



April 1, 2011

Mr. Mario Romero  
Armor Safe Technologies, c/o Southern Folger Detention  
4634 S. Presa St.  
San Antonio, TX 78223

Dear Mr. Romero:

Enclosed please find Armor Safe Technologies' file copy of the FCC Subpart C , Part 15.225 Certification Report and Application for the Armor Safe Technologies' Model: Cache System 7102 which incorporates the PROMAG RWM600A module for RFID communication.

Please note it is our opinion that the test data gather in this report finds that the equipment above complies with the requirements of the above subparts and standards.

Armor Safe Technologies should expect to receive a certification grant for this product within the next 2-4 weeks.

If you have any questions, please don't hesitate to call. Thank you for your business.

Sincerely,

A handwritten signature in black ink, reading 'Alan Ghasiani', is shown on a light gray rectangular background.

Alan Ghasiani  
President – Consulting Engineer

**3505 Francis Circle Alpharetta, GA 30004**  
**PH: 770-740-0717 Fax: 770-740-1508**  
**[www.ustech-lab.com](http://www.ustech-lab.com)**



**Application for Certification**

**Per**

**Title 47 USC Part 2, Subpart J, Equipment Authorization Procedures,  
Paragraph 2.907, Certification and Part 15, Subpart C, Intentional Radiators,  
Paragraph 15.225, Operation within the band 13.110 MHz to 14.010 MHz  
For the**

**ARMOR SAFE TECHNOLOGIES**

**Model:  
Cache System 7102**

**UST Project: 11-0055  
Issue Date: April 1, 2011**

**Number of Pages in this report: 31**

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*Testing Tomorrow's Technology*

I certify that I am authorized to sign for the test facility and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

US Tech (Agent Responsible For Test):

By: \_\_\_\_\_

A handwritten signature in black ink, appearing to read 'Alan Ghasiani', is written over a light gray rectangular background.

Name: Alan Ghasiani

Title: President – Consulting Engineer

Date: April 1, 2011

This report shall not be reproduced except in full. This report may be copied in part only with the prior written approval of US Tech. The results contained in this report are subject to the adequacy and representative character of the sample provided.

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MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: **Armor Safe Technologies**

MODEL: **Cache System 7102**

FCC ID: **ZLB-ASTCSYS500**

DATE: **April 1, 2011September 2, 2011**

This report concerns (check one): Original grant X  
Class II change\_\_\_\_\_

Equipment type: Cash counting and dispensing safe with RFID Transmitter Module

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes\_\_\_\_\_ No X

If yes, defer until: \_\_\_\_\_  
date

N.A. agrees to notify the Commission by N.A.  
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

US Tech  
3505 Francis Circle  
Alpharetta, GA 30004

Phone Number: (770) 740-0717  
Fax Number: (770) 740-1508

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3.2 Modifications Photographs

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## 1. General Information

The information contained in this report is presented for the FCC Equipment Authorization of Certification of the Equipment Under Test (EUT).

### 1.1 Product Description

The EUT is the Armor Safe Technologies Model Cache System 7102. The EUT is cash counting and cash dispensing, intelligent safe using a Rabbit Core Module RCM3900 board and a PROMAG RWM600A transmitter module. The reader module is based on transponders with an operating frequency of 13.56 MHz and uses TI-RFID technology. For this test the PROMAG RWM600A was tested while installed in the Cache System 7102 safe.

### 1.2 Characterization of Test Sample

The sample used for testing was received by US Tech on March 21, 2011 in good operating condition.

### 1.3 Related Submittal(s)

The EUT will be used to wirelessly send/receive data. The transceiver presented in this report will be used with other like transceivers.

### 1.4 Subject Authorizations

The EUT is subject to the following authorizations:

- a) Certification under Part 15.225.
- b) Verification of the non-transmitter part of the transceiver as a digital device.



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## 2 Tests and Measurements

### 2.1 Configuration of Tested EUT

The Test sample was tested per *ANSI C63.4, Methods of Measurement from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (2003)*. Radiated emissions data were taken according to paragraph 8.0 with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. There were no interconnecting cables to manipulate in an attempt to maximize emissions; however, the physical position of the EUT was varied through the three mutually exclusive orthogonal planes in an attempt to maximize the emissions. The worse case position is the position used for final measurements and is gathered in this test report. A block diagram of the tested system is shown in Figure 1. All test configuration photographs are shown in separate Annex.

### 2.2 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. This site has been fully described and registered with the FCC, under designation number US5117. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 2982A-1 and is also a NVLAP accredited test lab; lab code 200162-0.

