



**ESCORT MEMORY SYSTEMS TEST REPORT**

**FOR THE**

**READER/PASS THRU ANTENNA, LRP-PT-ANT01**

**FCC PART 15 SUBPART C SECTIONS 15.209 & 15.225**

**COMPLIANCE**

**DATE OF ISSUE: SEPTEMBER 9, 2004**

**PREPARED FOR:**

Escort Memory Systems  
170 Technology Circle  
Scotts Valley, CA 95066

P.O. No.: 40691  
W.O. No.: 82494

**PREPARED BY:**

Joyce Walker  
CKC Laboratories, Inc.  
5473A Clouds Rest  
Mariposa, CA 95338

Date of test: August 17 & 18, 2004

**Report No.: FC04-071**

This report contains a total of 28 pages and may be reproduced in full only. Partial reproduction may only be done with the written consent of CKC Laboratories, Inc. The results in this report apply only to the items tested, as identified herein.

## TABLE OF CONTENTS

Administrative Information .....	3
Summary of Results .....	4
Conditions for Compliance .....	4
Approvals .....	4
FCC 15.31(m) Number Of Channels .....	5
FCC 15.33(a) Frequency Ranges Tested .....	5
FCC 15.35 Analyzer Bandwidth Settings .....	5
FCC 15.205 Restricted Bands .....	5
EUT Operating Frequency .....	5
Temperature And Humidity During Testing .....	5
Equipment Under Test (EUT) Description .....	6
Equipment Under Test .....	6
Peripheral Devices .....	6
Report of Measurements .....	7
Table 1: FCC 15.209 Six Highest Spurious Emission Levels: 9kHz-30MHz .....	7
Table 2: FCC 15.209 Six Highest Spurious Emission Levels: 30-1000MHz .....	8
Table 3: FCC 15.225(a) Field Strength of Fundamental .....	9
Table 4: FCC 15.225(a)(b)(c)(d) Six Highest Spurious Emission Levels: 13.11-14.01MHz .....	10
FCC 15.215(b) Bandedge Plot .....	11
EUT Setup .....	12
Correction Factors .....	12
Table A: Sample Calculations .....	12
Test Instrumentation and Analyzer Settings .....	13
Spectrum Analyzer Detector Functions .....	13
Peak .....	13
Quasi-Peak .....	13
Average .....	13
EUT Testing .....	14
Radiated Emissions .....	14
Appendix A: Test Setup Photographs .....	15
Photograph Showing Radiated Emissions .....	16
Photograph Showing Radiated Emissions .....	17
Photograph Showing Radiated Emissions .....	18
Photograph Showing Radiated Emissions .....	19
Appendix B: Test Equipment List .....	20
Appendix C: Measurement Data Sheets .....	21

## **ADMINISTRATIVE INFORMATION**

**DATE OF TEST:** August 17 & 18, 2004

**DATE OF RECEIPT:** August 17, 2004

**PURPOSE OF TEST:** To demonstrate the compliance of the Reader/Pass Thru Antenna, LRP-PT-ANT01 with the requirements for FCC Part 15 Subpart C Sections 15.209 & 15.225 devices.

**TEST METHOD:** ANSI C63.4 (2001)

**MANUFACTURER:** Escort Memory Systems  
170 Technology Circle  
Scotts Valley, CA 95066

**REPRESENTATIVE:** Art Aguilar

**TEST LOCATION:** CKC Laboratories, Inc.  
480 Los Viboras Road  
Hollister, CA 95023

## SUMMARY OF RESULTS

As received, the Escort Memory Systems Reader/Pass Thru Antenna, LRP-PT-ANT01 was found to be fully compliant with the following standards and specifications:

### United States

➤ FCC Part 15 Subpart C Sections 15.209 & 15.225

➤ ANSI C63.4 (2001) method

FCC Site No. 91100

## CONDITIONS FOR COMPLIANCE

PN 0443164251 ferrite by Fair-Rite on RS232 controller box. PN 0443164151 ferrite by Fair-Rite on IO cable.

## APPROVALS

Steve Behm, Director of Engineering Services

### QUALITY ASSURANCE:

A handwritten signature in black ink, appearing to read "Joyce Walker".

---

Joyce Walker, Quality Assurance Administrative Manager

### TEST PERSONNEL:

A handwritten signature in black ink, appearing to read "Amrinder Brar".

