BT-LE:

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2402-2480	3.162	2.85	20	0.00121	1

**NOTE:** 1. This power include tune-up tolerance range that specified in WiCS-2100 Tune Up power table

### Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + BT-LE =  $0.27087 / 1 + 0.00121 / 1 = 0.27208$

WLAN 5GHz + BT-LE =  $0.15373 / 1 + 0.00121 / 1 = 0.15494$

**Therefore the maximum calculations of above situations are less than the "1" limit.**

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