

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

Address: President Kennedypark 35, 8500 Kortrijk, Belgium

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by any government agencies.

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 RF Exposure	5
2.1 Limits For Maximum Permissible Exposure (MPE)	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
2.4 Antenna Gain	6
2.5 Calculation Result of Maximum Conducted Power	7

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 : Wendy Wu , **Date:** May 06, 2017
Wendy Wu / Specialist

Approved by : May Chen , **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 ²)	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 ²)*	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/cm²

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 ²)	Limit (mW/cm ²)
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 ²)	Limit (mW/cm ²)
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.

--- END ---