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2.3 Test Equipment

**Table 1. EUT and Peripherals**

PERIPHERAL AND MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
RFID Transmitter Armor Safe Technologies (EUT)	PROMAG RWM600A	--	ZLB- ASTCSYS500	N/A
Safe Armor Safe Technologies (EUT)	Cache System 7102	--	Contains: ZLB- ASTCSYS500	6' U RJ11 cable 6'U DB9 serial cable
Safe Power Supply Power-WIN Technologies	PW-150A2-1Y- 240E	--	None	10' U power cable
Printer BIXOLON	STP-103II	--	None	6' U DB25 serial cable
Power Supply(printer) SI Tech	SADO3624-UV	--	None	10' U power cable

**P = Power D = data S = Shielded U = Unshielded**

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**Table 2. Test Instruments**

TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE
SPECTRUM ANALYZER	HEWLETT-PACKARD	8566B	2430A005 23	10/29/10
SPECTRUM ANALYZER	HEWLETT-PACKARD	8593E	3205A001 24	10/18/10
RF PREAMP	HEWLETT-PACKARD	8447D	2944A074 36	9/07/10
LOOP ANTENNA	AH Systems	SAS 200/560	142	12/01/09 2 Yr.
BICONICAL ANTENNA	Electro Metrics	BIA-25	2451	12/29/09 2 Yr.
LISN X 2	Solar Electronics	9247-50- TS-50-N	955824- 955825	1/27/11
LOG PERIODIC ANTENNA	EMCO	3146	3236	1/22/10 2 Yr.
Calculation Program	N/A	N/A	EMCCALC	N/A

Note: The calibration interval of the above test instruments is 12 months unless stated otherwise and all calibrations are traceable to NIST/USA.

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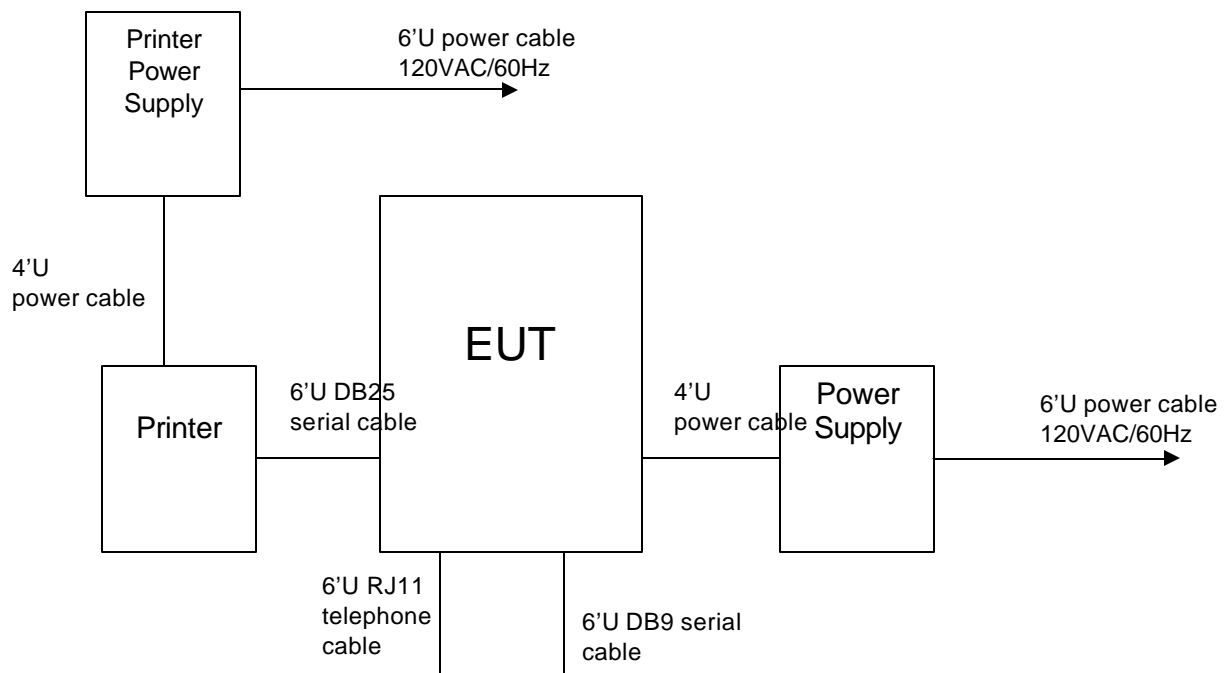
## 2.4 Modifications to Equipment

The following modifications were need to bring the EUT into compliance with the FCC Part 15.207, conducted emissions and 15.209, radiated emissions limits for an intentional radiator, and 15.225, Operation within the band of 13.110 to 14.010 MHz.

