ESCORT MEMORY SYSTEMS
ADDENDUM TEST REPORT TO FC00-055

FOR THE

PASSIVE TAG READER, LRP820/LRP830

FCC PART 15 SUBPART C
PART 15.225

COMPLIANCE

DATE OF ISSUE: JANUARY 3, 2001

PREPARED FOR:

Escort Memory Systems
3 Victor Square
Scotts Valley, CA 95066

P.O. No: 1121
W.O. No: 73126

Report No: FC00-055A

PREPARED BY:

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

Date of test: February 10 – May 8, 2000

DOCUMENTATION CONTROL:

Tracy Phillips
Documentation Control Supervisor
CKC Laboratories, Inc.

APPROVED BY:

Dennis Ward
Director of Laboratories
CKC Laboratories, Inc.

TABLE OF CONTENTS

CKC Laboratories, Inc. has Certificates of Accreditation from the following agencies:
DATech (Germany); A2LA (USA); FCC (USA); VCCI (Japan); BSMI (Taiwan); HOKLAS (Hong Kong).
CKC Laboratories, Inc. has Letters of Acceptance through an MRA for the following agencies:
ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); TUV Rheinland-Germany; TUV Rheinland-Korea; TUV Rheinland-Russia; Radio Communications Agency (RA); NEMKO (Norway).

ADMINISTRATIVE INFORMATION

DATE OF TEST: February 10 – May 8, 2000

PURPOSE OF TEST:
To demonstrate the compliance of the Passive Tag Reader, LRP820/LRP830, with the requirements for FCC Part 15 Subpart C Part 15.255 devices.
This addendum is to replace the radiated emissions data with new data representing testing below 30 MHz and for each antenna. Other minor changes were also incorporated.

MANUFACTURER: Escort Memory Systems
3 Victor Square
Scotts Valley, CA 95066

REPRESENTATIVE: Brian Monahan

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

TEST PERSONNEL: Skip Doyle & Heiko Steimer

TEST METHOD: ANSI C63.4 1992

FREQUENCY RANGE TESTED: 9 kHz - 1000 MHz

EQUIPMENT UNDER TEST:

Passive Tag Reader

Manuf:	Escort Memory Systems
Model:	LRP820
Serial:	99N1635
FCC ID:	E36LRP800 (pending)

Antenna

Manuf:	Escort Memory Systems
Model:	LRP04
Serial:	N/A
FCC ID:	N/A

Antenna

Manuf:	Escort Memory Systems
Model:	LRP10
Serial:	N/A
FCC ID:	N/A

Passive Tag Reader

Manuf:	Escort Memory Systems
Model:	LRP830
Serial:	N/A
FCC ID:	E36LRP800 (pending)

Antenna

Manuf:	Escort Memory Systems
Model:	LRP08
Serial:	N/A
FCC ID:	N/A

Cable

Manuf:	Escort Memory Systems
Model:	TNC
Serial:	CBL-1450 Rev-1-A
FCC ID:	N/A

SUMMARY OF RESULTS

The Escort Memory Systems Passive Tag Reader, LRP820/LRP830, was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15 Subpart C Part 15.255.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15 Subpart C Part 15.255. The results in this report apply only to the items tested, as identified herein.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The LRP800-series is a RFID transmitter/receiver for transmitting data to passive (no battery) E2 memory modules used for the process and data control in the industrial automation market. The models LRP820 and LRP830 are identical except for their data interfaces.

MEASUREMENT UNCERTAINTY

Associated with data in this report is a ±4dB measurement uncertainty.

EUT OPERATING FREQUENCY

The EUT was operating at 13.561 MHz.

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

PERIPHERAL DEVICES

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

Laptop
Manuf: Compaq
Model: Armada 1130T
Serial: 7701BJZ34666
FCC ID: DoC

Power Supply
Manuf: BK Precision
Model: 1760
Serial: 267-1041034
FCC ID: N/A

Laptop
Manuf: Dell
Model: LX4100D
Serial: 07427 Rev A02-00
FCC ID: DoC

Power Supply
Manuf: EMS
Model: N/A
Serial: N/A
FCC ID: N/A

REPORT OF MEASUREMENTS

The following tables report the highest worst case levels recorded during the tests performed on the Passive Tag Reader, LRP820/LRP830. All readings taken are peak readings unless otherwise noted by a "Q" or "A". The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Fundamental Radiated Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Mag dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
13.559	69.5	10.3	-27.0	0.2		53.0	80.0	-27.0	N - 1
13.561	86.5	10.3	-27.0	0.2		70.0	80.0	-10.0	N - 2
13.561	76.5	10.3	-27.0	0.2		60.0	80.0	-20.0	N - 3

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.225(a)
Test Distance: 30 Meters

NOTES: N = No Polarization
1 = antenna LRP04
2 = antenna LRP08
3 = antenna LRP10

COMMENTS: The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The module is LRP820. The EUT is in the normal mode reading a tag. FUNDAMENTAL FIELD STRENGTH.

Table 2: Six Highest Radiated Emission Levels – LRP820 Module									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
40.750	53.3	10.9	-25.0	0.7		39.9	40.0	-0.1	VQ - 3
94.982	53.0	10.8	-25.1	1.4		40.1	43.5	-3.4	HQ - 3
180.044	44.4	16.7	-24.8	2.2		38.5	43.5	-5.0	VQ - 2
203.449	44.0	18.3	-24.7	2.3		39.9	43.5	-3.6	VQ - 2
301.792	43.1	21.3	-24.8	3.3		42.9	46.0	-3.1	VQ - 2
642.121	40.2	20.2	-26.1	5.6		39.9	46.0	-6.1	H - 1

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.209
Test Distance: 3 Meters

NOTES:
H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading
1 = antenna LRP04
2 = antenna LRP08
3 = antenna LRP10

COMMENTS: The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Module is LRP820. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Table 3: Six Highest Radiated Emission Levels – LRP830 Module									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
40.715	48.1	10.9	-25.0	0.7		34.7	40.0	-5.3	VQ - 3
54.269	48.0	10.0	-24.9	0.9		34.0	40.0	-6.0	V - 3
141.547	48.6	13.3	-24.9	1.8		38.8	43.5	-4.7	HQ - 1
149.201	46.2	12.8	-24.9	1.9		36.0	43.5	-7.5	H - 1
176.370	43.7	15.7	-24.8	2.2		36.8	43.5	-6.7	H - 2
244.171	42.6	16.1	-24.6	2.7		36.8	46.0	-9.2	H - 2