---

Amrinder Brar, EMC Test Engineer

**FCC 15.31(m) Number Of Channels**

This device operates on a single channel.

**FCC 15.33(a) Frequency Ranges Tested**

15.209 Radiated: 9 kHz – 1000MHz.

<b>FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE</b>			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

**FCC 15.205 Restricted Bands**

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

**EUT Operating Frequency**

The EUT was operating at 13.56MHz.

**Temperature And Humidity During Testing**

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

## **EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

The EUT tested by CKC Laboratories was a production unit.

### **EQUIPMENT UNDER TEST**

#### **Reader/Pass Thru Antenna**

Manuf: Escort Memory Systems  
Model: LRP-PT-ANT01  
Serial: NA  
FCC ID: Pending

#### **Power Supply**

Manuf: Escort Memory Systems  
Model: 00-1142  
Serial: 03D1880  
FCC ID: NA

#### **Controller Box**

Manuf: Escort Memory Systems  
Model: LRP-PT-CTL20  
Serial: 03D1879  
FCC ID: DoC

### **PERIPHERAL DEVICES**

The EUT was tested with the following peripheral device(s):

#### **RS422/RS232 Converter**

Manuf: B&B Electronics  
Model: 485COR  
Serial: NA  
FCC ID: DoC

#### **Laptop PC**

Manuf: IBM  
Model: Thinkpad 2645  
Serial: Z9M8N100301TT326  
FCC ID: DoC

## REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the EUT. All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

**Table 1: FCC 15.209 Six Highest Spurious Emission Levels: 9kHz-30MHz**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Ant dB	15.31 dB	Cable dB	Dist dB				
0.058	53.6	10.8	-59.1	0.0		5.3	32.4	-27.1	H
0.105	47.7	10.1	-59.1	0.0		-1.3	27.2	-28.5	H
0.155	50.3	9.2	-59.1	0.2		0.6	23.8	-23.2	H
4.014	29.9	10.0	-19.1	0.7		21.5	29.5	-8.0	H
12.919	33.0	9.0	-19.1	1.1		24.0	29.5	-5.5	H
26.890	27.0	6.6	-19.1	1.7		16.2	29.5	-13.3	H

Test Method: ANSI C63.4 (2001)  
Spec Limit: FCC Part 15 Subpart C Sections 15.209  
Test Distance: 10 Meters

NOTES: H = H Field

COMMENTS: The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode. Note 2: PN 0443164251 ferrite by Fair-Rite on RS232 controller box. Note 3: PN 0443164151 ferrite by Fair-Rite on I/O cable. Spurious Emissions 9kHz - 30MHz. Test distance correction factor applied in accordance with FCC 15.31.

**Table 2: FCC 15.209 Six Highest Spurious Emission Levels: 30-1000MHz**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
119.989	40.6	11.4	-27.4	3.7	10.0	38.3	43.5	-5.2	VQ
120.008	36.2	11.4	-27.4	3.7	10.0	33.9	43.5	-9.6	HQ
125.416	39.2	11.5	-27.4	3.6	10.0	36.9	43.5	-6.6	VQ
143.989	35.8	11.9	-27.3	3.8	10.0	34.2	43.5	-9.3	VQ
415.974	33.7	15.0	-27.5	7.6	10.0	38.8	46.0	-7.2	VQ
420.468	35.7	15.1	-27.5	7.7	10.0	41.0	46.0	-5.0	HQ

Test Method: ANSI C63.4 (2001)  
Spec Limit: FCC Part 15 Subpart C Sections 15.209  
Test Distance: 10 Meters

NOTES: H = Horizontal Polarization  
V = Vertical Polarization  
Q = Quasi Peak Reading

COMMENTS: The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode. Note 2: PN 0443164251 ferrite by Fair-Rite on RS232 controller box. Note 3: PN 0443164151 ferrite by Fair-Rite on I/O cable. Radiated emissions 30MHz - 1GHz.



**Table 3: FCC 15.225(a) Field Strength of Fundamental**

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB		Cable dB	Dist dB				
13.558	70.6	8.9		1.1	-19.0	61.6	83.9	-22.3	H
13.563	67.8	8.9		1.1	-19.0	58.8	83.9	-25.1	H

Test Method: ANSI C63.4 (2001)  
Spec Limit: FCC Part 15 Subpart C Section 15.225(a)  
Test Distance: 10 Meters

NOTES: H = H Field

COMMENTS: The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode. Fundamental measurements.