- 1.) A ferrite clamp was added to the DC-DC power line cables in the main tray of the safe. Please see the modifications photographs herein for exact location along with ferrite details.
- 2.) A ferrite clamp was added to the communications cable bundle in the main tray of the safe. Please see the modifications photographs herein for exact location along with ferrite details.
- 3.) A ferrite clamp was added to the antenna cable just after the SMA connection. Please see the modifications photographs herein for exact location along with ferrite details.
- 4.) A ferrite disk was added to the top of the RFID module. Please see the modifications photographs herein for exact location and ferrite details.
- 5.) A ferrite clamp was added to the main tray in power supply cable at the AC line-in side of the power supply. Two loops were applied. Please see the modifications photographs herein for exact location and ferrite details.

## 2.5 Test Procedure

The EUT was configured as shown in the following block diagram(s) and photograph(s). The sample was tested per ANSIC63.4, Methods of Measurement for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (2003) following US Tech's procedures paragraph 7 for conducted and paragraph 8 for radiated. Conducted and radiated emissions data were taken with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter on the spectrum analyzer was OFF throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions. The EUT was rotated 360 degrees with the turntable to maximize emissions. The physical position of the EUT was varied through the three mutually exclusive orthogonal planes in an attempt to maximize the emissions. The final setup description is found in the test section of this report.



**Figure 1. Test Configuration**

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## 2.6 Antenna Description (47 CFR 15.203)

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.

Armor Safe Technologies' Cache System 7102 transmitter model PROMAG RWM600A incorporates the following antenna(s) only.

**Table 3. Antenna Description**

<b>MANUFACTURER</b>	<b>TYPE</b>	<b>MODEL</b>	<b>GAIN dB<sub>i</sub></b>
Armor Safe Technologies	PCB coil antenna	N/A	0

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## 2.7 Intentional Radiator, Power Lines Conducted Emissions (47 CFR 15.207)

The power line conducted voltage emission measurements have been carried out in accordance with CFR 15.207, per ANSI C63.4, Paragraph 7, with a spectrum analyzer connected to an LISN and the EUT placed into a continuous mode of transmission.

The worst-case results for conducted emissions are reported in Section 2.13 of this report.

## 2.8 Field Strength of Fundamental (47 CFR 15.209, 15.225)

The results of the measurements for peak fundamental emissions are given in Table 5. The EUT emissions measurement was started by setting up the Log-periodic Antenna (L-pA) or generally, any antenna, in the vertical orientation at a distance of 3 meters from the EUT and at a height of 1.0 meters above the ground. The EUT packages' major axis was set normal to the direction of the measuring antenna.

The Spectrum Analyzer (SA) displays were set to: Channel A free-running, Channel B to Max-Hold. Choose a frequency or frequency range and scan it at a coupled rate. When a suspicious signal is found, center the signal on the screen and raise the L-pA to the 4-meter height while observing the SA display for changes to the max-hold and free-running display. Next, the antenna is lowered to 1 meter height above the ground plane while observing the channel A and B displays. The display having max-hold shows the maximum signal seen across the height range of 1 to 4 meters. The next action is to raise or lower the antenna until the free-running display matches the Max-hold display's magnitude on the SA screen. When this occurs, the signal is maximized for antenna height. Record the antenna height on the data sheet corresponding to the present frequency.

When the antenna height has been maximized, the next step in the measurement process is to maximize the EUT direction with respect to the receiving antenna. Rotate the turn-table through 360 degrees with one SA channel set for max-hold and the other channel in free-run mode. The object is to find that azimuth direction where the free-running indication just matches the greatest max-hold indication. This is the direction where the signal is peaked for azimuth. Record the direction on the data sheet next to the frequency.

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## 2.8 Field Strength of Fundamental (47 CFR 15.209, 15.225) (cont'd)

When all signals have been maximized for antenna height and direction, the EUT case is carefully maneuvered in each of the three mutually exclusive orthogonal planes while observing the same Max-hold/free-running SA display indication. When the EUT position is found that allows a maximized signal to be read from the display, then that signals' magnitude is recorded on the data sheet for that particular frequency.

Next, re-orient the measurement antenna to Horizontal polarization at 1 meter height and repeat the above antenna and directional maximization processes for the greatest signals found across the frequency spectrum of interest. Record all signals within 6 dB of the limit.

Finally, Input the collected data into the calculation spread sheet. The spread sheet is designed to calculate for the true value that is collected. The spread sheet takes into account the SA reading, the antenna correction factor, cable losses and duty cycle factors. See the data tables herein.