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.209
Test Distance: 3 Meters

NOTES:
H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading
1 = antenna LRP04
2 = antenna LRP08
3 = antenna LRP10

COMMENTS: The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Module is LRP830. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Table 4: Six Highest Conducted Emission Levels (LRP820)									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Cable dB	LISN dB	dB	dB	CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
0.473426	40.3	0.1	0.3			40.7	48.0	-7.3	W
7.882408	32.6	0.7	5.1			38.4	48.0	-9.6	W
7.991717	33.2	0.7	5.6			39.5	48.0	-8.5	W
8.114690	32.4	0.7	5.3			38.4	48.0	-9.6	B
8.305982	32.4	0.7	4.6			37.7	48.0	-10.3	B
13.525530	43.9	0.9	0.6			45.4	48.0	-2.6	W

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.207

NOTES: Q = Quasi Peak Reading
A = Average Reading
B = Black Lead
W = White Lead

COMMENTS: The EUT with its antenna stands on the 80cm high wood table next to the vertical ground plane at the edge of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is reading a tag. The EUT is the LRP820 with LRP08 Antenna.

Table 5: Six Highest Conducted Emission Levels (LRP830)									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Cable dB	LISN dB	dB	dB	CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
8.428258	38.8	.02	3.3			42.3	48.0	-5.7	B
8.851769	37.3	0.2	5.0			42.5	48.0	-5.5	B
9.015710	37.6	0.2	5.4			43.2	48.0	-4.8	B
9.193311	38.0	0.2	4.7			42.9	48.0	-5.1	B
9.521191	39.3	0.2	3.4			42.9	48.0	-5.1	B
13.575670	43.1	0.2	1.0			44.3	48.0	-3.7	B

Test Method: ANSI C63.4 1992
Spec Limit : FCC 15.207

NOTES: Q = Quasi Peak Reading
A = Average Reading
B = Black Lead
W = White Lead

COMMENTS: The EUT is located on the table in the Barn conducted room. The module is connected to the Laptop. The Laptop runs engineering test software ANT_TUNE and is located on the wood table also. Two other MIL ports are connected to each other. One Port (Device Net) isn't used and isn't filled on the LRP830. The EUT is powered by 24VDC power supply, which is operating on 120VAC/60Hz through the LISN. The EUT is reading a tag. The EUT is the LRP830. AC power line conducted measurements made with 50ohm dummy load connected to the EUT antenna output terminals in accordance with ANSI C63.4-1992, Appendix I1(2).

TABLE A

LIST OF TEST EQUIPMENT

92	Bicon Antenna, A & H, Model SAS 200/542, S/N 156. Calibration date: May 20, 1999. Calibration due date: May 20, 2000.
330	LISN's set, Solar, Model 8028-50-TS-24-BNC, 01248. Calibration date: June 7, 1999. Calibration due date: June 7, 2000.
341	Log Periodic Antenna, A & H, Model SAS-200/510, S/N 154. Calibration date: May 20, 1999. Calibration due date: May 20, 2000.
401	Preamp, HP, Model 8447D, S/N 1937A02604. Calibration date: April 3, 2000. Calibration due date: April 3, 2001.
433	QP Adapter, HP, Model 85650A, S/N 2043A00272. Calibration date: November 11, 1999. Calibration due date: November 11, 2000.
439	QP Adapter, HP, Model 85650A, S/N 2811A01267. Calibration date: July 7, 1999. Calibration due date: July 7, 2000.
463	SA Display Section, HP, Model 85662B, S/N 2005A01550. Calibration date: November 11, 1999. Calibration due date: November 11, 2000.
472	SA Display Section, HP, Model 8566B, S/N 2403A08241. Calibration date: July 7, 1999. Calibration due date: July 7, 2000.
502	Spectrum Analyzer, RF Section, HP, Model 8566B, S/N 2209A01404. Calibration date: July 7, 1999. Calibration due date: July 7, 2000.
508	Spectrum Analyzer, Hewlett Packard, Model No. HP 8568B, S/N 2007A01066 (RF section), Model No. 85662A, S/N 2005A01550 (Display unit). Calibration date: November 11, 1999. Calibration due date: November 11, 2000.
177	Digital Multimeter, Radio shack, Model 22-183, S/N N/A. Calibration date: September 13, 1999. Calibration due date: September 13, 2000.
724	Frequency Counter, HP, Model 5340A, S/N 1532A03198. Calibration date: September 15, 1999. September 15, 2000.
764	Power Supply, DC, HP, Model 6205C, S/N 2228A01775. Calibration date: April 21, 2000. Calibration due date: April 21, 2001.
858	Temperature Chamber, Thermotron Corp., Model S-1.2 MINI MAX, S/N 11899. Calibration due date: April 3, 2000. Calibration due date: April 3, 2001.
354	Magnetic Loop Antenna, EMCO, Model No. 6502, S/N 1074. Calibration date: June 16, 1999. Calibration due date: June 16, 2000.

EUT SETUP

The equipment under test (EUT) and the peripheral(s) listed were set up in a manner that represented their normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Tables 1-5. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, 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. This configuration is typical for radiated emissions testing of table top devices.

I/O cables were connected to the EUT and peripherals in the manner required for normal operation of the system. Excess cabling was bundled in the center in a serpentine fashion using 30-40 centimeter lengths.

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT is located, has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test. Conducted emissions tests required the use of the LISN's listed in Table A.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the Passive Tag Reader, LRP820/LRP830. For measurements below 30 MHz, the magnetic loop antenna was used. For radiated measurements between 30 to 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. During the fundamental reading, the antenna was placed 30 meters from the edge of the table. All other antennas were located at a distance of 3 meters from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISN's.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBµV, and a vertical scale of 10 dB per division.

TABLE B : ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	450 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150kHz	200 Hz
RADIATED EMISSIONS	150kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Tables 1-5 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 for the Passive Tag Reader, LRP820/LRP830.