**Table 4: FCC 15.225(a)(b)(c)(d) Six Highest Spurious Emission Levels: 13.11-14.01MHz**

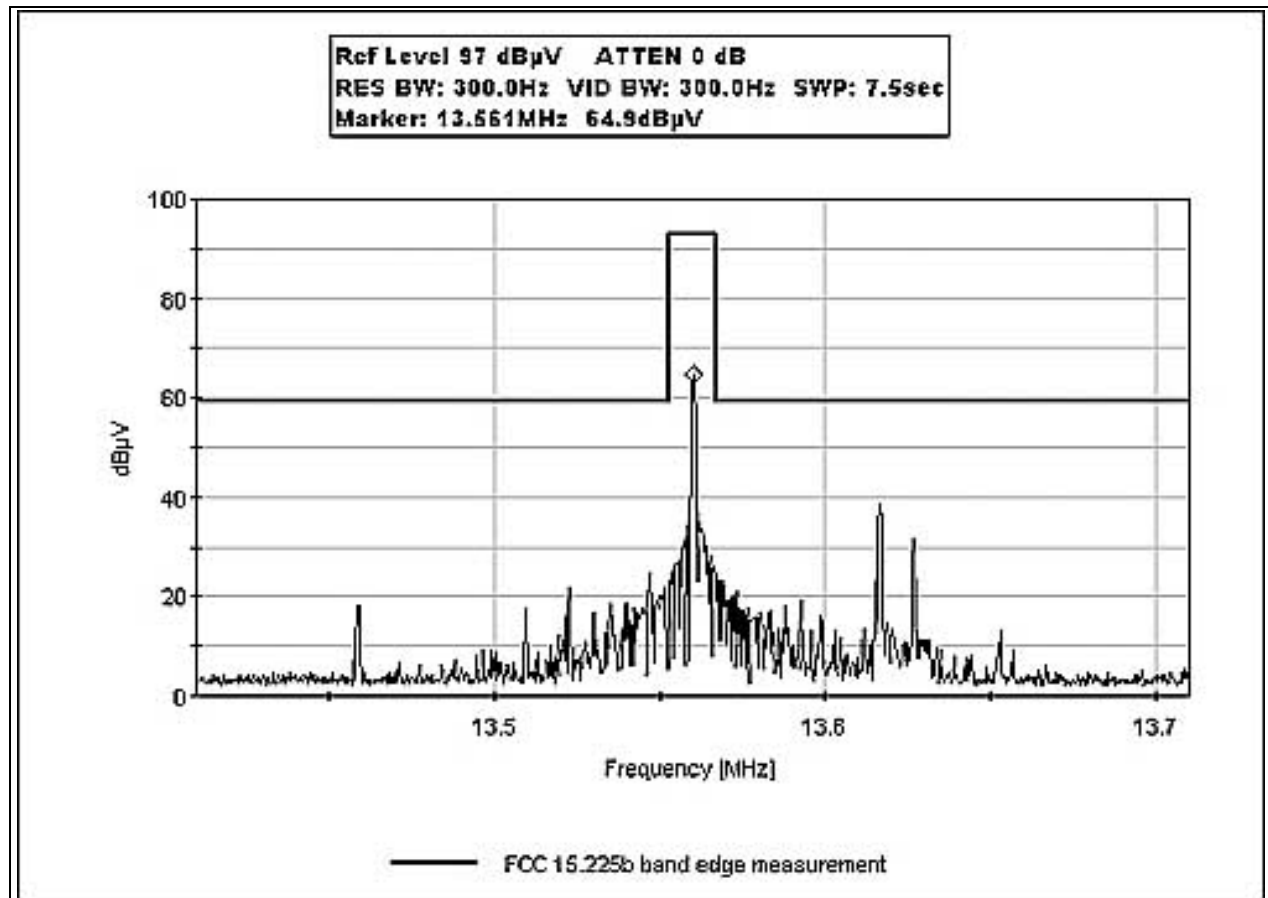
FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Ant dB		Cable dB	Dist dB				
13.541	42.8	9.0		1.1	-19.0	33.9	50.4	-16.5	M
13.570	48.1	8.9		1.1	-19.0	39.1	50.4	-11.3	M
13.580	41.9	8.9		1.1	-19.0	32.9	50.4	-17.5	M
13.614	43.2	8.9		1.1	-19.0	34.2	50.4	-16.2	M
13.820	31.9	8.9		1.2	-19.0	23.0	40.5	-17.5	M
13.845	38.6	8.9		1.2	-19.0	29.7	40.5	-10.8	M