## 2.9 Limits for Operation within the Band 13.110-14.010 MHz (47 CFR 15.225)

This limit versus frequency table is as follows (test distance = 3.0 meters):

Frequency (MHz)	Field Strength @ 30m (uV/m)	Field Strength @ 30m (dBuV/m)	Field Strength @ 3m (dBuV/m)
13.553-13.567	15848	84	124
13.410-13.553	334	50.5	90.5
13.567-13.710	334	50.5	90.5
13.110-13.410	106	40.5	80.5
13.710-14.010	106	40.5	80.5
Any emissions outside of the band 13.110-14.010 MHz shall not exceed the limits in 15.209			

Note: formula 1:  $\text{dBuV/m} = 20 \log (\text{uV/m})$

2:  $3\text{m distance} = (\text{dBuV/m}@30\text{m}) + 40 \log (30/3)$

The frequency spectrum above the fundamental to its 10<sup>th</sup> harmonic shall be examined and measured for signals falling into the restricted bands of 15.205. If average emissions measurements are employed, the provisions in 15.35 for averaging pulsed emissions and for



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limiting peak emissions apply. Spurious and harmonics shall meet the requirements of the above table or the requirements of 15.209, whichever requirement permits a higher field strength.

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2.10 Peak Radiated Spurious Emissions, 9 KHz to 1000 MHz (47 CFR 15.205, 15.209, 15.225)

The peak radiated spurious emissions were measured over the frequency range of 9 KHz to 1000 MHz. The spurious emissions have been recorded and results are reported in the table below.

**Table 4. Intentional Radiator Radiated Emissions 9 KHz to 30 MHz**


Intentional Radiator Radiated Emissions 9 KHz to 30 MHz							
Test By: GY	Test: Part 15B, Para 15.209,15.225			Client: Armor Safe Technologies			
	Project: 11-0055	Class: B		Model: Cache System 7102			
Frequency (MHz)	Peak Test Data (dBuV)	AF+CL-PA (dB/m)	Peak Corrected Results (dBuV/m)	Limits (dBuV/m)	Application Test Distance/ Polarization	Margin (dB)	Detector Used
Measurements were made over the frequency range of 9KHz to 30MHz							
13.56	32.20	6.20	38.40	124.0	3m/LOOP	85.6	PK
27.12	17.40	11.92	29.32	69.5	3m/LOOP	40.2	PK
<b>No other emissions found more than 6 dB above the noise floor</b>							

\* frequency falls in restricted band of CFR 15.205.

Note: Measurements made at 1m were extrapolated back to 3m by subtracting 9.5.  
 Tested from Fundamental to 10<sup>th</sup> Harmonic

SAMPLE CALCULATIONS: At 13.56 MHz = 32.20 + (6.20) = 38.40 dBuV

Test Date: March 24-26, 2011

Tested By   
 Signature: \_\_\_\_\_

Name: George Yang

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**Table 5. Intentional Radiator Radiated Emissions 30 MHz to 1000 MHz**

Intentional Radiator Radiated Emissions 30 MHz to 1000 MHz							
Test By: GY	Test: Part 15B, Para 15.209,15.225			Client: Armor Safe Technologies			
	Project: 11-0055	Class: B		Model: Cache System 7102			
Frequency (MHz)	Peak Test Data (dBuV)	AF+CL-PA (dB/m)	Peak Corrected Results (dBuV/m)	Limits (dBuV/m)	Application Test Distance/ Polarization	Margin (dB)	Detector Used
Measurements were made over the frequency range of 30MHz to 1 GHz							
40.45	15.90	10.51	26.41	40.0	3m/VERT	13.6	<b>PK</b>
54.20	17.90	11.46	29.36	40.0	3m/VERT	10.6	<b>PK</b>
67.79	21.80	7.56	29.36	40.0	3m/VERT	10.6	<b>PK</b>
135.60	18.70	12.56	31.26	43.5	3m/VERT	12.2	<b>PK</b>
<b>No other emissions found more than 6 dB above the noise floor</b>							


\* frequency falls in restricted band of CFR 15.205.

Note: Measurements made at 1m were extrapolated back to 3m by subtracting 9.5.

Note: Tested from Fundamental to 10<sup>th</sup> Harmonic

SAMPLE CALCULATIONS: At 40.45 MHz = 15.90 + (10.51) = 26.41 dBuV

Test Date: March 24-26, 2011

Tested By   
 Signature: \_\_\_\_\_

Name: George Yang

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## 2.11 Bandwidth of Fundamental (47 CFR 15.215 (c))