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

When the frequencies are below 30 MHz, 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.

TEST METHODS

The radiated and conducted emissions data of the Passive Tag Reader, LRP820/LRP830, 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 the "Sample Calculations". The corrected data was then compared to the FCC Part 15, Subpart C emissions limits to determine compliance.

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

Radiated Emissions Testing

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode with the I/O cables and line cords facing the antenna. For frequencies below 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. 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.

For the final radiated scan, the equipment was again positioned with its I/O and power cables facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation, antenna height and configuration of the peripherals and cables. Maximizing of the cables was achieved by monitoring the spectrum analyzer on a closed circuit television monitor while the EUT cables were being moved and rearranged on the EUT table for maximum emissions. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

Conducted Emissions Testing

For conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the emissions readings in Tables 1-5. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula:

Meter reading (dBµV)
+ Antenna Factor (dB)
+ Cable Loss (dB)
- Distance Correction (dB)
- Pre-amplifier Gain (dB)

= Corrected Reading(dBµV/m)

This reading was then compared to the applicable specification limit to determine compliance.

A typical data sheet will display the following in column format:

#	Freq MHz	Rdng dBuV	Cable	Amp	Bicon	Mag	Log	Dist	Corr dBuV/m	Spec	Margin	Polar
	LISN											

means reading number
Freq MHz is the frequency in MHz of the obtained reading.
Rdng dBuV is the reading obtained on the spectrum analyzer in dBµV.
Amp is short for the preamplifier factor or gain in dB.
Bicon is the biconical antenna factor in dB.
Log is the log periodic antenna factor in dB.
Mag is the magnet loop antenna factor in dB.
Cable is the cable loss in dB of the coaxial cable on the OATS.
Dist is the distance factor (in dB). It is used when testing at a different test distance than the one stated in the spec.
Corr dBµV/m is the corrected reading which is now in dBµV/m (field strength).
Spec is the specification limit (dB) stated in the regulations.
Margin is the closeness to the specified limit in dB; + is over and - is under the limit.
Polar is the Polarity of the antenna with respect to earth.
LISN is the line impedance stabilization network factor in dB.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

Not provided by customer.

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	
CRT was displaying:	
Power Supply Manufacturer:	
Power Supply Part Number:	
AC Line Filter Manufacturer:	
AC Line Filter Part Number:	
The EUT has no power cord.	

I/O PORTS	
Type	#

CRYSTAL OSCILLATORS	
Type	Freq. In MHz

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location

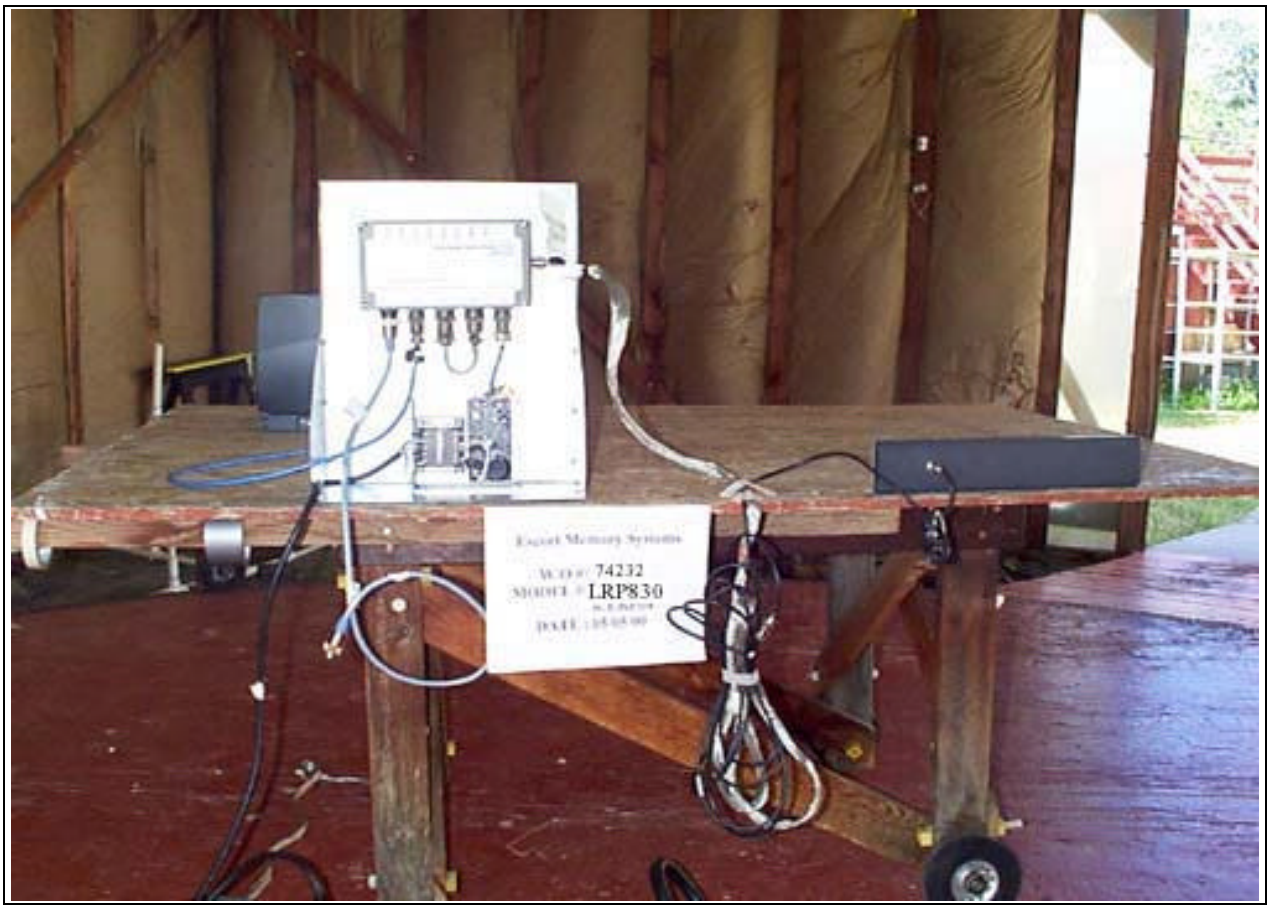
REQUIRED EUT CHANGES TO COMPLY:
None.

