

## FCC WIRELESS EQUIPMENT TEST&MEASUREMENT REPORT

On Model Name: UHF Long Range Reader

Model Numbers: BU-900R-K


Brand Name: BlueCard


FCC ID Number: SMABLUECARD900

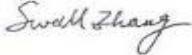
Prepared for Bluecard Software Technology Co., Ltd.

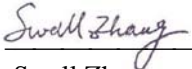
Test Specification: FCC Part 15, Subpart C

Test Report #: BEI-1211-10910-FCC ID

Tested by:  ECMG  
Engineer Company Name

Reviewed by:  ECMG  
Senior Engineer Company Name

QC Manager:  ECMG  
QC Manager Company Name

Test Report Released by:  April 18<sup>th</sup>, 2013  
Swall Zhang Date

### ***List of Attached Files***

<b><i>Exhibit Type</i></b>	<b><i>File Description</i></b>	<b><i>File Name</i></b>
<i>Test Report</i>	<i>Test Report</i>	<i>SMABLUECARD900 _Test report.pdf</i>
<i>Operation Description</i>	<i>Technical Description</i>	<i>SMABLUECARD900 _Operation Description.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>SMABLUECARD900 _External Photos.pdf</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>SMABLUECARD900 _Internal Photos.pdf</i>
<i>Block Diagram</i>	<i>Block Diagram</i>	<i>SMABLUECARD900 _Block Diagram.pdf</i>
<i>Schematics</i>	<i>Circuit Diagram</i>	<i>SMABLUECARD900 _Schematics.pdf</i>
<i>ID Label/Location</i>	<i>Label and Location</i>	<i>SMABLUECARD900 _Label &amp; Location.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>SMABLUECARD900 _User Manual.pdf</i>
<i>Test Setup Photos</i>	<i>Test Setup Photos</i>	<i>SMABLUECARD900 _Test Set-up Photos.pdf</i>

### **Test Location**

*Tests performed in a Certified ANSI Semi-Anechoic Chamber and Shielded Room.*

*Test Site Location : Galanz*

*25 South Ronggui Rd., Shunde,  
Foshan, Guangdong, China*

*Tel : (86)-757-23612785*

*Fax : (86)-757-23612537*

### **Test Facility**

*The test facility was recognized, certified, or accredited by the following organizations:*

- **CNAL – LAB Code: L2244**

*Galanz EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.*

- **FCC – Registration No.: 580210**

*Galanz EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC was maintained in our files.*

### **List of Test and Measurement Instruments**

<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibrated Untill</b>
<i>Spectrum Analyzer</i>	<i>R&amp;S</i>	<i>FSP30</i>	<i>100755</i>	<i>2013-11-30</i>
<i>EMI Receiver #1</i>	<i>SCHAFFNER</i>	<i>SMR4503</i>	<i>11725</i>	<i>2013-11-30</i>
<i>EMI Receiver #2</i>	<i>HP</i>	<i>85462A</i>	<i>3650A00363</i>	<i>2013-11-30</i>
<i>LISN</i>	<i>ETS</i>	<i>4825/2</i>	<i>1161</i>	<i>2013-11-30</i>
<i>Coaxial Cable</i>	<i>ATC</i>	<i>N/A</i>	<i>N/A</i>	<i>2013-11-30</i>
<i>Double-ridged Wave guide horn</i>	<i>ETS</i>	<i>3115</i>	<i>6587</i>	<i>2013-11-30</i>
<i>3116C Double-Ridged Waveguide Horn</i>	<i>ETS-Lindgren</i>	<i>3116C</i>	<i>6587/01</i>	<i>2013-11-30</i>
<i>Amplifier</i>	<i>Agilent</i>	<i>83017A</i>	<i>MY39500438</i>	<i>2013-11-30</i>
<i>Band filter</i>	<i>ASI</i>	<i>82346</i>	<i>S06389</i>	<i>2013-11-30</i>
<i>Biconilog Antenna</i>	<i>ETS</i>	<i>3142C</i>	<i>00042672</i>	<i>2013-11-30</i>
<i>Semi-anechoic Chamber</i>	<i>ETS</i>	<i>N/A</i>	<i>N/A</i>	<i>2013-11-30</i>

*Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.*

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### **Statement of Measurement Uncertainty**

*The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.*

### **Administrative Data**

*Test Sample : UHF Long Range Reader*

*Model Name : BU-900R-K*

*Model Tested : BU-900R-K*

*Date of Receipt : March 3<sup>rd</sup>, 2013*

*Date Tested : March 10<sup>th</sup> to March 29<sup>th</sup>, 2013*

*Applicant : Bluecard Software Technology Co., Ltd*

*Address : D-801 Shangdi Science Building No. 8 Shangdi  
West Road Haidian District Beijing, China*

*Telephone : (86)-10-58859090*

*Fax : (86)-10-58859191*

*Manufacturer : Bluecard Software Technology Co., Ltd*

*Address : D-801 Shangdi Science Building No. 8 Shangdi  
West Road Haidian District Beijing, China*

*Telephone : (86)-10-58859090*

*Fax : (86)-10-58859191*

*Factory : Bluecard Software Technology Co., Ltd*

*Address : D-801 Shangdi Science Building No. 8 Shangdi  
West Road Haidian District Beijing, China*

*Telephone : (86)-10-58859090*

*Fax : (86)-10-58859191*

## **EUT Description**

*Bluecard Software Technology Co., Ltd., model tested BU-900R-K (referred to as the EUT in this report) is an UHF Long Range Reader.*

*The EUT is an UHF Long Range Reader which operates in 902-928MHz band. Main technical specifications of the EUT are as follows:*

<b>Parameter</b>		<b>Range</b>
Rating(s)	Rated voltage	DC 9-12V
	Rated Current	≤ 5A
Specification of Wireless & Antenna	Operating band	902-928MHz
	Modulation Type	ASK
	Wireless power	Max. 30dBm at the end of cable
	Frequency of Number	50 channels with 500 kHz channel spacing
	Antenna gain	8dBi
	Polarization	Horizontal
	Antenna type	1 integrated, Linear Horizontal Polarization
	VSWR	<1.5
	Input impedance	50 (Ω)
	Antenna Beamwidth	≤ 90°
Communications Interface	Ethernet/RS485/ Wiegand (26/34)	
Power Jack	12V DC Power connector	
Power adapter information	Input :100-240VAC, 50/60Hz	
	Output: 12VDC, 3.8A	
	Model: GFP451DA-1238-1	
	Brand name: GME	

**NOTE:** For more detailed informations or features please refer to user's manual of EUT.

Test Report #: BEI-1211-10910-FCC ID

Prepared for Bluecard Software Technology Co., Ltd.

Prepared by ECMG Electronic Technical Testing Corp (Shenzhen).

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## **Test References**

*Tests for radiated and conducted (at antenna terminal) emissions were performed. All measurements were performed in accordance FCC Public Notice DA 00-705, Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation.*

## **Test Summary**

*The Electromagnetic Compatibility requirements on tested model BU-900R-K for this test is stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.*

*Tested model BU-900R-K has been tested to conform to the following parts of the Part 15, Subpart C as detailed belows:*

<b>FCC Rules</b>	<b>Requirement</b>	<b>Result</b>	<b>Remark</b>
§15.247(b)(4); §15.203	Antenna Requirement	Compliant	Attachment 1
§15.207	Conducted Emission	Compliant	Attachment 2
§15.205(a); §15.209(a)	Radiated Emission	Compliant	Attachment 3
§15.247(b)	Maximum Peak Output Power	Compliant	Attachment 4
§15.247(a)(1)(i)	20dB Bandwidth	Compliant	Attachment 5
§15.247(d)	Conducted spurious at Antenna Terminals	Compliant	Attachment 6
§15.247(a)(1)(i)	Number of Hopping channels	Compliant	Attachment 7
§15.247(a)(1)	Frequency separation	Compliant	Attachment 8
§15.247(a)(1)(i)	Average Time of Occupancy	Compliant	Attachment 9

### **Test Mode Applicability and Tested Channel Detail**

*Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rate and antenna diversity(if any).*

*According to 15.31(e), regards to the frequency band over 10MHz, the lowest, middle and highest frequency of channel were selected to perform the test, and then shown on this report.*

*The following mode& channels were chosen for final test as listed belows.*

<b>Carried Frequency (MHz)</b>	<b>Channel Type&amp; Number</b>	<b>Operation mode</b>	<b>Data Rate (Mbps)</b>
902.75	Lowest	Continuous transmission mode or FHSS mode as tested purpose	Max. data rate
915.25	Middle		
927.25	Highest		

### **EUT Exercise Software**

*During testing an exercise software which “Impinj IndyTool” was provided by Bluecard Software Technology Co., Ltd., runs on windows XP system and control the EUT operating on a continuous transmission mode and receiving mode.*

### **Equipment Modification**

*Any modifications installed previous to testing by Bluecard Software Technology Co., Ltd., will be incorporated in each production model sold or leased in United States.*