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

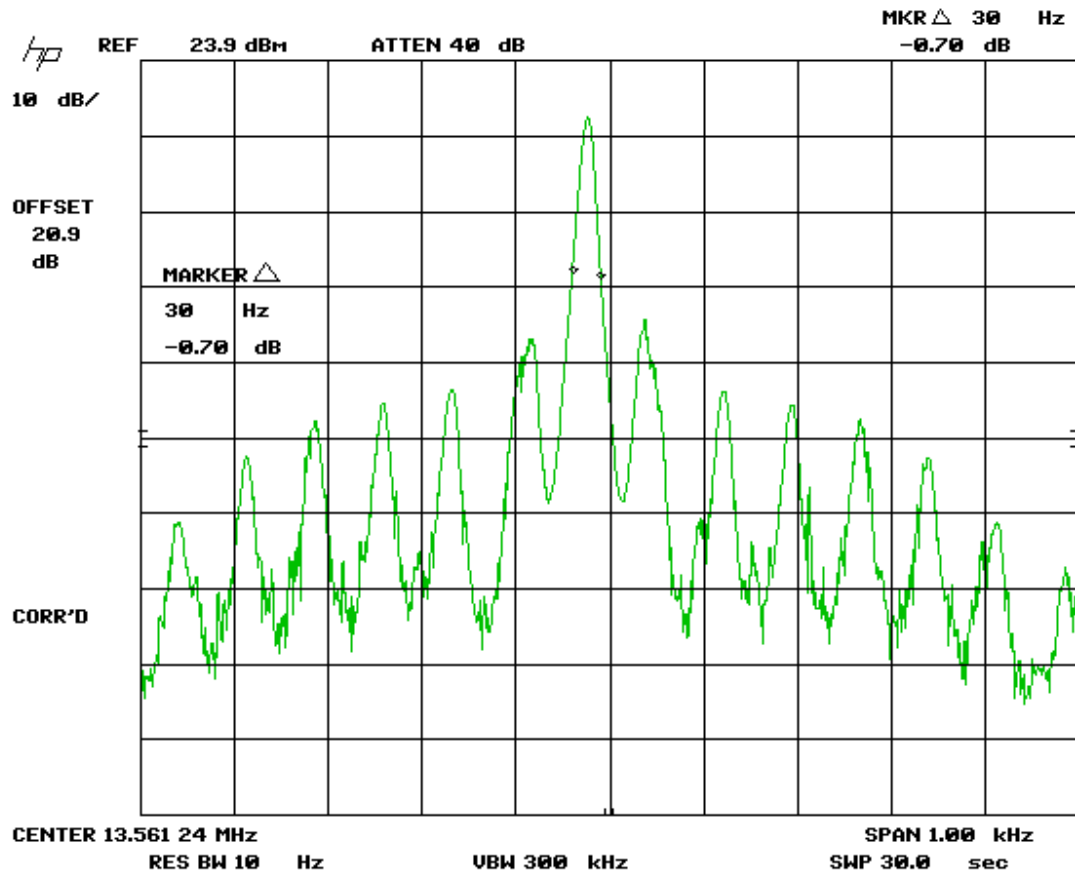


Figure 2. Occupied Bandwidth (-20 dB) of Fundamental

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2.12 Frequency Stability (CFR 2.1055, 15.225 (e))

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment test shall be performed using a new battery.

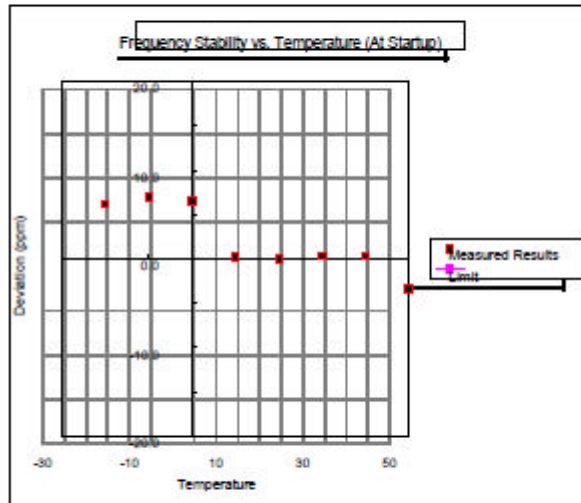
FCC Certification

Test Results Reviewed By:

Frequency Stability vs. Temperature (At Startup)

George Yang

Temperature (degrees C)	Measured Frequency (MHz)	Deviation (ppm)
-30		
-20	13.5614	6.2
-10	13.5614	6.9
0	13.5614	6.5
10	13.5613	0.2
20	13.5613	0.0
30	13.5613	0.3
40	13.5613	0.3
50	13.5612	-3.4



Actual TX Frequency was: 13.5613 MHz

Maximum Deviation = 0.01% or 100ppm  
 Reference Point from 20 degrees C: 13.5613 MHz

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### 2.13 Power Line Conducted Emissions for Transmitter and Receiver/Digital Apparatus.(47 CFR 15.107, 15.207)

The power line conducted voltage emissions measurements have been carried out in accordance with CFR 15.107 and 15.207, per ANSI C63.4, Paragraph 7, with a spectrum analyzer connected to an LISN and the EUT placed into a non-transmit and a continuous mode of transmission. Of the two procedures only the procedure with the worst case emission is shown here.

The worst-case results for conducted emissions were 2.0 dB within the limit at 1.104 MHz. All other conducted emissions measurements were at least 3.6 dB or more from the limits. The results are reported in Table 6.