CABLE INFORMATION

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View with Antenna 04

PHOTOGRAPH SHOWING RADIATED EMISSIONS

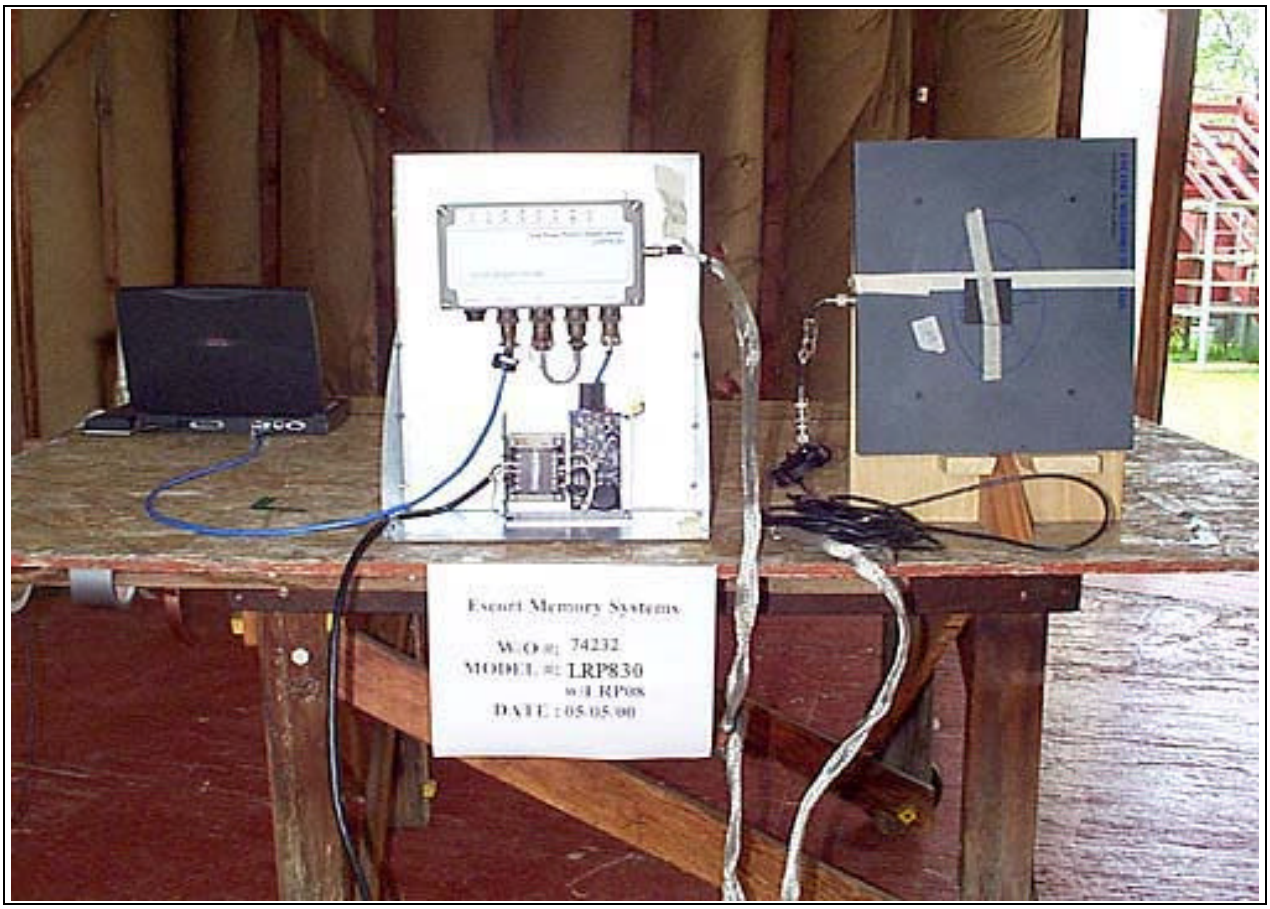


Radiated Emissions - Back View with Antenna 04

PHOTOGRAPH SHOWING RADIATED EMISSIONS

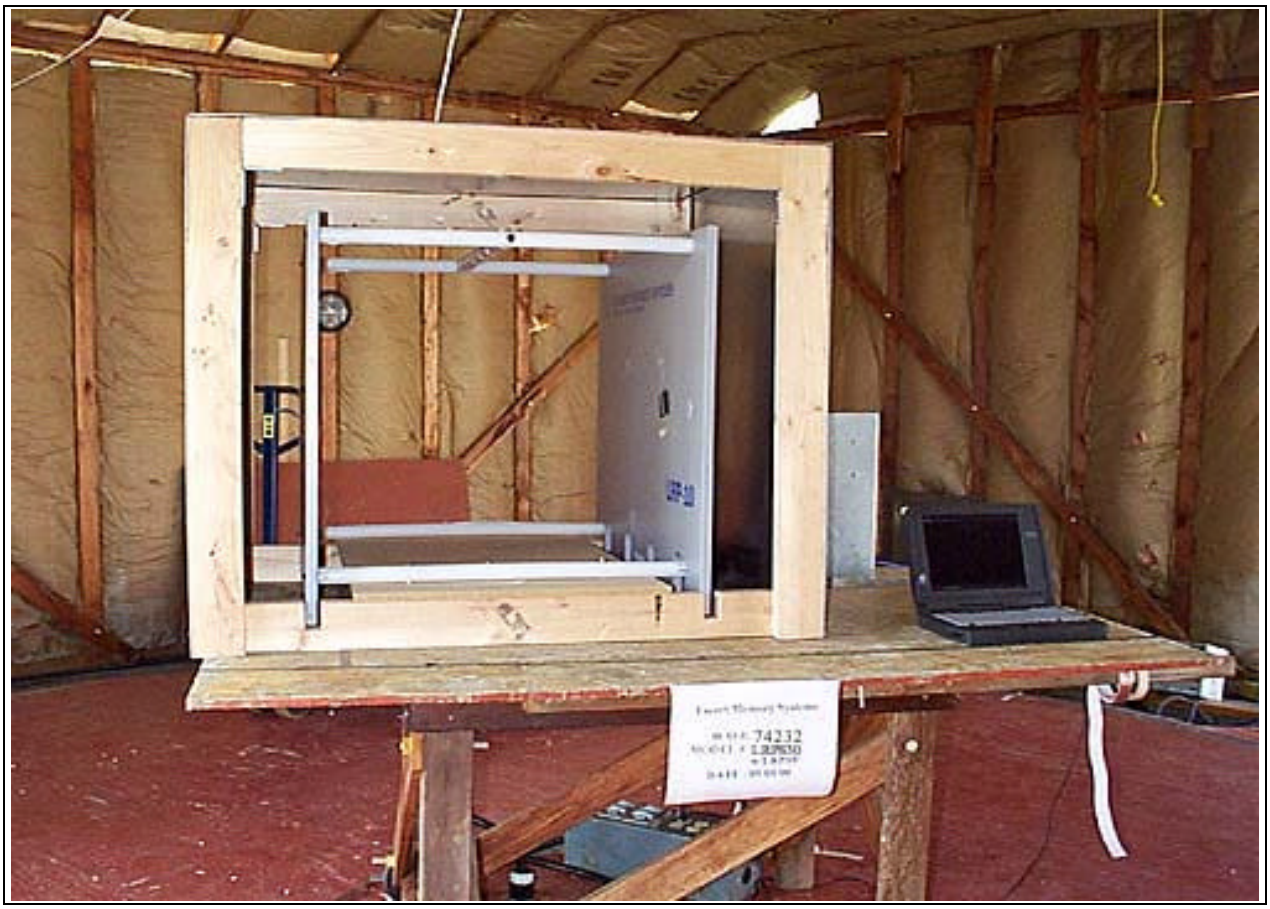
Radiated Emissions - Front View with Antenna 08