*There were no modifications for this EUT intended for grant.*

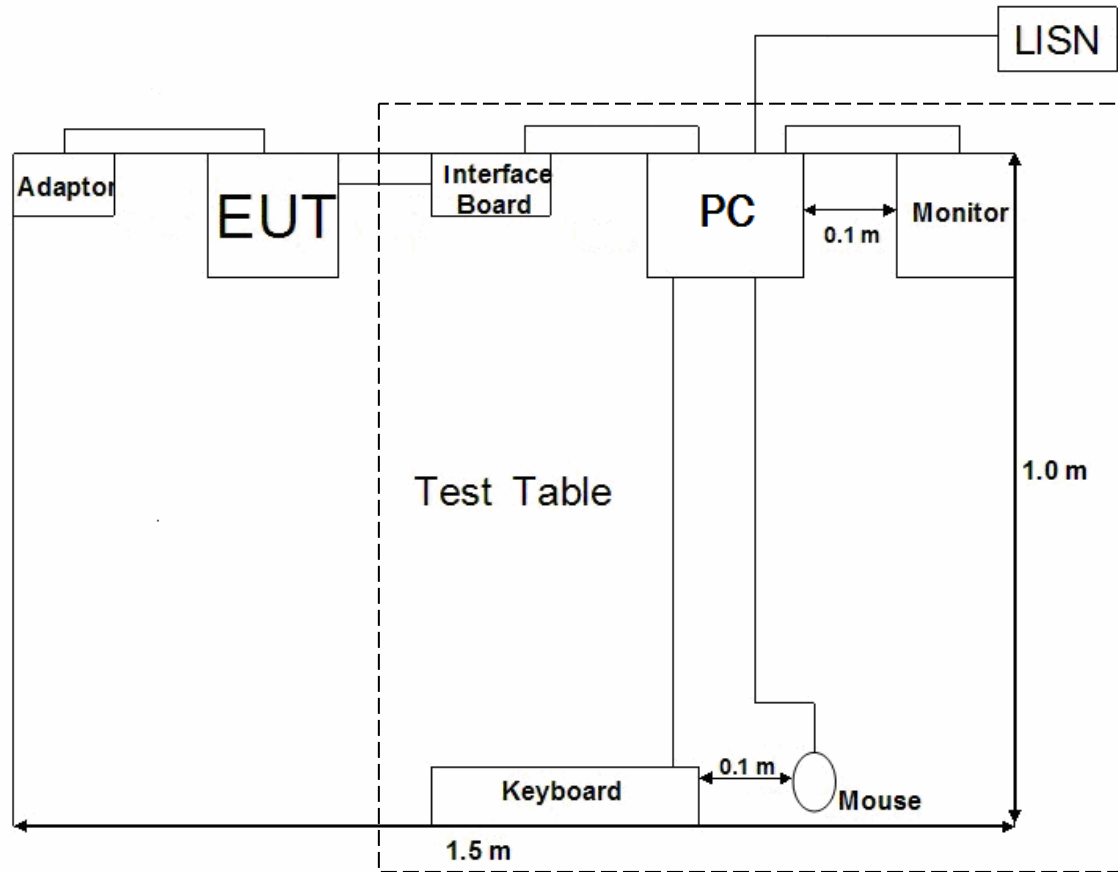
## Test System Details

EUT			
Model Number:	BU-900R-K		
Description:	UHF Long Range Reader		
Manufacturer:	Bluecard Software Technology Co., Ltd		
Input Voltage:	DC 12V		
Support Equipment			
Description	Model Number	Serial Number Or Certification	Manufacturer
PC	M2700	Doc	Lenovo
PC Monitor	TFT1780PS	Doc	AOC
Interface board	---	---	Impinj.Inc
Keyboard	JME7053	Doc	Lenovo
Mouse	MO32B0	Doc	HP

<b>Cable Description</b>					
<b>Description</b>	<b>From</b>	<b>To</b>	<b>Length (Meters)</b>	<b>Shielded (Y/N)</b>	<b>Ferrite (Y/N)</b>
<i>Power Cord Of PC</i>	<i>Plug</i>	<i>PC</i>	<i>1.4</i>	<i>N</i>	<i>Y</i>
<i>Power Cord Of PC Monitor</i>	<i>Plug</i>	<i>PC Monitor</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>RS232 Cord</i>	<i>Interface board</i>	<i>PC</i>	<i>1.2</i>	<i>Y</i>	<i>Y</i>
<i>Mouse Cord</i>	<i>Mouse</i>	<i>PC</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Keyboard Cord</i>	<i>Keyboard</i>	<i>PC</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Power Adapter of EUT</i>	<i>EUT</i>	<i>Plug</i>	<i>2.4</i>	<i>N</i>	<i>N</i>
<i>Note: The "EUT" means "UHF Long Range Reader".</i>					

*NOTE: The EUT has been tested as an independent unit together with other necessary accessories or support units. the above support units or accessories were used to form a representative test configuration during the test tests.*

## Configuration of Tested System



*Note : Dashed border devices shown are a support computer and interface board, which sends commands to the EUT to exercise the intended functionalities.*

## **ATTACHMENT 1 - Antenna Requirements**

### **§15.203 Requirements:**

*An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.*

### **§15.247(b)(4) Requirements:**

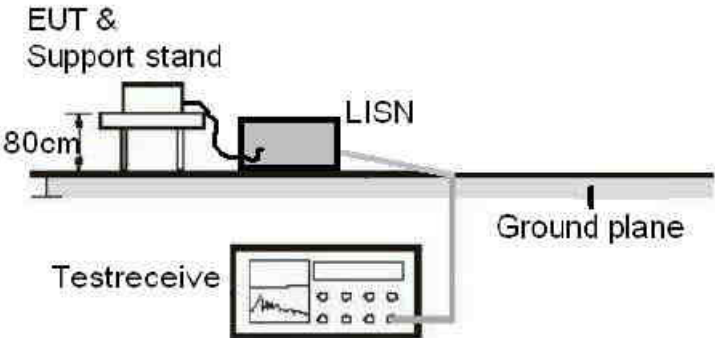
*The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.*

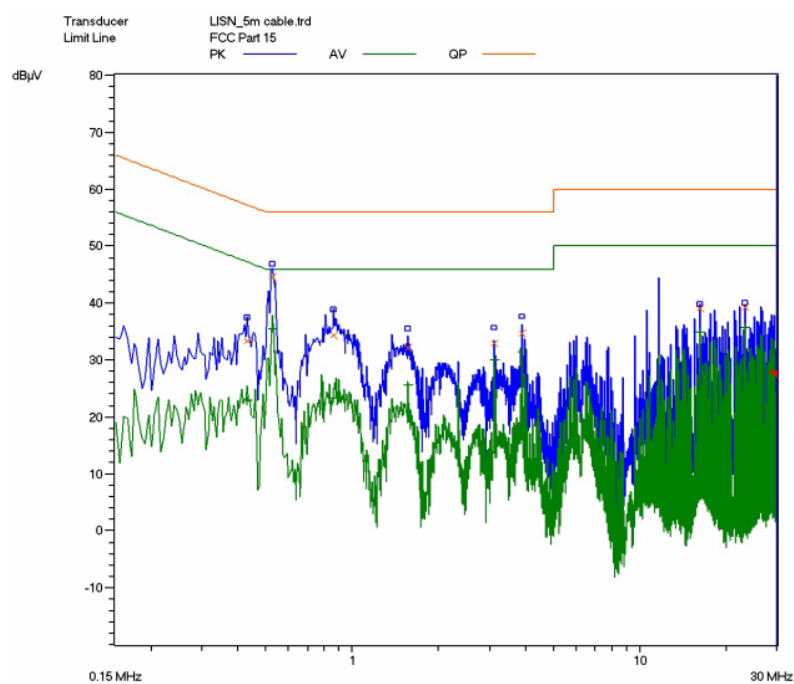
<b>FCC Section</b>	<b>FCC Rules</b>	<b>Conclusion</b>
§15.203& §15.247 (b) (4)	<p><i>Described how the EUT complies with the requirements that either its antenna is permanently attached, or that it employ a unique antenna connector, for every antenna proposed for use with the EUT.</i></p> <p><i>The exception is in those cases where EUT must be professionally installed. In order to demonstrate that professional installation is required, the following 3 points must be addressed:</i></p> <ol style="list-style-type: none"> <li><i>1. The application (or intended use) of the EUT.</i></li> <li><i>2. The installation requirements of the EUT.</i></li> <li><i>3. The method by which the EUT will be marketed.</i></li> </ol>	<p><i>The EUT uses reverse-polarity TNC female connectors for its antenna ports. The reverse-polarity connector is a non-standard RF connector type. The use of these connectors prohibits connection to an RF antenna with standard RF connectors (e.g. N-type). The reader is designated for professional installation only and can use only specified antenna and cable combinations. The maximal gain of the antenna is 8.0 dBi.</i></p> <p><i>So the unit do meet requirement.</i></p>

*Note: The antenna must be professionally installed. Only one integrated, Linear Horizontal Polarization Antenna described in the EUT description will be used with the reader, Professional installers will be provided with antenna installation instructions.*

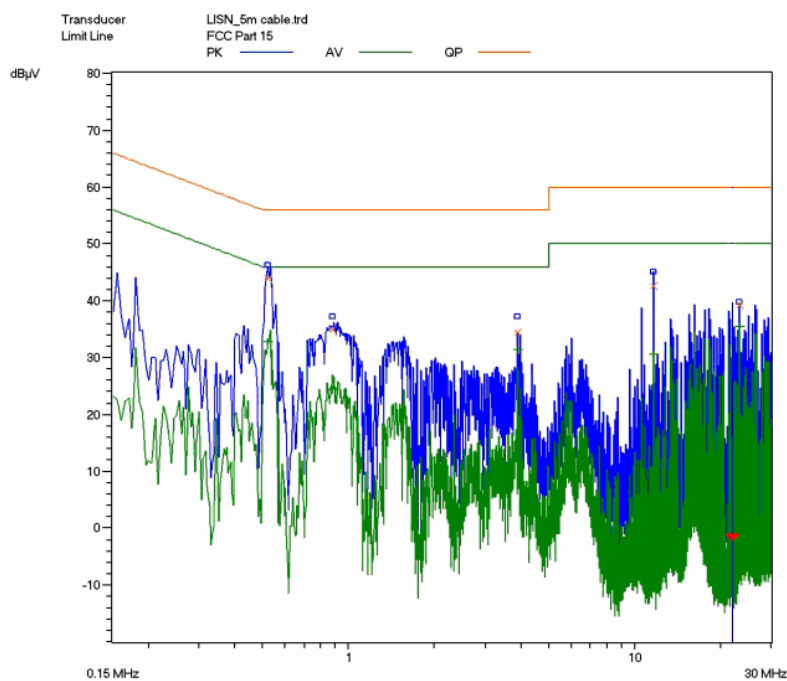


## ATTACHMENT 2 - Conducted Emission Test

<b>CLIENT:</b>	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	<b>TEST STANDERD:</b>	Section 15.207
<b>MODEL NUMBERS:</b>	BU-900R-K	<b>PRODUCT:</b>	UHF Long Range Reader
<b>EUT MODEL:</b>	BU-900R-K	<b>EUT DESIGNATION:</b>	UHF RFID Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	March 20 <sup>th</sup> , 2013
<b>TEST REFERENCE:</b>	ANSI C63.4: 2003		
<b>TEST PROCEDURE:</b>	The EUT was set up according to the guidelines of ANSI C63.4:2003 for conducted emissions. It is located in the back edge of the test table, all its ports are being exercised. It is being powered by an AC/DC converter. The measurement was using a AMN on each line and an EMI receiver peak scan was made at the frequency measurement range. The six highest significant peaks were then marked, and these signals were then quasi-peaked and averaged.		
<b>TEST SETUP:</b>	 <p>The diagram illustrates the test setup. An EUT (Electronic Under Test) is placed on a support stand at a height of 80cm. The EUT is connected to a LISN (Line Impedance Stabilization Network). The LISN is connected to a Testreceive unit, which is in turn connected to a Ground plane. The Testreceive unit is shown with a display screen and control buttons.</p>		
<b>DESCRIPTIONS OF TEST MODE:</b>	The EUT is connected to a PC through an interface board to control EUT operating in a continuous transmission mode. The power is set to 24dBm, the lowest channel was chosen for the final testing.		
<b>TESTED RANGE:</b>	150kHz to 30MHz		
<b>TEST VOLTAGE:</b>	120VAC/60Hz		
<b>RESULTS:</b>	The EUT meet the requirements of test reference for conducted missions at AC input port. The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB		