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**Table 6. Unintentional Power Line Conducted Emissions Test Data**

CONDUCTED EMISSIONS						
Tested By: GY	Specification Requirement: FCC Part 15, P15.107, P15.207	Project No.: 11-0055	Manufacturer: Armor Safe Technologies Model: Cache System 7102			
Frequency (MHz)	Test Data (dBuV)	LISN+CL-PA (dB)	Corrected Results (dBuV)	Avg Limits (dBuV)	Margin (dB)	Detector
<b>120 VAC, 60 Hz, Supply Line</b>						
0.1791	49.30	0.39	49.69	54.5	4.8	PK
0.7100	40.40	0.10	40.50	46.0	5.5	QP
1.0640	33.70	0.10	33.80	46.0	12.2	QP
8.4000	37.10	0.10	37.20	50.0	12.8	QP
13.5600	43.60	0.30	43.90	50.0	6.1	PK
27.1200	40.50	0.40	40.90	50.0	9.1	PK
<b>120 VAC, 60 Hz, Neutral Line</b>						
0.1777	50.30	0.40	50.70	54.6	3.9	QP
0.7120	41.00	0.20	41.20	46.0	4.8	QP
1.1040	43.80	0.20	44.00	46.0	2.0	PK
5.4600	31.20	0.10	31.30	50.0	18.7	PK
13.5500	46.00	0.40	46.40	50.0	3.6	QP
20.3300	31.00	0.20	31.20	50.0	18.8	PK

Tested from 150 kHz to 30 MHz

SAMPLE CALCULATIONS: At 0.1791 MHz = 49.30 + (0.39) = 49.69 dBuV

Test Date: March 25, 2011

Tested By

Signature: 

Name: George Yang

US Tech Test Report:  
Certification  
Report Number:  
0055  
FCC ID:  
ASTCSYS500  
Customer:  
Technologies  
Model  
System 7102

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## 2.14 Unintentional Radiator Radiated Emissions (47 CFR 15.109(a))

The test data provided herein is to support the Verification requirement for digital devices. Radiated emissions coming from the EUT in a non-transmit state were evaluated from 30 MHz to 1 GHz per ANSI C63.4, Paragraph 8.

Measurements were made with the analyzer's resolution bandwidth set to 120 kHz for measurements made below 1 GHz and 1 MHz for measurements made above 1 GHz. The video bandwidth was set to three times the resolution bandwidth. The test data were maximized for magnitude by rotating the turn-table through 360 degrees and raising and lowering the receiving antenna between 1 to 4 meters in height as a part of the measurement procedure. All measured signals were at least 6 db below the specification limit.

The worst-case results for radiated emissions were 0.2 dB within the limit at 705.183 MHz. All other radiated emissions measurements were at least 0.6 dB or more from the limits. Those results are given in Table 7.

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 FCC ID:  
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**Table 7. Unintentional Radiator Radiated Emissions Data (47 CFR 15.109 (a))**

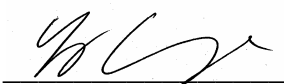
Unintentional Radiator Radiated Emissions							
Test By: KM&GY	Test: Part 15B, Para 15.109		Client: Armor Safe Technologies				
	Project: 11-0055	Class: B		Model: Cache System 7102			
Frequency (MHz)	Peak Test Data (dBuV)	AF+CL-PA (dB/m)	Peak Corrected Results (dBuV/m)	Average Limits (dBuV/m)	Application Test Distance/Polarization	Margin (dB)	Detector Used
Measurements were made over the frequency range of 30 MHz – 1 GHz							
54.2300	21.30	12.70	34.00	40.0	3m./HORZ	6.0	QP
75.9000	22.60	7.54	30.14	40.0	3m./HORZ	9.9	PK
81.3400	28.10	7.79	35.89	40.0	3m./HORZ	4.1	QP
122.0300	24.40	14.70	39.10	43.5	3m./HORZ	4.4	PK
135.6200	23.90	14.32	38.22	43.5	3m./HORZ	5.3	QP
149.1500	24.80	14.27	39.07	43.5	3m./HORZ	4.4	QP
176.2800	24.90	18.01	42.91	43.5	3m./HORZ	0.6	QP
149.1000	25.70	14.95	40.65	43.5	3m./VERT	2.8	QP
81.3790	27.00	8.33	35.33	40.0	3m./VERT	4.7	QP
54.2420	22.30	12.72	35.02	40.0	3m./VERT	5.0	PK
258.0390	22.80	16.72	39.52	46.0	3m./VERT	6.5	PK
271.7200	26.50	17.54	44.04	46.0	3m./VERT	2.0	QP
325.4580	21.50	17.96	39.46	46.0	3m./VERT	6.5	QP
393.2650	25.10	19.41	44.51	46.0	3m./VERT	1.5	QP
420.3850	20.30	20.20	40.50	46.0	3m./VERT	5.5	QP
474.6320	23.00	21.69	44.69	46.0	3m./VERT	1.3	QP
488.1860	17.90	22.37	40.27	46.0	3m./VERT	5.7	QP
705.1830	19.70	26.10	45.80	46.0	3m./VERT	0.2	QP
515.3120	19.60	23.25	42.85	46.0	3m./HORZ	3.1	QP
542.4300	21.20	23.18	44.38	46.0	3m./HORZ	1.6	QP
583.1130	17.20	23.74	40.94	46.0	3m./HORZ	5.1	PK