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View with Antenna 08

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View with Antenna 10

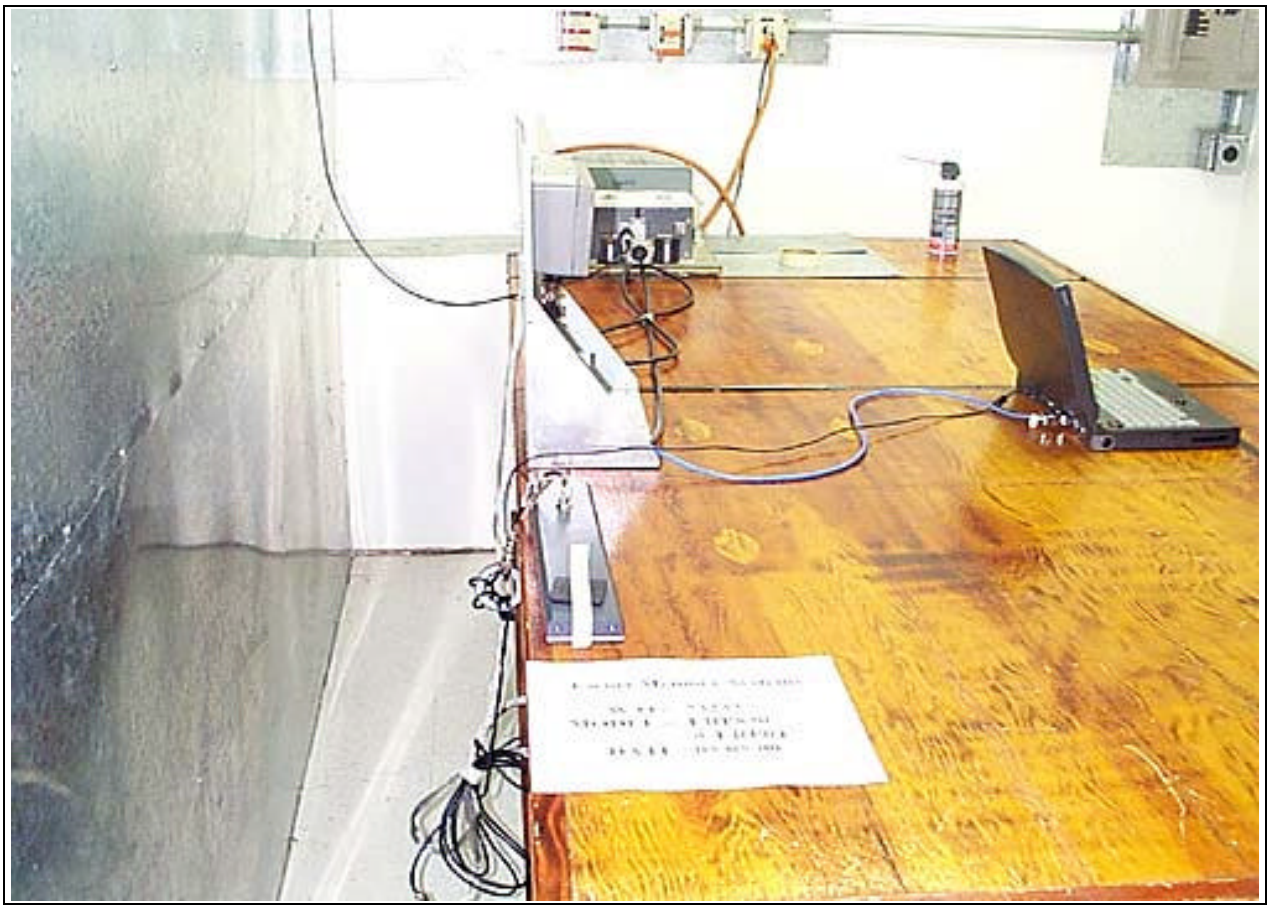
PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View with Antenna 10