**Line L Conducted Emission Graph**



**Line N Conducted Emission Graph**

**Test Data:**

Lines	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)	Frequency (MHz)	Corrected AVE Level (dBuV)	Limits AVE (dBuV)	Margin AVE (dB)
L	0.430	33.4	57.3	-23.9	0.430	22.8	47.3	-24.5
L	0.525	44.6	56.0	-11.4	0.525	35.6	46.0	-10.4
L	0.860	34.4	56.0	-21.6	0.860	23.4	46.0	-22.6
N	0.520	44.0	56.0	-12.0	0.520	32.7	46.0	-13.3
N	0.880	34.9	56.0	-21.1	0.880	24.6	46.0	-21.4
N	3.905	34.5	56.0	-21.5	3.905	31.4	46.0	-14.6

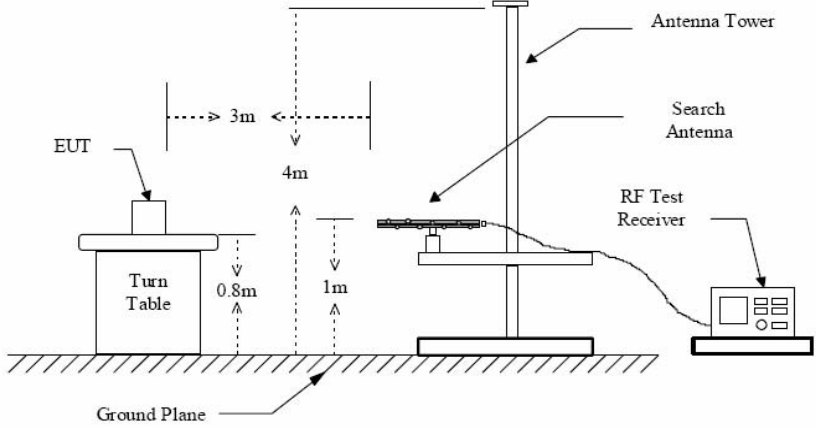
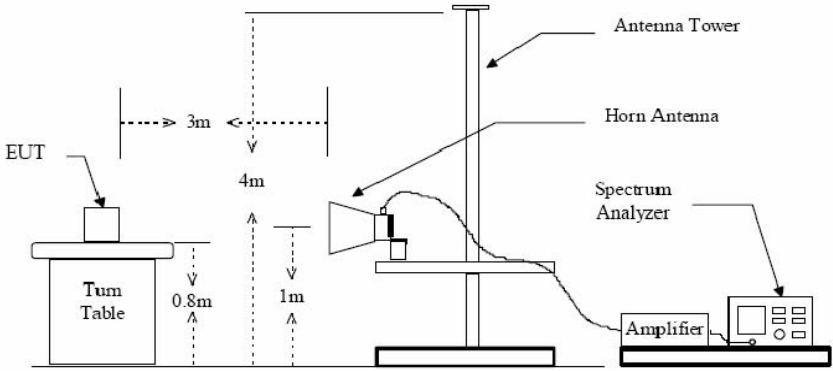
Note :

1. QP and AVE are abbreviations of the quasi-peak and average individually.
2. The emission levels recorded above is the larger ones of both L phase and N phase.
3. Other emission levels are too low against the official limit that are not reported.

### ATTACHMENT 3- Radiated Emission Test

<b>CLIENT:</b>	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	<b>TEST STANDERD:</b>	Section 15.209(a), Section 15.205(a)
<b>MODEL NUMBERS:</b>	BU-900R-K	<b>PRODUCT:</b>	UHF Long Range Reader
<b>EUT MODEL:</b>	BU-900R-K	<b>EUT DESIGNATION:</b>	UHF RFID Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen	<b>DATE OF TEST:</b>	March 20 <sup>th</sup> , 2013
<b>TEST REFERENCE:</b>	ANSI C63.4: 2003		
<b>TEST PROCEDURE:</b>	<p>The EUT was set up according to the guidelines of ANSI C63.4: 2003 for radiated emissions. An EMI receiver peak scan was made at the frequency measurement range (pre-scan) in an Anechoic chamber. Test procedure as follow:</p> <ul style="list-style-type: none"><li>a) The EUT is placed on a turntable, which is 0.8 m above ground plane. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.</li><li>b) The EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.</li><li>c) Maximum procedure was performed on the six highest emissions to ensure EUT compliance.</li><li>d) And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.</li><li>e) Repeat above procedures until the measurements for all frequencies are complete.</li></ul>		
<b>DESCRIPTION OF TEST MODE:</b>	<p>The EUT was connected to a PC through an interface board controlling EUT operating in a continuous transmission mode with the max. data rate.</p> <p><i>For below 1GHz:</i></p> <p>Pre-scan has been conducted at the highest, middle and the lowest three channels, and found the lowest channel is worst-case. So it was chosen for the final testing and recorded in report.</p> <p><i>For above 1GHz:</i></p> <p>The highest, middle and lowest three channels were selected for the final testing and recorded in report.</p>		

MEASUREMENT SETUP:	Measurement receiver shall be set as below:			
	Frequency (MHz)	Receive detector	RBW	VBW
	30-1000	Quasi-peak	120KHz	300KHz
	Above 1000	Peak	1MHz	1MHz
	Above 1000	Peak	1MHz	10Hz
LIMITS:	Section 15.209 limits as below:			
	Other Frequency (MHz)	Field strength (uV/meter)                      dB uV/meter		
	30-88	100	40.0	
	88-216	150	43.5	
	216-960	200	46.0	
	Above 960	500	54.0	
	NOTE:			
	1)    Field Strength (dBmV/m)= 20log Field Strength (mV/m).			
	2)    In the emission tables above,the tighter limit applies at the band edge.			
TESTED RANGE:	30MHz to 18GHz			
TEST VOLTAGE:	120VAC/60Hz			
RESULTS:	According to the data in the following,the EUT complied with the FCC Part 15.209 &15.205. The test results relate only to the equipment under test provided by client.			

<p><b>TEST SETUP:</b></p>	<p>Figure 1 : Frequencies measured below 1 GHz configuration</p>  <p>Figure 2 : Frequencies measured above 1 GHz configuration</p> 
<p><b>CHANGES OR MODIFICATIONS:</b></p>	<p>There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.</p>
<p><b>M. UNCERTAINTY:</b></p>	<p>Freq. <math>\pm 2 \times 10^{-7}</math> x Center Freq., Amp <math>\pm 2.6</math> dB</p>

**Test Data at Below 1GHz:  
Lowest Channel:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
<b>Horizontal</b>							
31.440	0.02	16.7	/	15.88	32.6	40	-7.4
36.060	0.02	18.4	/	12.68	31.1	40	-8.9
228.240	0.12	10.1	/	29.38	39.6	46	-6.4
234.660	0.12	10.6	/	35.08	45.8	46	-0.2
672.000	0.36	20.1	/	19.24	39.7	46	-6.3
915.240	0.44	23.3	/	20.46	44.2	46	-1.8
<b>Vertical</b>							
36.060	0.02	18.4	/	17.78	36.2	40	-3.8
84.120	0.02	6.1	/	32.38	38.5	40	-1.5
180.180	0.02	5.8	/	34.28	40.1	43.5	-3.4
204.240	0.12	7.2	/	32.98	40.3	43.5	-3.2
805.980	0.42	22.1	/	21.88	44.4	46	-1.6
937.080	0.44	23.8	/	21.06	45.3	46	-0.7

**Note:**

1. The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level = Reading Level + Antenna Factor + Cable Loss - Preamplifier Factor.
2. Other emission levels are too low against official limits that are not recorded.

**Test Data at Above 1GHz:**  
**Lowest channel: 902.75MHz**

Frequency (GHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
<b>Peak Measurement</b>								
1.809	2.01	28	33	59.54	56.55	74	-17.45	H
3.612	2.67	32.2	32.1	56.26	59.03	74	-14.97	H
8.650	5.7	36.7	29.9	49.26	61.76	74	-12.24	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
1.072	1.39	23.9	33.6	53.71	45.40	74	-28.60	V
1.825	2.01	28	33	52.68	49.69	74	-24.31	V
4.975	3.5	32.9	31.6	48.06	52.86	74	-21.14	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V



<i>Frequency (GHz)</i>	<i>Cable Loss(dB)</i>	<i>Antenna Factor (dB)</i>	<i>Preamp Factor (dB)</i>	<i>Reading Level (dBuV/m)</i>	<i>Emission Level (dBuV/m)</i>	<i>Limit (dBuV/m)</i>	<i>Margin (dB)</i>	<i>Antenna Polarizati on (H/V)</i>
<b>Average Measurement</b>								
1.809	2.01	28	33	39.44	36.45	54	-17.55	H
3.612	2.67	32.2	32.1	33.16	35.93	54	-18.07	H
8.650	5.7	36.7	29.9	23.96	36.46	54	-17.54	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
1.072	1.39	23.9	33.6	31.41	23.10	54	-30.90	V
1.825	2.01	28	33	29.48	26.49	54	-27.51	V
4.975	3.5	32.9	31.6	21.66	26.46	54	-27.54	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V