Tested from 30MHz to 1000MHz

SAMPLE CALCULATIONS: At 54.23 MHz = 21.30 + (12.70) = 34.00 dBuV

Test Date: March 24-26, 2011

Tested By

Signature: 

Name: George Yang

US Tech Test Report:

FCC P15.225

Certification

Report Number:

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FCC ID:

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ASTCSYS500

Customer:

Armor Safe

Technologies

Model

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System 7102

US Tech Test Report:	FCC P15.225
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ASTCSYS500	
Customer:	Armor Safe
Technologies	
Model	Cache
<u>System 7102</u>	

## 2.15 Measurement Uncertainty

### 2.15.1 Conducted Emissions Measurement Uncertainty:

Measurement Uncertainty (within a 95% confidence level) for this test is  $\pm 2.8$  dB.

The data listed in this test report does not have sufficient margin to negate the effects of uncertainty. This measurement conditionally passes.

### 2.15.2 Radiated Emissions Measurement Uncertainty:

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is  $\pm 5.3$  dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is  $\pm 5.1$  dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is  $\pm 5.1$  dB.

The data listed in this test report does not have sufficient margin to negate the effects of uncertainty, therefore, this test is conditionally acceptable.

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### 3.0 Photographs

#### 3.1 Test Setup Photographs



Front View of EUT (Radiated Emissions Testing)

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Rear View of EUT (Radiated Emissions Testing)

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Customer:  
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Rear View of EUT (Radio Testing)



US Tech Test Report:  
Certification  
Report Number:  
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FCC ID:  
ASTCSYS500  
Customer:  
Technologies  
Model  
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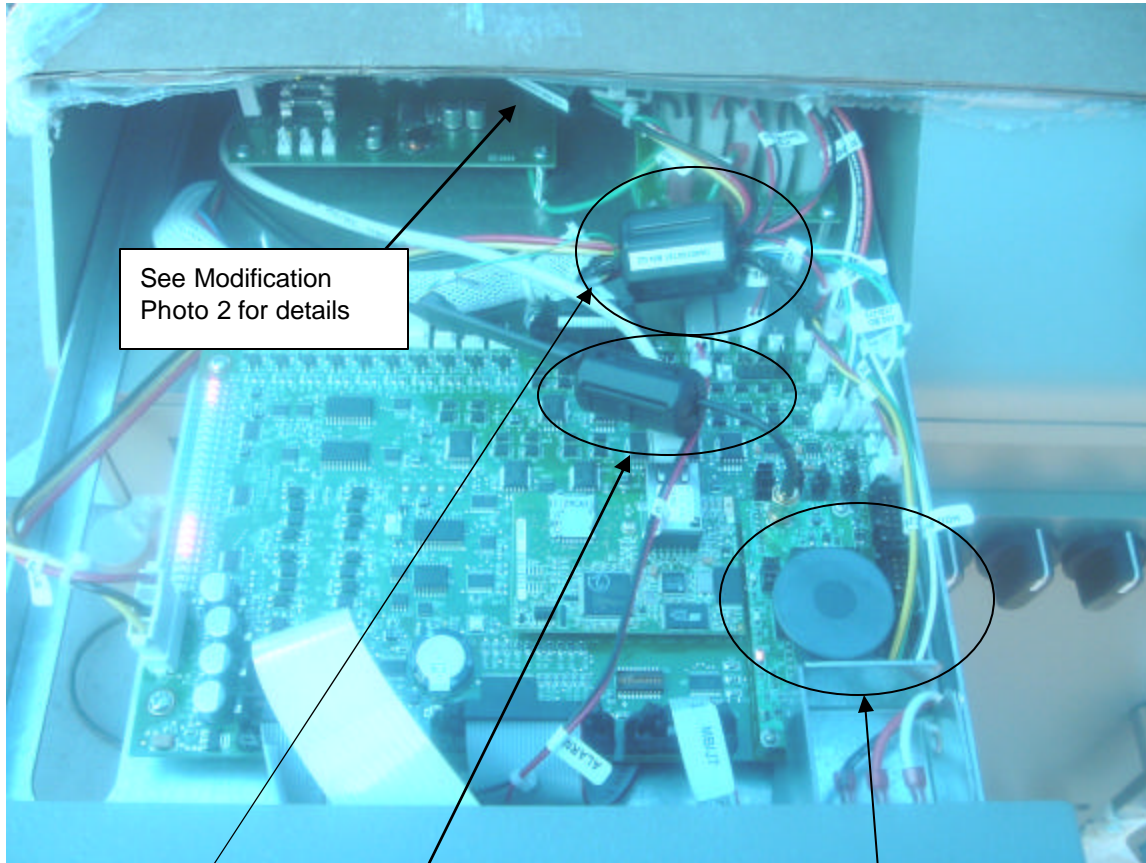
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Conducted Emissions Testing