Test Method: ANSI C63.4 (2001)  
Spec Limit: FCC Part 15 Subpart C Sections 15.225(a)(b)(c)(d)  
Test Distance: 10 Meters

NOTES: M = Mag Loop

COMMENTS: The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode. Note 2: PN 0443164251 ferrite by Fair-Rite on RS232 controller box. Note 3: PN 0443164151 ferrite by Fair-Rite on I/O cable. Temperature = 72.2°F, Atmospheric Pressure = 102kPa, Relative Humidity = 43%.

### 15.215(b) BANDEDGE PLOT



## EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

## CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS		
	Meter reading	(dB $\mu$ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB $\mu$ V/m)

## **TEST INSTRUMENTATION AND ANALYZER SETTINGS**

The test instrumentation and equipment listed in Appendix B were used to collect the radiated emissions data. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB $\mu$ V, and a vertical scale of 10 dB per division.

## **SPECTRUM ANALYZER DETECTOR FUNCTIONS**

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

### **Peak**

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

### **Quasi-Peak**

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

### **Average**

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

## **EUT TESTING**

### **Radiated Emissions**

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable and raising and lowering the antenna from one to four meters as needed. The test engineer maximized the readings with respect to the table rotation, antenna height, and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

**APPENDIX A**

**TEST SETUP PHOTOGRAPHS**

## PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View with Mag Loop Antenna

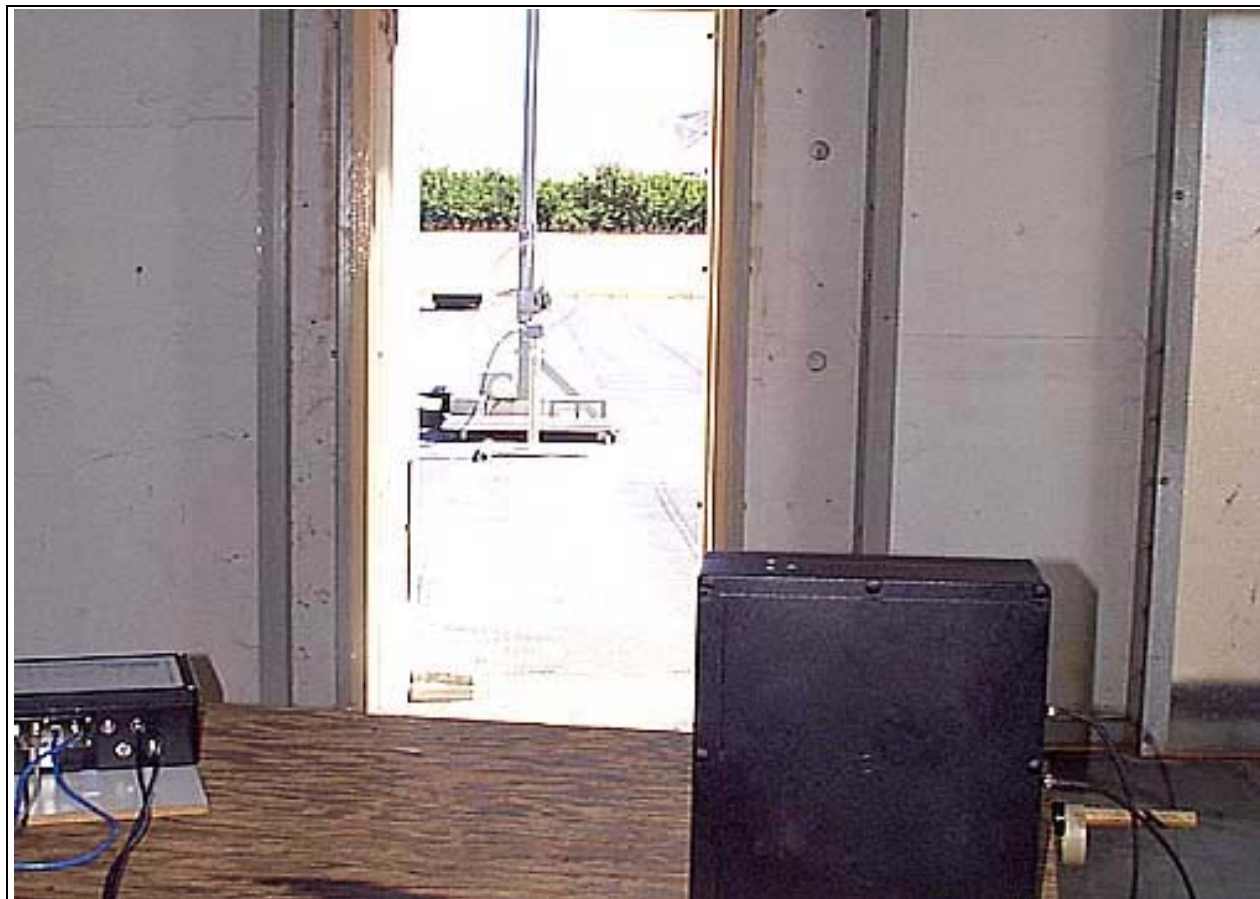


## PHOTOGRAPH SHOWING RADIATED EMISSIONS



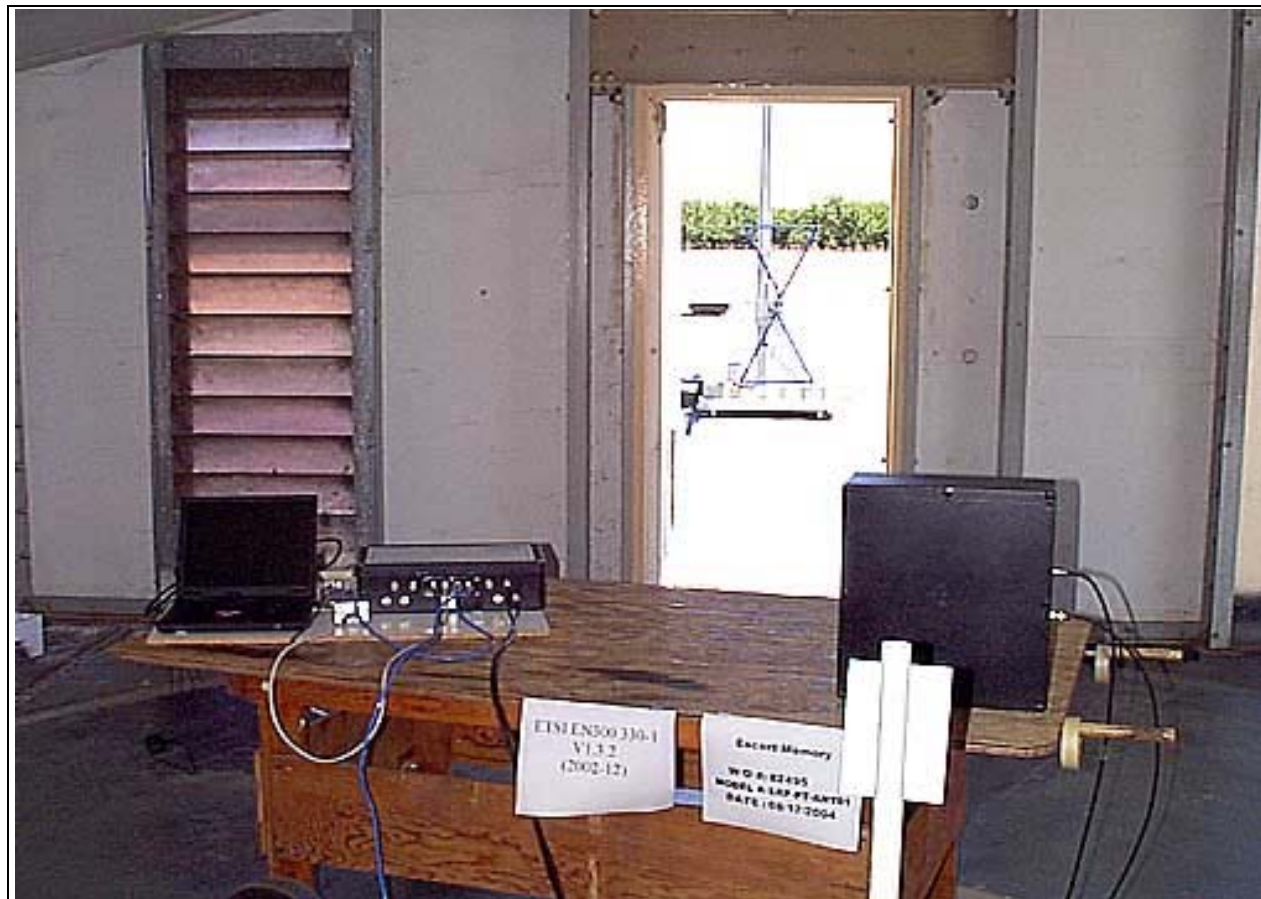
Radiated Emissions - Back View with Mag Loop Antenna