**Mid Channel: 915.25MHz**

<b>Frequency (GHz)</b>	<b>Cable Loss (dB)</b>	<b>Antenna Factor (dB)</b>	<b>Preamp Factor (dB)</b>	<b>Reading Level (dBuV/m)</b>	<b>Emission Level (dBuV/m)</b>	<b>Limit (dBuV/m)</b>	<b>Margin (dB)</b>	<b>Antenna Polarizati on (H/V)</b>
<b>Peak Measurement</b>								
1.809	2.01	28	33	58.72	55.73	74	-18.27	H
3.612	2.67	32.2	32.1	58.23	61.00	74	-13.00	H
8.650	5.7	36.7	29.9	45.17	57.67	74	-16.33	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
1.072	1.39	23.9	33.6	55.83	47.52	74	-26.48	V
1.825	2.01	28	33	49.26	46.27	74	-27.73	V
4.975	3.5	32.9	31.6	46.09	50.89	74	-23.11	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V

Frequency (GHz)	Cable Loss(dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
<b>Average Measurement</b>								
1.809	2.01	28	33	42.47	39.48	54	-14.52	H
3.612	2.67	32.2	32.1	32.64	35.41	54	-18.59	H
8.650	5.7	36.7	29.9	24.02	36.52	54	-17.48	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
1.072	1.39	23.9	33.6	31.52	23.21	54	-30.79	V
1.825	2.01	28	33	28.47	25.48	54	-28.52	V
4.975	3.5	32.9	31.6	22.61	27.41	54	-26.59	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V

**Highest Channel: 927.25MHz**

<i>Frequency (GHz)</i>	<i>Cable Loss (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Preamp Factor (dB)</i>	<i>Reading Level (dBuV/m)</i>	<i>Emission Level (dBuV/m)</i>	<i>Limit (dBuV/m)</i>	<i>Margin (dB)</i>	<i>Antenna Polarizati on (H/V)</i>
<b>Peak Measurement</b>								
1.809	2.01	28	33	60.50	57.51	74	-16.49	H
3.612	2.67	32.2	32.1	55.53	58.30	74	-15.70	H
8.650	5.7	36.7	29.9	44.95	57.45	74	-16.55	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
1.072	1.39	23.9	33.6	55.82	47.51	74	-26.49	V
1.825	2.01	28	33	51.29	48.30	74	-25.70	V
4.975	3.5	32.9	31.6	47.31	52.11	74	-21.89	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V

Frequency (GHz)	Cable Loss(dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
<b>Average Measurement</b>								
1.809	2.01	28	33	41.08	38.09	54	-15.91	H
3.612	2.67	32.2	32.1	33.35	36.12	54	-17.88	H
8.650	5.7	36.7	29.9	25.75	38.25	54	-15.75	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
/	/	/	/	/	/	/	/	H
1.072	1.39	23.9	33.6	32.40	24.09	54	-29.91	V
1.825	2.01	28	33	27.96	24.97	54	-29.03	V
4.975	3.5	32.9	31.6	24.36	29.16	54	-24.84	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V
/	/	/	/	/	/	/	/	V

**Note:**

1. The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level = Reading Level + Antenna Factor + Cable Loss - Preamplifier Factor.
2. According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.
3. As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
4. The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

**§15.205(a) Requirement:**

*(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:*

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

**Conclusions:**

*The fundamental is not in a restricted band, and spurious emission in the restricted bands comply with the general emission limits of 15.209.*

**ATTACHMENT 4 -20 dB Bandwidth**

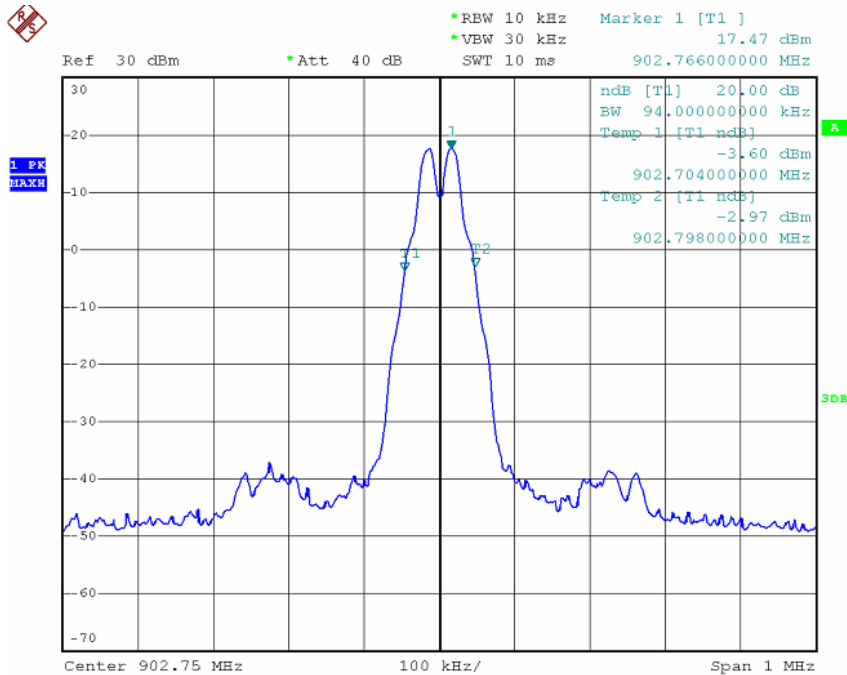
<b>CLIENT:</b>	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	<b>TEST STANDERD:</b>	Section 15.247(a)(1)(i)
<b>MODEL NUMBERS:</b>	BU-900R-K	<b>PRODUCT:</b>	UHF Long Range Reader
<b>EUT MODEL:</b>	BU-900R-K	<b>EUT DESIGNATION:</b>	UHF RFID Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen	<b>DATE OF TEST:</b>	March 11 <sup>st</sup> , 2013
<b>TEST REFERENCE:</b>	ANSI C63.4:2003		
<b>REQUIREMENT :</b>	According to FCC 15.247 (a) (1) (i), For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.		
<b>TEST PROCEDURE:</b>	The transmitter output was connected to the spectrum analyzer through an attenuator and is transmitting at maximum rate. Spectrum Analyser is on max hold, marker-to-peak function is set on the peak of each channel (lowest, mid, highest), and then the marker will be positioned 20dB below the peak on one side and then on the other side. The separation between those two is the 20dB bandwidth.		
<b>TEST VOLTAGE:</b>	120VAC/60Hz		
<b>RESULTS:</b>	The EUT meet the requirements of test reference for occupied bandwidth.The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB		

### Test Data:

Channel	Frequency (MHz)	20dB Bandwidth (KHz)	Limit (KHz)	Pass/Fail
Lowest	902.75	94.00	500	Pass
Middle	915.25	94.00	500	Pass
Highest	927.25	94.00	500	Pass

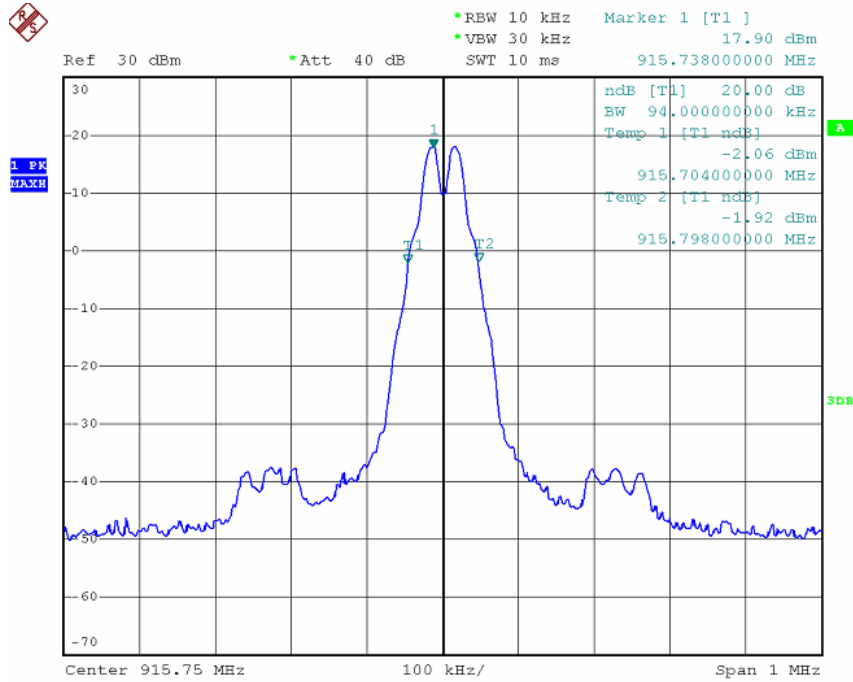
### Test Plot of 20dB bandwidth:

#### Lowest Channel:902.75MHz:

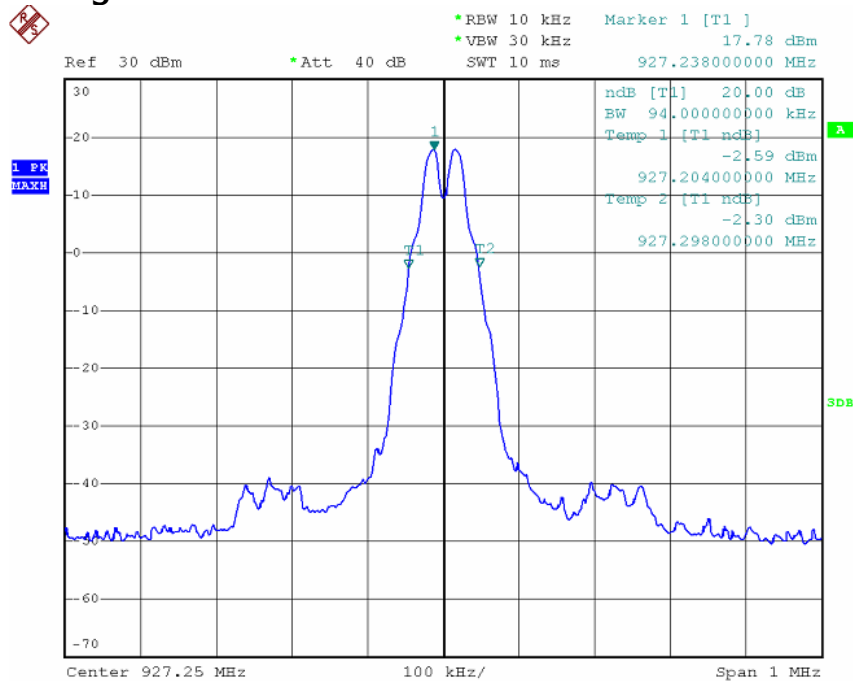




### Middle Channel: 915.25 MHz:



### Highest Channel: 927.25 MHz



**ATTACHMENT 5– Maximum Peak Output Power**

CLIENT:	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	TEST STANDERD:	Section 15.247(b)(2)										
MODEL NUMBERS:	BU-900R-K	PRODUCT:	UHF Long Range Reader										
EUT MODEL:	BU-900R-K	EUT DESIGNATION:	UHF RFID Device										
TEMPERATURE:	23°C	HUMIDITY:	47%RH										
ATM PRESSURE:	101.0kPa	GROUNDING:	None										
TESTED BY:	Sewen	DATE OF TEST:	March 11 <sup>st</sup> , 2013										
TEST REFERENCE:	ANSI C63.4:2003 &FCC Public Notice DA 00-705,												
TEST PROCEDURE:	According to FCC Public Notice DA 00-705, The test procedure as below:  1. The EUT will be in transmitting mode throughout the test in the Lowest, Medium and Highest channel.support computer sends commands to the EUT to exercise the intended functionalities.Power setting = 24 dBm  2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum.  3. Record the max. reading.  4. Repeat above procedures until all frequency measured were complete.												
DESCRIPTIONS OF TEST MODE:	The EUT will be in transmitting mode throughout the test in the Lowest, Medium and Highest channel.support computer sends commands to the EUT to exercise the intended functionalities.Operating Frequency range = 902 - 928MHz;Frequency under test = 902.75, 915.25 & 927.25												
MEASUREMENT EQUIPMENT SET	<table><tr><td colspan="2">Spectrum analyzer was set as below:</td></tr><tr><td>Equipment Mode</td><td>Spectrum Analyzer</td></tr><tr><td>Detector Function</td><td>Peak</td></tr><tr><td>RBW</td><td>1MHz</td></tr><tr><td>VBW</td><td>1MHz</td></tr></table>			Spectrum analyzer was set as below:		Equipment Mode	Spectrum Analyzer	Detector Function	Peak	RBW	1MHz	VBW	1MHz
Spectrum analyzer was set as below:													
Equipment Mode	Spectrum Analyzer												
Detector Function	Peak												
RBW	1MHz												
VBW	1MHz												
TESTED RANGE:	N/A												
TEST VOLTAGE:	120VAC/60Hz												
RESULTS:	The EUT meet the requirements of test reference for maximum peak output power. The test results relate only to the equipment under test provided by client.												
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.												
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB.												

Test Report #: BEI-1211-10910-FCC ID

Prepared for Bluecard Software Technology Co., Ltd.

Prepared by ECMG Electronic Technical Testing Corp (Shenzhen).

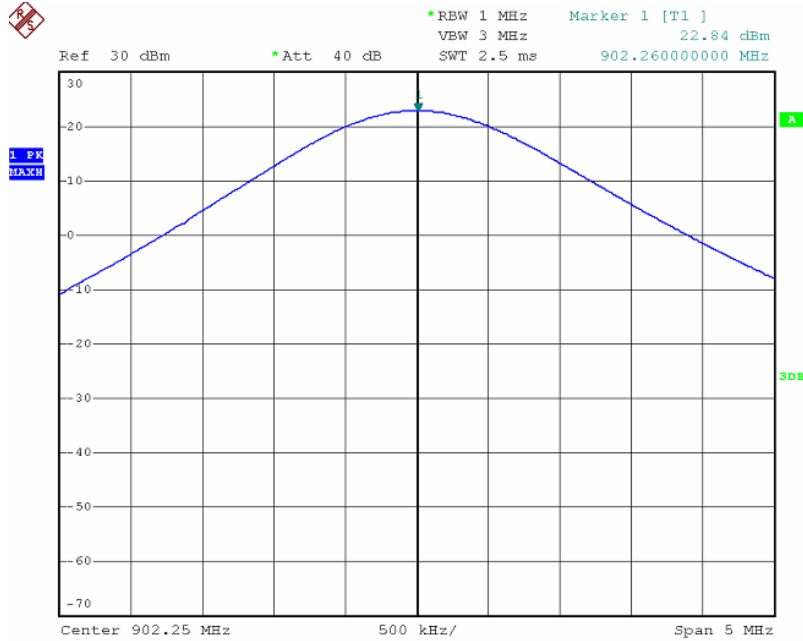
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**Test Data:**

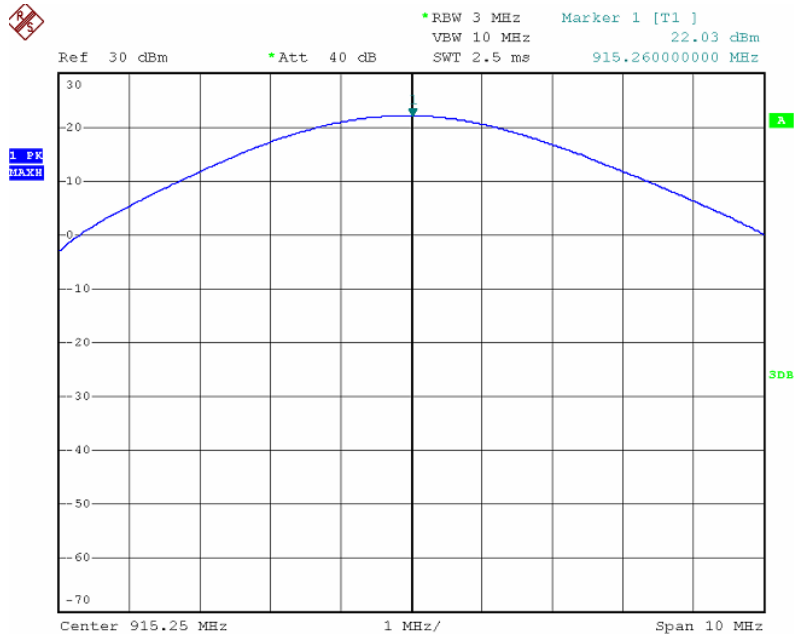
<i>Channel Frequency (MHz)</i>	<i>Peak Output Power(dBm)</i>	<i>Cable Loss (dB)</i>	<i>Power Level (dBm)</i>	<i>Limit</i>	<i>Margin</i>
902.75	22.84	1.00	23.84	28.00	-4.16
915.25	22.03	1.00	23.03	28.00	-4.97
927.25	21.24	1.00	22.24	28.00	-5.76

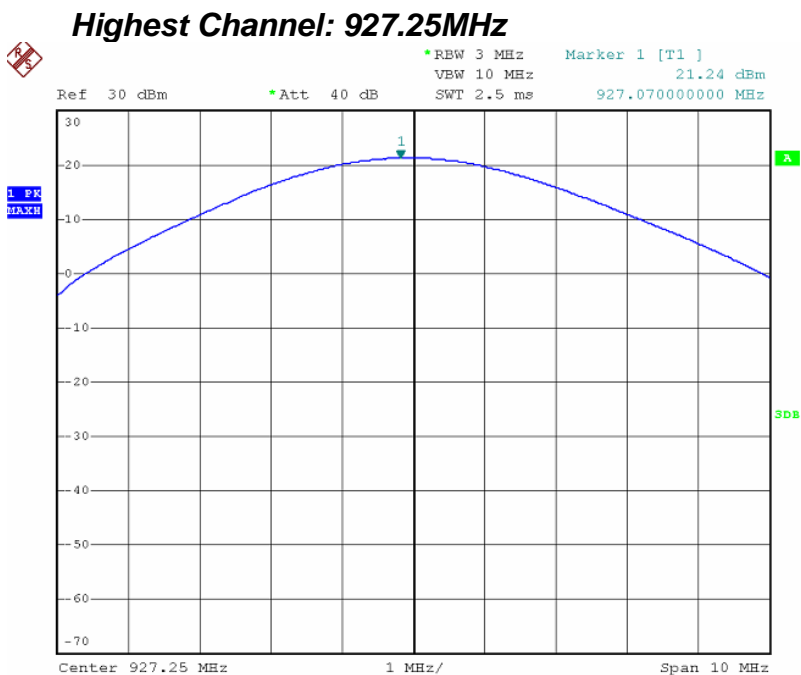
## Test Plot of Peak Output power:

### Lowest Channel: 902.75MHz



### Mid Channel: 915.25MHz





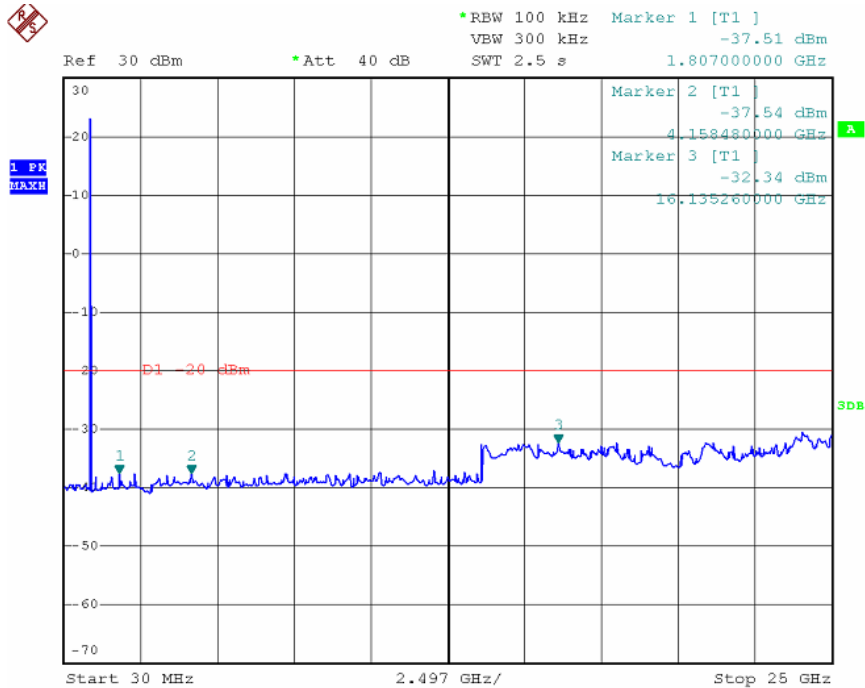
**ATTACHMENT 6 – Conducted Spurious Test At Antenna Terminals**