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

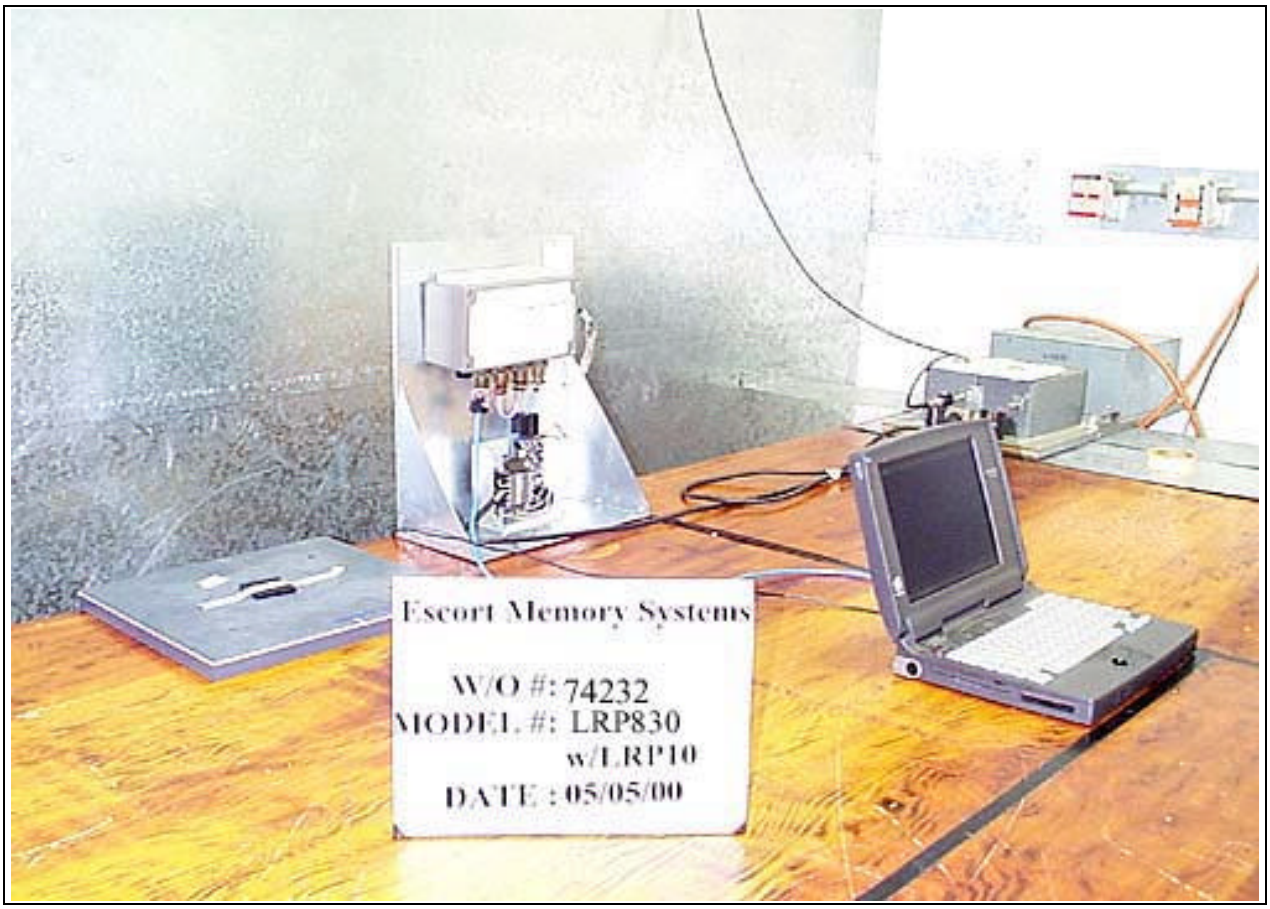
Conducted Emissions - Front View with Antenna 04

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Back View with Antenna 04

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Front View with Antenna 08

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

Conducted Emissions - Back View with Antenna 08

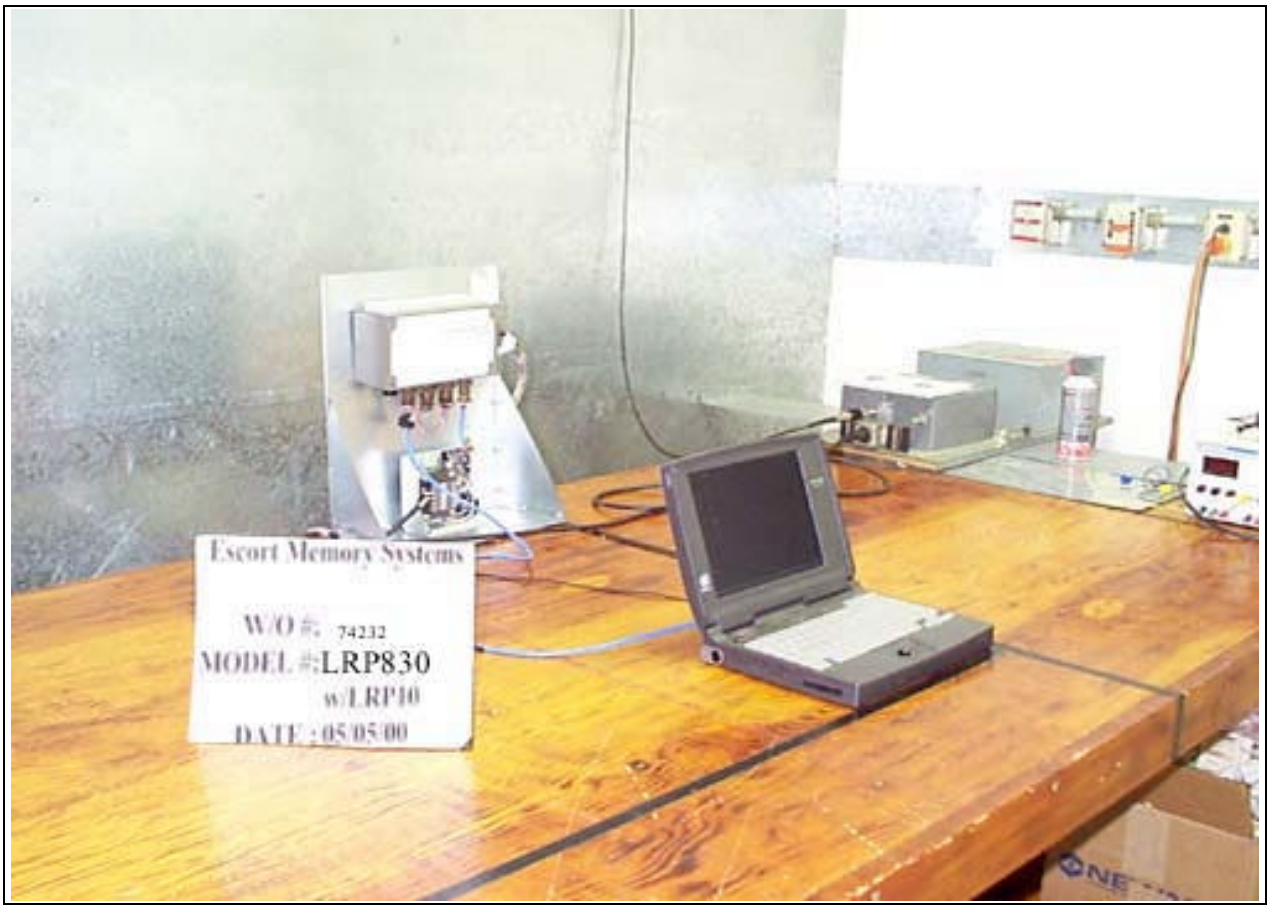
PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