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View Close-up with Mag Loop Antenna

## PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View with Bilog Antenna

## APPENDIX B

### TEST EQUIPMENT LIST

***Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Ant., Bilog, Chase CBL6111C	2452	03/16/2004	03/16/2006	1996
Ant., Mag loop Emco 6502	2078	08/23/2002	08/23/2004	00432
S.A. RF Section HP 8568A	2049A01408	07/03/2003	07/03/2005	00313
S.A. Display HP 85662A	2112A02174	07/03/2003	07/03/2005	02509
QP Adapter HP 85650A	2521A00904	07/03/2003	07/03/2005	02495
Preamp, HP-8447D	2727A05432	08/05/2003	08/05/2005	00282
Cable. Rad., Site D 3M or 10M	rad_cab_10M_01_hd	07/03/2003	07/03/2005	None

**APPENDIX C:**

**MEASUREMENT DATA SHEETS**



Test Location: CKC Laboratories, Inc. • 480 Las Viboras Road, Site D • Hollister, CA 95023 • 831-637-8176

Customer: **Escort Memory Systems**  
 Specification: **FCC 15.225/15.209 10m**  
 Work Order #: **82495**  
 Test Type: **Radiated Scan**  
 Equipment: **Reader/Pass Thru Antenna**  
 Manufacturer: Escort Memory Systems  
 Model: LRP-PT-ANT01  
 S/N: Not on it yet

Date: 8/18/04  
 Time: 11:33:53  
 Sequence#: 2  
 Tested By: Amrinder Brar

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Controller Box	Escort Memory Systems	LRP-PT-CTL20	03D1879
Power Supply	Escort Memory Systems	00-1142	03D1880
Reader/Pass Thru Antenna*	Escort Memory Systems	LRP-PT-ANT01	Not on it yet

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop PC	IBM	Thinkpad 2645	Z9M8N100301TT326
RS422/RS232 Converter	B&B Electronics	485COR	none

**Test Conditions / Notes:**

The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode Note 2: PN 0443164251 ferrite by Fair-Rite on RS232 controller box. Note 3: PN 0443164151 ferrite by Fair-Rite on IO cable. Spurious Emissions 9KHz - 30MHz. Test distance correction factor applied in accordance with FCC 15.31.

**Transducer Legend:**

T1=Mag Loop A/N 00432, S/N 2078	T2=10m or 3m radiated cable Site D
T3=CORR. FACT. @10M<30MHZ	T4=CORR. FACT. @30M<.490MHZ

**Measurement Data:**

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	12.919M	33.0	+9.0	+1.1	-19.1	+0.0	+0.0	24.0	29.5	-5.5	H Fie
2	4.014M	29.9	+10.0	+0.7	-19.1	+0.0	+0.0	21.5	29.5	-8.0	H Fie
3	26.890M	27.0	+6.6	+1.7	-19.1	+0.0	+0.0	16.2	29.5	-13.3	H Fie
4	155.000k	50.3	+9.2	+0.2	-19.1	-40.0	+0.0	0.6	23.8	-23.2	H Fie
5	57.650k	53.6	+10.8	+0.0	-19.1	-40.0	+0.0	5.3	32.4	-27.1	H Fie