<b>CLIENT:</b>	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	<b>TEST STANDERD:</b>	§15.247(d); § 2.1051
<b>MODEL NUMBERS:</b>	BU-900R-K	<b>PRODUCT:</b>	UHF Long Range Reader
<b>EUT MODEL:</b>	BU-900R-K	<b>EUT DESIGNATION:</b>	UHF RFID Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen	<b>DATE OF TEST:</b>	March 21 <sup>st</sup> , 2013
<b>TEST REFERENCE:</b>	ANSI C63.4:2003		
<b>REQUIREMENT:</b>	15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.		
<b>TEST PROCEDURE:</b>	<p>According to FCC Public Notice DA 00-705, The test procedure as below:</p> <p>1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.</p> <p>2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.</p> <p>3. Use the following spectrum analyzer settings: Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.</p> <p>RBW = 100 kHz ;</p> <p>VBW ≥ RBW;</p> <p>Sweep = Auto;</p> <p>Detector function = peak;</p> <p>Trace = max hold.</p> <p>4. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. Plot the result on the screen of spectrum analyzer.</p> <p>5. Repeat above procedures until all measured frequencies were complete.</p>		

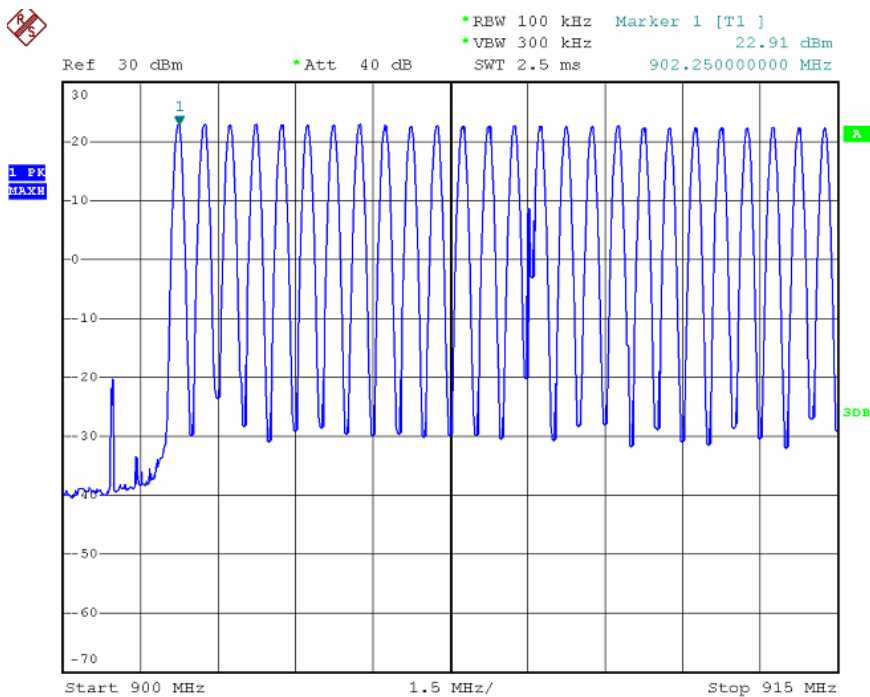
<b>DESCRIPTIONS OF TEST MODE:</b>	The measurements will be taken from the RF port. The EUT will be in transmitting mode throughout the test in the lowest, middle and highest three channels. The amplitude of the EUT carrier frequency was measured to determine the emissions limit (20 dB below the carrier frequency amplitude). The emissions outside of the allocated frequency band were then scanned from 30 MHz up to the tenth harmonic of the carrier.
<b>TEST VOLTAGE:</b>	120VAC/60Hz
<b>RESULTS:</b>	All emissions are attenuated more than 20dB from the carrier. The test results relate only to the equipment under test provided by client.
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB.

## Test Plot of Conducted Spurious Emission:

### Lowest Channel: 902.75MHz



### Conducted Spurious Emissions(30MHz - 25GHz)



### Band Edge Plot, Lowest Channel TX @902.25MHz

Test Report #: BEI-1211-10910-FCC ID

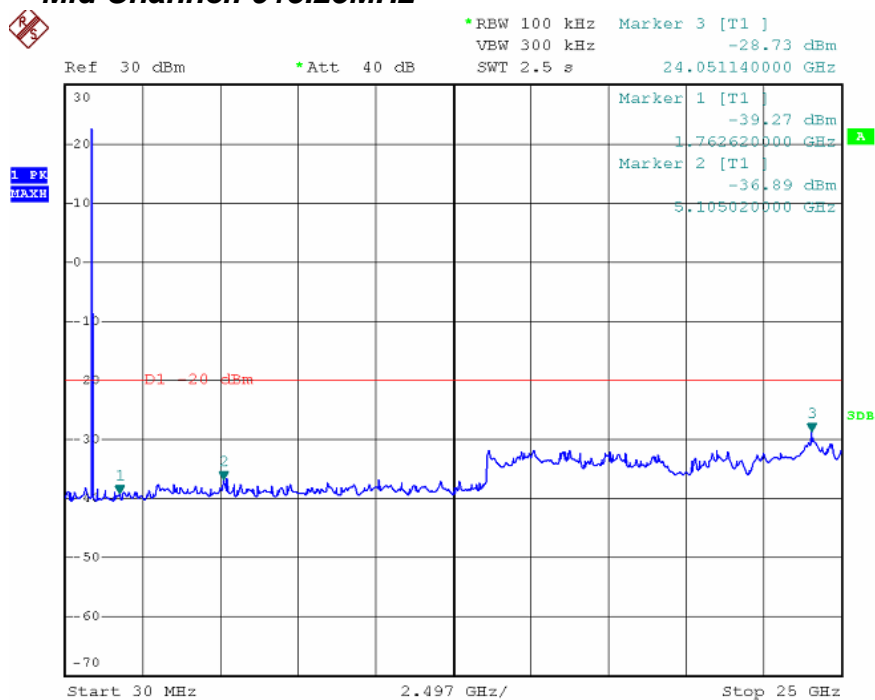
Prepared for Bluecard Software Technology Co., Ltd.

Prepared by ECMG Electronic Technical Testing Corp (Shenzhen).

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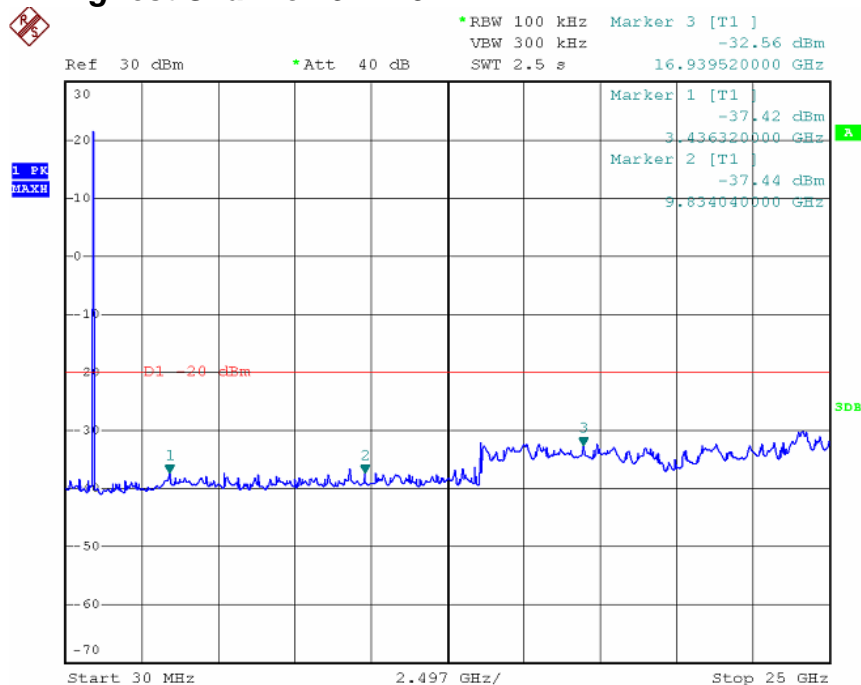


### Mid Channel: 915.25MHz



### Conducted Spurious Emissions(30MHz - 25GHz)

### Highest Channel: 927.25MHz



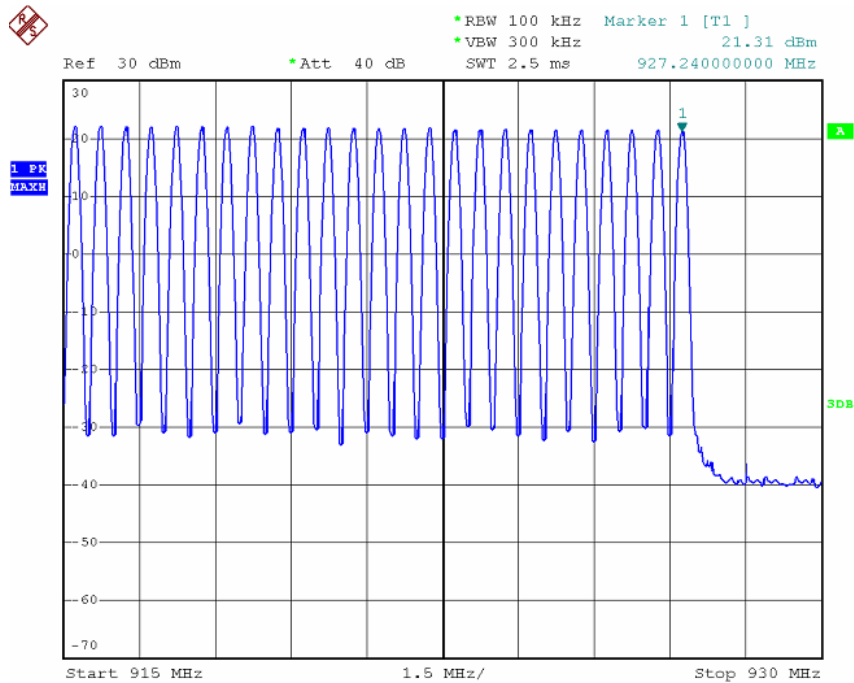
### Conducted Spurious Emissions(30MHz - 25GHz)

Test Report #: BEI-1211-10910-FCC ID

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**Band Edge Plot, Highest Channel TX @927.25MHz**