### 3.2 Modifications Photographs



See Modification  
Photo 2 for details

Modification Photo 1

Ferrite added at  
communications cables  
Mfg: Fair-Rite  
P/N: 0446164181

Ferrite added at RFID  
Mfg: Steward  
P/N: MM1400-200

Ferrite added at antenna  
cable  
Mfg: Fair-Rite  
P/N: 0461164281

US Tech Test Report:  
Certification  
Report Number:  
0055  
FCC ID:  
ASTCSYS500  
Customer:  
Technologies  
Model  
System 7102

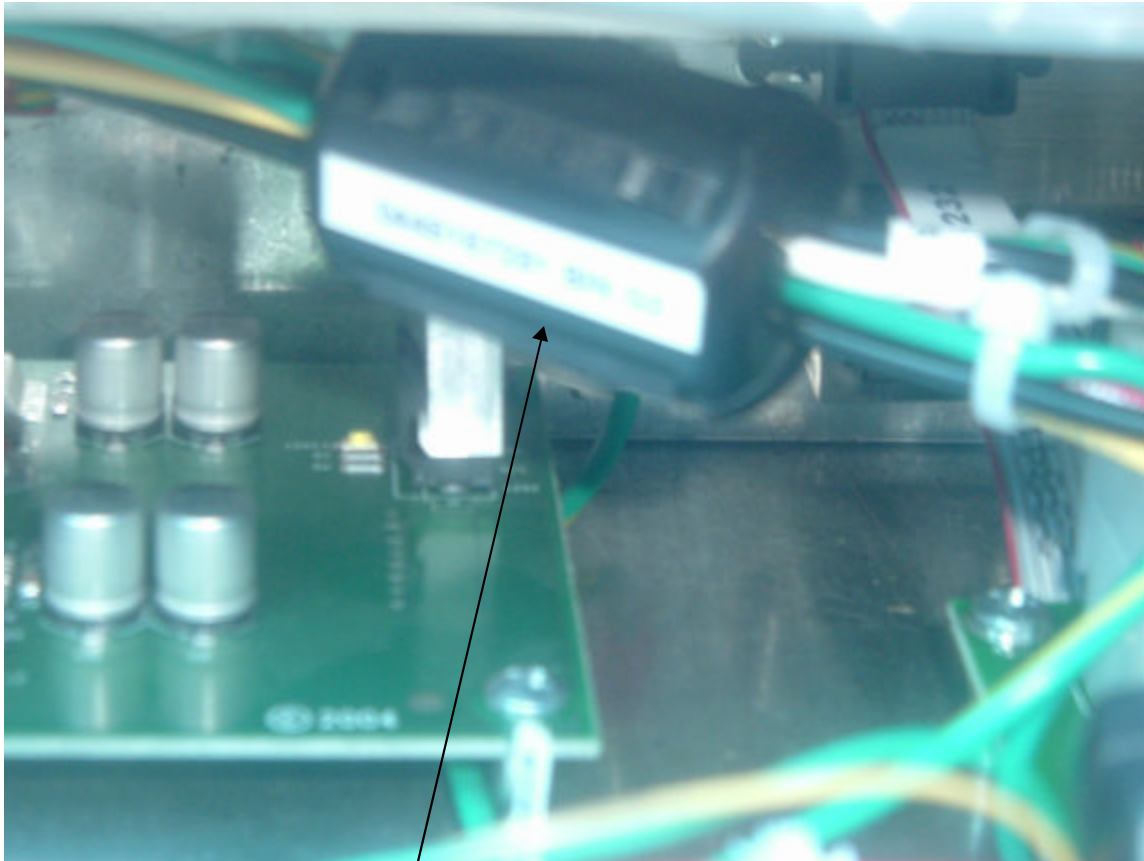
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Modification Photo 2

Ferrite added to DC-DC power  
cables.  
Mfg: Fair-Rite  
P/N: 0446167281

US Tech Test Report:  
Certification  
Report Number:  
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FCC ID:  
ASTCSYS500  
Customer:  
Technologies  
Model  
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Modification Photo 3

Ferrite added to AC power supply.  
Cable looped two (2) times.  
Mfg: Fair-Rite  
P/N: 0446176451