6	104.900k	47.7	+10.1	+0.0	-19.1	-40.0	+0.0	-1.3	27.2	-28.5	H Fie
7	18.500k	56.5	+15.1	+0.0	-19.1	-40.0	+0.0	12.5	42.2	-29.7	H Fie
8	65.500k	44.3	+10.4	+0.0	-19.1	-40.0	+0.0	-4.4	31.3	-35.7	H Fie
9	128.150k	36.8	+9.7	+0.0	-19.1	-40.0	+0.0	-12.6	25.4	-38.0	H Fie

Test Location: CKC Laboratories, Inc. • 480 Las Viboras Road, Site D • Hollister, CA 95023 • 831-637-8176

Customer: **Escort Memory Systems**

Specification: **FCC 15.209**

Work Order #: **82494**

Date: 8/17/04

Test Type: **Maximized Emissions**

Time: 16:30:06

Equipment: **Reader/Pass Thru Antenna**

Sequence#: 4

Manufacturer: Escort Memory Systems

Tested By: Amrinder Brar

Model: LRP-PT-ANT01

S/N: NA

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Controller Box	Escort Memory Systems	LRP-PT-CTL20	03D1879
Power Supply	Escort Memory Systems	00-1142	03D1880
Reader/Pass Thru Antenna*	Escort Memory Systems	LRP-PT-ANT01	NA

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop PC	IBM	Thinkpad 2645	Z9M8N100301TT326
RS422/RS232 Converter	B&B Electronics	485COR	none

**Test Conditions / Notes:**

COMMENTS: The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode. Note 2: PN 0443164251 ferrite by Fair-Rite on RS232 controller box. Note 3: PN 0443164151 ferrite by Fair-Rite on I/O cable. Radiated emissions 30MHz - 1GHz.

**Transducer Legend:**

T1=10m or 3m radiated cable Site D	T2=Chase bilog a/n 01996, s/n 2452
T3=Preamp-8447D Site D	

**Measurement Data:**

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	420.468M	35.7	+7.7	+15.1	-27.5		+10.0	41.0	46.0	-5.0	Horiz
QP											
^	420.468M	39.5	+7.7	+15.1	-27.5		+10.0	44.8	46.0	-1.2	Horiz
3	119.989M	40.6	+3.7	+11.4	-27.4		+10.0	38.3	43.5	-5.2	Vert
QP											
^	119.989M	44.2	+3.7	+11.4	-27.4		+10.0	41.9	43.5	-1.6	Vert
5	125.416M	39.2	+3.6	+11.5	-27.4		+10.0	36.9	43.5	-6.6	Vert
QP											
^	125.416M	42.9	+3.6	+11.5	-27.4		+10.0	40.6	43.5	-2.9	Vert
7	415.974M	33.7	+7.6	+15.0	-27.5		+10.0	38.8	46.0	-7.2	Vert
QP											
^	415.974M	38.8	+7.6	+15.0	-27.5		+10.0	43.9	46.0	-2.1	Vert
9	143.989M	35.8	+3.8	+11.9	-27.3		+10.0	34.2	43.5	-9.3	Vert
QP											



	^	143.972M	40.1	+3.8	+11.9	-27.3	+10.0	38.5	43.5	-5.0	Vert
11		120.008M	36.2	+3.7	+11.4	-27.4	+10.0	33.9	43.5	-9.6	Horiz
	QP										
	^	120.008M	37.9	+3.7	+11.4	-27.4	+10.0	35.6	43.5	-7.9	Horiz
13		225.718M	32.7	+5.1	+10.1	-26.8	+10.0	31.1	46.0	-14.9	Horiz
	QP										
	^	225.718M	38.7	+5.1	+10.1	-26.8	+10.0	37.1	46.0	-8.9	Horiz

Test Location: CKC Laboratories, Inc. •480 Las Viboras Road, Site D • Hollister, CA 95023 • 831-637-8176

Customer: **Escort Memory Systems**

Specification: **FCC 15.225(a) 30-meter**

Work Order #: **82495**

Date: 8/17/04

Test Type: **Radiated Scan**

Time: 09:36:56

Equipment: **Reader/Pass Thru Antenna**

Sequence#: 1

Manufacturer: Escort Memory Systems

Tested By: Amrinder Brar

Model: LRP-PT-ANT01

S/N: Not on it yet

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Controller Box	Escort Memory Systems	LRP-PT-CTL20	03D1879
Power Supply	Escort Memory Systems	00-1142	03D1880
Reader/Pass Thru Antenna*	Escort Memory Systems	LRP-PT-ANT01	Not on it yet

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop PC	IBM	Thinkpad 2645	Z9M8N100301TT326
RS422/RS232 Converter	B&B Electronics	485COR	none

**Test Conditions / Notes:**

The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode Fundamental measurements.