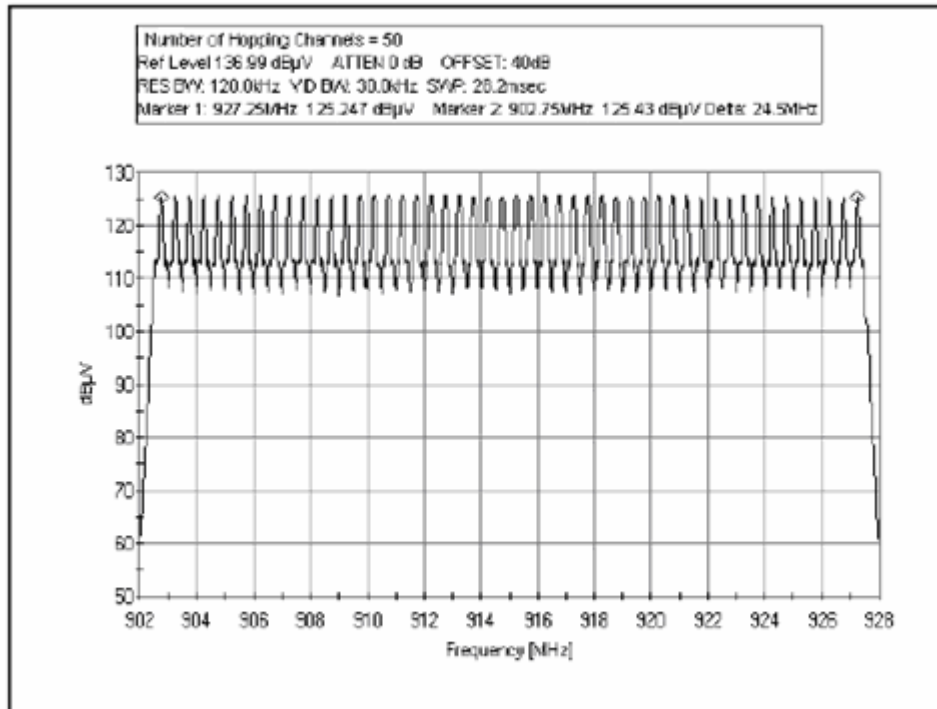
**ATTACHMENT 7 – Number Of Hopping Channels**

<b>CLIENT:</b>	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	<b>TEST STANDERD:</b>	Section 15.247(b)(2)
<b>MODEL NUMBERS:</b>	BU-900R-K	<b>PRODUCT:</b>	UHF Long Range Reader
<b>EUT MODEL:</b>	BU-900R-K	<b>EUT DESIGNATION:</b>	UHF RFID Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen	<b>DATE OF TEST:</b>	March 20 <sup>th</sup> , 2013
<b>TEST REFERENCE:</b>	ANSI C63.4:2003		
<b>REQUIREMENT:</b>	According to 15.247(b)(2) :  For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.		
<b>TEST PROCEDURE:</b>	According to FCC Public Notice DA 00-705, The test procedure as below:  1. Enable hopping function for the EUT;  2. Set the analyzer's span = 901- 929MHz;  3. Set RBW=100KHz, VBW = RBW, Max. peak hold.		
<b>DESCRIPTIONS OF TEST MODE:</b>	The EUT is transmitting with the Hopping function enabled at maximum rate, Spectrum Analyser is on max hold and the span is wide enough to capture all the channels (902-928MHz at least). All the signals within the screen are the number of hopping channels.		
<b>TEST VOLTAGE:</b>	120VAC/60Hz		
<b>RESULTS:</b>	Results = 50 Channels.The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB.		

**Test Data:**

Frequency Band	Number of Hopping Channels
902-928	50

**Test Plot Of Hopping Channels:**



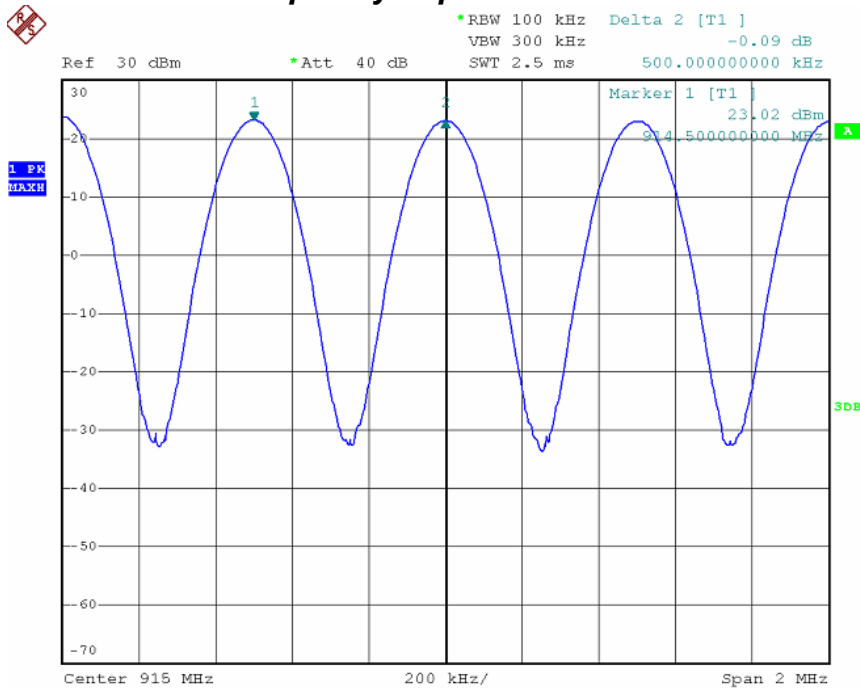
**ATTACHMENT 8 – Frequency Separation**

<b>CLIENT:</b>	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	<b>TEST STANDERD:</b>	Section 15.247(a)(1)
<b>MODEL NUMBERS:</b>	BU-900R-K	<b>PRODUCT:</b>	UHF Long Range Reader
<b>EUT MODEL:</b>	BU-900R-K	<b>EUT DESIGNATION:</b>	UHF RFID Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen	<b>DATE OF TEST:</b>	March 15 <sup>th</sup> , 2013
<b>TEST REFERENCE:</b>	ANSI C63.4:2003		
<b>REQUIREMENT:</b>	According to 15.247(a)(1):  Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.		
<b>TEST PROCEDURE:</b>	According to FCC Public Notice DA 00-705, The test procedure as below:  1. Enable the hopping function for the EUT.  2. Set analyzer's span wide enough to capture the peaks of two adjacent channels.  3. Set RBW =100KHz, VBW = RBW, Max peak hold.  4. Using the Delta Marker function to determine the separation between the peaks of the adjacent channels.		
<b>DESCRIPTIONS OF TEST MODE:</b>	The EUT is transmitting with the Hopping function enabled at maximum rate, Spectrum Analyser is on max hold and the span is wide enough to capture two adjacent signals. Two markers are positioned in the peak of each signal and the delta of those two markers is the frequency separation between signals.		
<b>TEST VOLTAGE:</b>	120VAC/60Hz		
<b>RESULTS:</b>	The EUT meet requirement of frequency separation in section 15.247(a).The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB.		

**Test Data:**

Hopping Frequency Separation(KHz)	25KHz or 20dB Bandwidth(KHz)	Result
500	94	Pass

**Test Plot Of Frequency Separation::**



**ATTACHMENT 9 – Average Time of Occupancy**

<b>CLIENT:</b>	BLUECARD SOFTWARE TECHNOLOGY CO., LTD.	<b>TEST STANDERD:</b>	Section 15.247(a)(1)(i)
<b>MODEL NUMBERS:</b>	BU-900R-K	<b>PRODUCT:</b>	UHF Long Range Reader
<b>EUT MODEL:</b>	BU-900R-K	<b>EUT DESIGNATION:</b>	UHF RFID Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen	<b>DATE OF TEST:</b>	March 15 <sup>th</sup> , 2013
<b>TEST REFERENCE:</b>	ANSI C63.4:2003		
<b>REQUIREMENT:</b>	According to 15.247(a)(1)(i) : if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20dB bandwidth of the hopping channel is 250 kHz or greater.		
<b>TEST PROCEDURE:</b>	<p>According to FCC Public Notice DA 00-705, The test procedure as below:</p> <ol style="list-style-type: none"><li>1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.</li><li>2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. The EUT must have its hopping function enabled.</li><li>3. Use the following settings: Span = zero span, centered on a hopping channel RBW = 1 MHz, VBW &gt;= RBW, Sweep = as necessary to capture the entire dwell time per hopping channel Detector function = peak Trace = max hold.</li><li>4. Use the marker-delta function to determine the dwell time. Plot the result on the screen of spectrum analyzer.</li><li>5. Repeat above procedures until all frequencies measured were complete.</li></ol>		
<b>DESCRIPTIONS OF TEST MODE:</b>	The EUT is transmitting with the Hopping function enabled at maximum rate, SPECTRUM ANALYSER is on max hold and the span is wide enough to capture two adjacent signals. Two markers are positioned in the peak of each signal and the delta of those two markers is the frequency separation between signals.		
<b>TEST VOLTAGE:</b>	120VAC/60Hz		
<b>RESULTS:</b>	The EUT meet requirement of time of occupy in section 15.247(a)(1)(i).The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB.		

Test Report #: BEI-1211-10910-FCC ID

Prepared for Bluecard Software Technology Co., Ltd.

Prepared by ECMG Electronic Technical Testing Corp (Shenzhen).

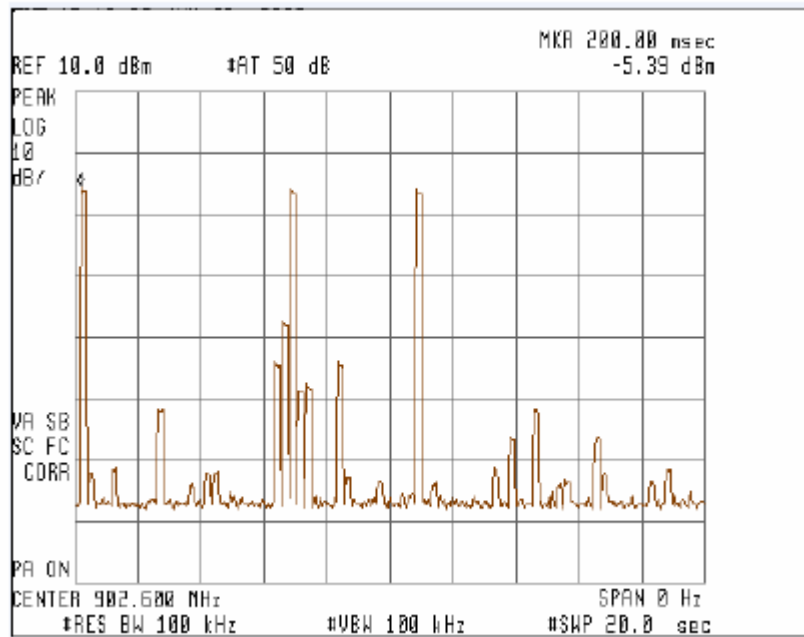
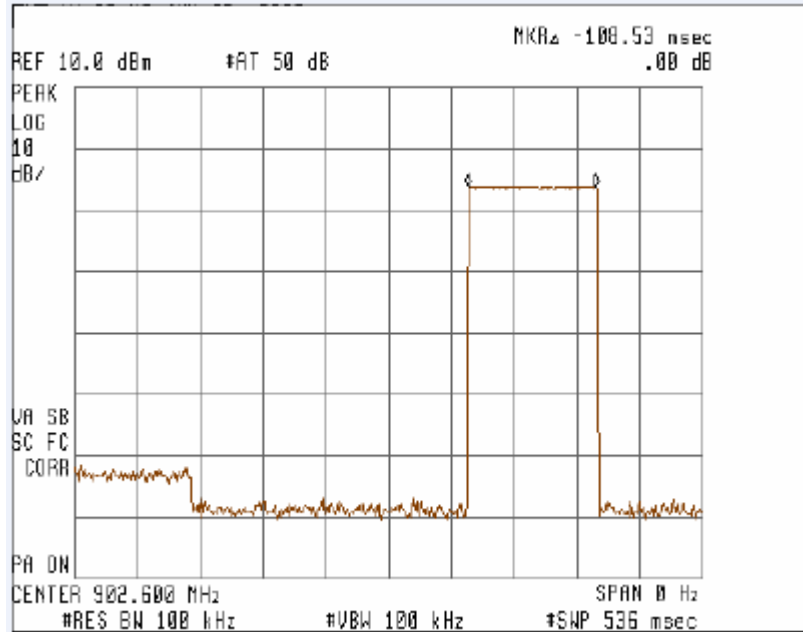
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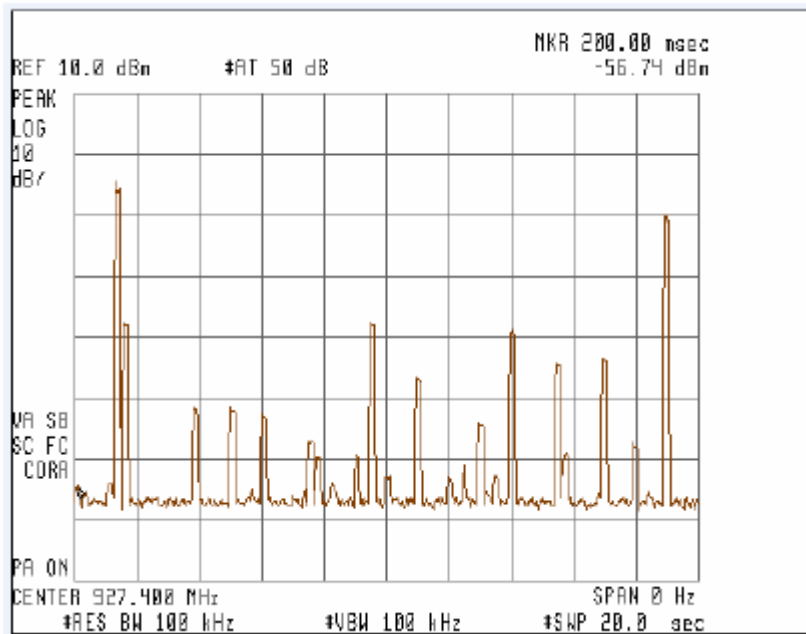
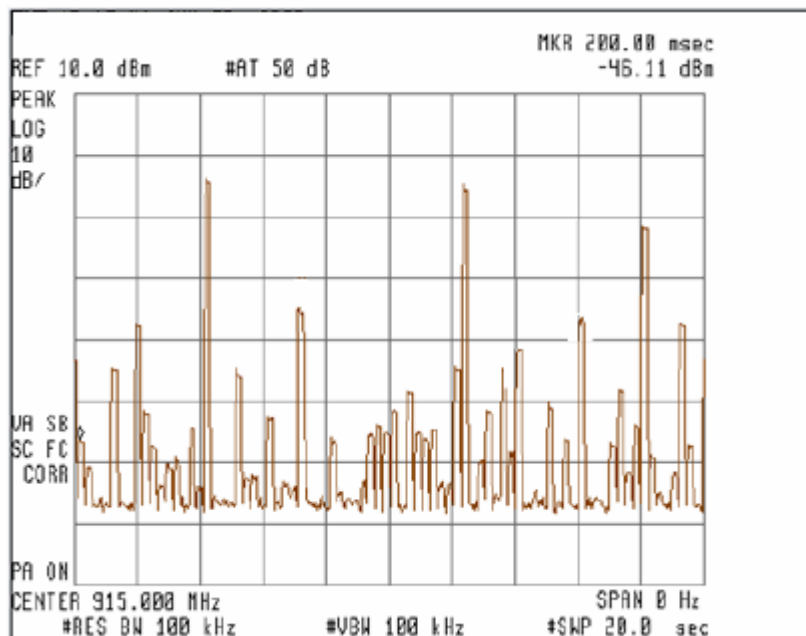
**Test Data:**

<b>Channel</b>	<b>Time of Occupancy</b>	<b>Limit</b>	<b>Result</b>
<i>Lowest</i>	$108.53\text{ms} \times 3 = 325.59\text{ms}$	<i>400ms</i>	<i>Pass</i>
<i>Middle</i>	$108.53\text{ms} \times 3 = 325.59\text{ms}$	<i>400ms</i>	<i>Pass</i>
<i>Highest</i>	$108.53\text{ms} \times 2 = 217.06\text{ms}$	<i>400ms</i>	<i>Pass</i>



### Test Plot Of Time of Occupancy:





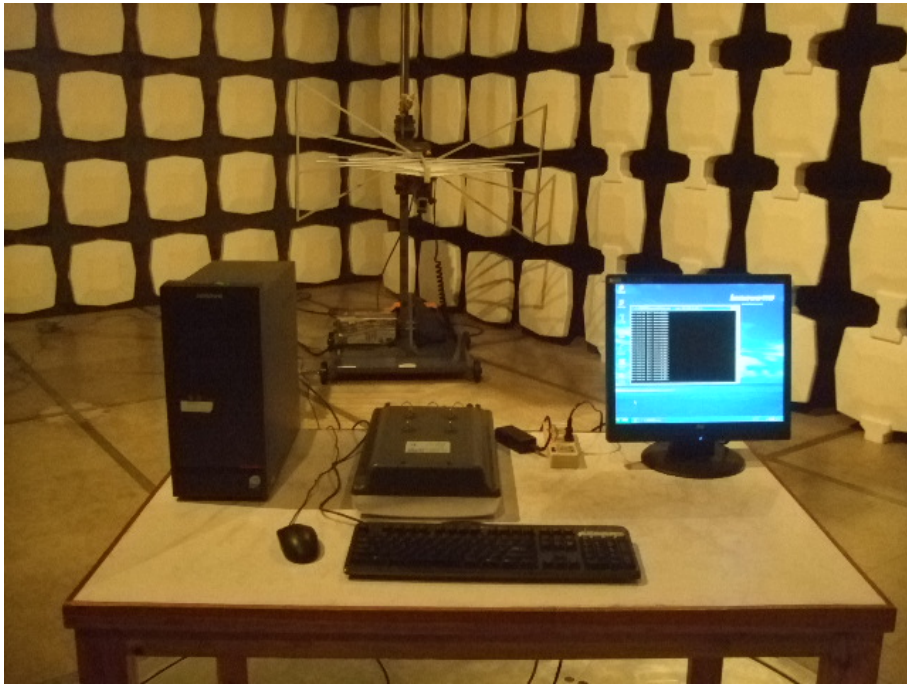
## ***Test Set up Photographs***



***Conducted Emission Test Set-up-Front View***



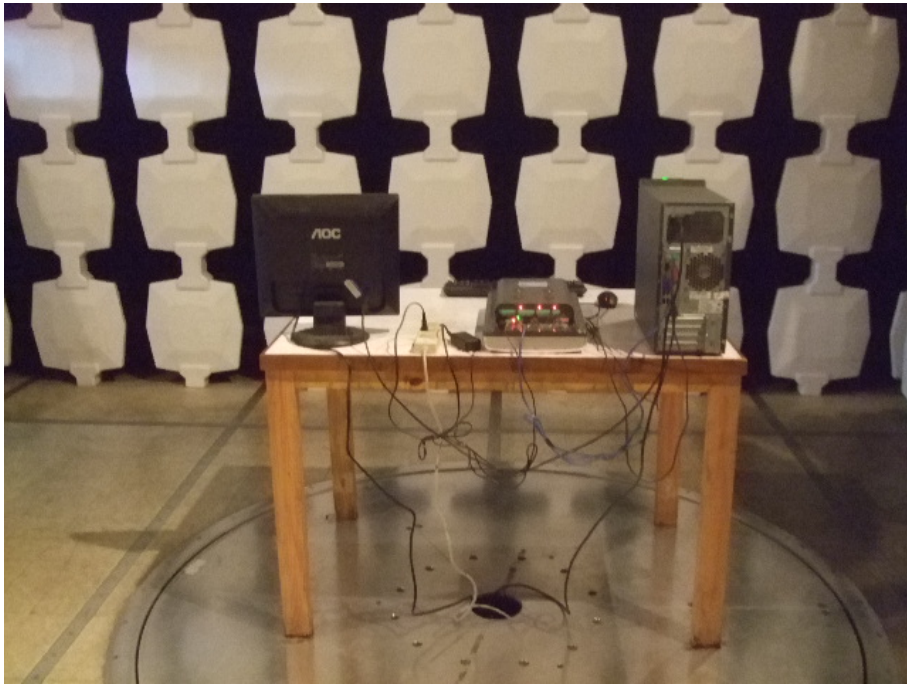
***Conducted Emission Test Set-up-Rear View***



***Radiated Emission Test Set-up -below 1GHz***



***Radiated Emission Test Set-up - Above 1GHz***



***Radiated Emission Test Set-up – Rear View***