**Transducer Legend:**

T1=Mag Loop A/N 00432, S/N 2078	T2=10m or 3m radiated cable Site D
---------------------------------	------------------------------------

**Measurement Data:** Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	13.558M	70.6	+8.9	+1.1		-19.0	61.6	83.9	-22.3	H Fie
2	13.563M	67.8	+8.9	+1.1		-19.0	58.8	83.9	-25.1	H Fie

Test Location: CKC Laboratories, Inc. • 480 Las Viboras Road, Site D • Hollister, CA 95023 • 831-637-8176

Customer: **Escort Memory Systems**  
 Specification: **FCC 15.225(a, b, c & d) 30-meter**  
 Work Order #: **82494**  
 Test Type: **Radiated Scan**  
 Equipment: **Reader/Pass Thru Antenna**  
 Manufacturer: Escort Memory Systems  
 Model: LRP-PT-ANT01  
 S/N: NA

Date: 8/18/04  
 Time: 09:22:10  
 Sequence#: 5  
 Tested By: Amrinder Brar

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Controller Box	Escort Memory Systems	LRP-PT-CTL20	03D1879
Power Supply	Escort Memory Systems	00-1142	03D1880
Reader/Pass Thru Antenna*	Escort Memory Systems	LRP-PT-ANT01	NA

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop PC	IBM	Thinkpad 2645	Z9M8N100301TT326
RS422/RS232 Converter	B&B Electronics	485COR	none

**Test Conditions / Notes:**

COMMENTS: The loop antenna is placed at the center of the wooden table. The transmitter and support equipment are placed behind the loop on top of the wooden table. The EUT loop coil antenna area is greater than 0.16m<sup>2</sup>. Note 1: Fast Mode. Note 2: PN 0443164251 ferrite by Fair-Rite on RS232 controller box. Note 3: PN 0443164151 ferrite by Fair-Rite on I/O cable. Temperature = 72.2°F, Atmospheric Pressure = 102kPa, Relative Humidity = 43%.

**Transducer Legend:**

T1=10m or 3m radiated cable Site D	T2=Mag Loop A/N 00432, S/N 2078
------------------------------------	---------------------------------

**Measurement Data:** Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	13.845M	38.6	+1.2	+8.9			-19.0	29.7	40.5	-10.8	Mag L
2	13.570M	48.1	+1.1	+8.9			-19.0	39.1	50.4	-11.3	Mag L
3	13.614M	43.2	+1.1	+8.9			-19.0	34.2	50.4	-16.2	Mag L
4	13.541M	42.8	+1.1	+9.0			-19.0	33.9	50.4	-16.5	Mag L
5	13.820M	31.9	+1.2	+8.9			-19.0	23.0	40.5	-17.5	Mag L
6	13.580M	41.9	+1.1	+8.9			-19.0	32.9	50.4	-17.5	Mag L
7	13.674M	41.5	+1.1	+8.9			-19.0	32.5	50.4	-17.9	Mag L
8	13.117M	30.1	+1.1	+9.0			-19.0	21.2	40.5	-19.3	Mag L
9	13.287M	29.6	+1.1	+9.0			-19.0	20.7	40.5	-19.8	Mag L

10	13.530M	37.5	+1.1	+9.0	-19.0	28.6	50.4	-21.8	Mag L
11	13.589M	37.2	+1.1	+8.9	-19.0	28.2	50.4	-22.2	Mag L
12	13.597M	36.7	+1.1	+8.9	-19.0	27.7	50.4	-22.7	Mag L
13	13.601M	33.7	+1.1	+8.9	-19.0	24.7	50.4	-25.7	Mag L
14	13.558M	66.8	+1.1	+8.9	-19.0	57.8	84.0	-26.2	Mag L
15	13.494M	32.5	+1.1	+9.0	-19.0	23.6	50.4	-26.8	Mag L
16	13.562M	64.6	+1.1	+8.9	-19.0	55.6	84.0	-28.4	Mag L
17	13.441M	30.3	+1.1	+9.0	-19.0	21.4	50.4	-29.0	Mag L

0