Conducted Emissions - Front View with Antenna 10

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

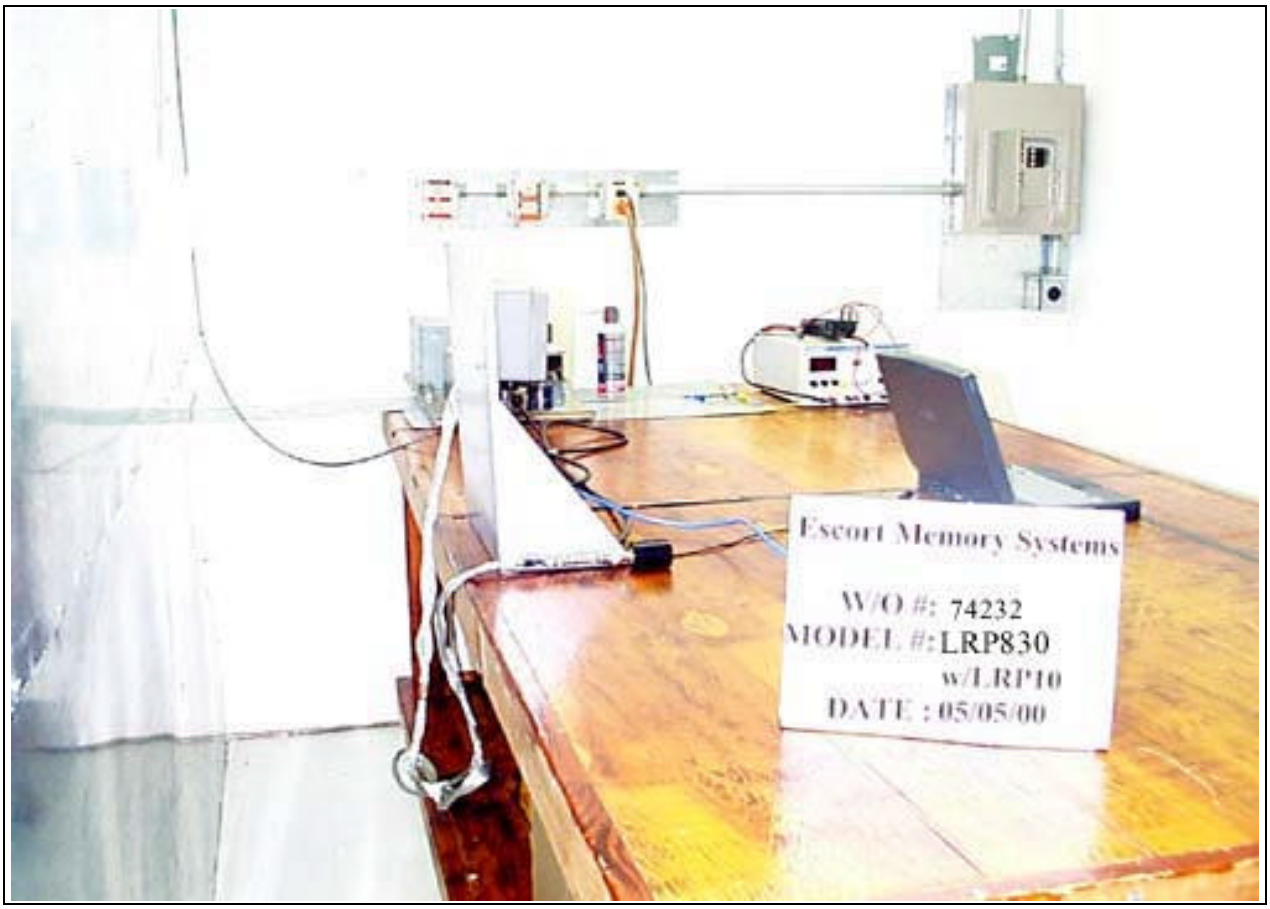
Conducted Emissions - Back View with Antenna 10

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Front View with DC Load

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Back View with DC Load

PHOTOGRAPH SHOWING TEMPERATURE TESTING

FCC Part 15.225(c)

APPENDIX B

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.225(a)**
Work Order #: **73126** Date: 02/10/2000
Test Type: **Fundamental Field Strength** Time: 18:28:59
Equipment: **Passive Tag Reader** Sequence#: 2
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP820
S/N:

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

Function	Manufacturer	Model #	S/N
Cable	Escort Memory Systems	TNC	CBL-1450 Rev-1-A
Passive Tag Reader	Escort Memory Systems	LRP820	99N1635
Antenna	Escort Memory Systems	LRP04	

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	BK Precision	1760	267-1041034
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Used Antenna is LRP04 and the Module is LRP820. FUNDAMENTAL FIELD STRENGTH

Measurement Data: Reading listed by margin. Test Distance: 30 Meters

#	Freq	Rdng	Amp	Cable	Mag		Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	13.559M	69.5	-27.0	+0.2	+10.3		+0.0	53.0	80.0	-27.0	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.225(a)**
Work Order #: **73126** Date: 02/10/2000
Test Type: **Maximized Emissions** Time: 18:28:59
Equipment: **Passive Tag Reader** Sequence#: 2
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP820
S/N:

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

Function	Manufacturer	Model #	S/N
Cable	Escort Memory Systems	TNC	CBL-1450 Rev-1-A
Antenna	Escort Memory Systems	LRP08	
Passive Tag Reader	Escort Memory Systems	LRP820	99N1635

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	BK Precision	1760	267-1041034
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Used Antenna is LRP08 and the Module is LRP820. FUNDAMENTAL FIELD STRENGTH

Measurement Data: Reading listed by margin. Test Distance: 30 Meters

#	Freq	Rdng	Amp	Cable	Mag		Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	13.561M	86.5	-27.0	+0.2	+10.3		+0.0	70.0	80.0	-10.0	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.225(a)**
Work Order #: **73126** Date: 02/10/2000
Test Type: **Radiated Scan** Time: 18:28:59
Equipment: **Passive Tag Reader** Sequence#: 2
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP820
S/N:

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

Function	Manufacturer	Model #	S/N
Cable	Escort Memory Systems	TNC	CBL-1450 Rev-1-A
Passive Tag Reader	Escort Memory Systems	LRP820	99N1635
Antenna	Escort Memory Systems	LRP10	

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	BK Precision	1760	267-1041034
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Used Antenna is LRP10 and the Module is LRP820. FUNDAMENTAL FIELD STRENGTH

Measurement Data: Reading listed by margin. Test Distance: 30 Meters

#	Freq	Rdng	Amp	Cable	Mag		Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	13.561M	76.5	-27.0	+0.2	+10.3		+0.0	60.0	80.0	-20.0	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.209**
Work Order #: **73126** Date: 03/27/2000
Test Type: **Maximized Emissions** Time: 13:54:01
Equipment: **Passive Tag Reader** Sequence#: 10
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP820
S/N: 99N1635

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

Function	Manufacturer	Model #	S/N
Cable	Escort Memory Systems	TNC	CBL-1450 Rev-1-A
Passive Tag Reader	Escort Memory Systems	LRP820	99N1635
Antenna	Escort Memory Systems	LRP04	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Compaq	Armada 1130T	7701BJZ34666
Power Supply	EMS	N/A	N/A

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Used Antenna is LRP04 and the Module is LRP820. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Cable dB	Log dB	Bicon dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	40.735M QP	48.4	-25.0	+0.7	+0.0	+10.9	+0.0	35.0	40.0	-5.0	Vert
^	40.715M	52.6	-25.0	+0.7	+0.0	+10.9	+0.0	39.2	40.0	-0.8	Vert
3	301.630M QP	41.1	-24.8	+3.3	+21.3	+0.0	+0.0	40.9	46.0	-5.1	Horiz
^	301.635M	43.0	-24.8	+3.3	+21.3	+0.0	+0.0	42.8	46.0	-3.2	Horiz
5	301.792M QP	40.6	-24.8	+3.3	+21.3	+0.0	+0.0	40.4	46.0	-5.6	Vert
^	301.840M	42.6	-24.8	+3.3	+21.3	+0.0	+0.0	42.4	46.0	-3.6	Vert
7	203.449M QP	42.0	-24.7	+2.3	+0.0	+18.3	+0.0	37.9	43.5	-5.6	Vert
^	203.457M	46.3	-24.7	+2.3	+0.0	+18.3	+0.0	42.2	43.5	-1.3	Vert
9	642.121M	40.2	-26.1	+5.6	+20.2	+0.0	+0.0	39.9	46.0	-6.1	Horiz

10	149.203M	47.2	-24.9	+1.9	+0.0	+12.8	+0.0	37.0	43.5	-6.5	Vert
11	54.291M	47.3	-24.9	+0.9	+0.0	+9.9	+0.0	33.2	40.0	-6.8	Vert
12	540.031M	41.6	-25.9	+4.8	+18.6	+0.0	+0.0	39.1	46.0	-6.9	Vert
13	540.040M	41.1	-25.9	+4.8	+18.6	+0.0	+0.0	38.6	46.0	-7.4	Horiz
QP											
^	540.039M	43.4	-25.9	+4.8	+18.6	+0.0	+0.0	40.9	46.0	-5.1	Horiz
15	64.040M	47.6	-24.9	+1.0	+0.0	+8.8	+0.0	32.5	40.0	-7.5	Vert
QP											
^	64.040M	50.5	-24.9	+1.0	+0.0	+8.8	+0.0	35.4	40.0	-4.6	Vert
17	189.897M	40.6	-24.7	+2.3	+0.0	+17.6	+0.0	35.8	43.5	-7.7	Vert
QP											
^	189.894M	42.5	-24.7	+2.3	+0.0	+17.6	+0.0	37.7	43.5	-5.8	Vert
19	480.045M	41.6	-25.8	+4.5	+17.7	+0.0	+0.0	38.0	46.0	-8.0	Vert
20	60.061M	46.5	-24.9	+1.0	+0.0	+9.4	+0.0	32.0	40.0	-8.0	Vert
21	180.044M	41.4	-24.8	+2.2	+0.0	+16.7	+0.0	35.5	43.5	-8.0	Vert
QP											
^	180.046M	45.6	-24.8	+2.2	+0.0	+16.7	+0.0	39.7	43.5	-3.8	Vert
23	67.848M	47.7	-25.0	+1.0	+0.0	+8.2	+0.0	31.9	40.0	-8.1	Vert
QP											
^	67.851M	50.1	-25.0	+1.0	+0.0	+8.2	+0.0	34.3	40.0	-5.7	Vert
25	176.328M	42.2	-24.8	+2.2	+0.0	+15.7	+0.0	35.3	43.5	-8.2	Vert
QP											
^	176.337M	46.3	-24.8	+2.2	+0.0	+15.7	+0.0	39.4	43.5	-4.1	Vert
27	902.859M	33.1	-25.6	+6.7	+23.3	+0.0	+0.0	37.5	46.0	-8.5	Horiz
QP											
^	902.833M	38.1	-25.6	+6.7	+23.3	+0.0	+0.0	42.5	46.0	-3.5	Horiz
29	108.535M	45.7	-25.1	+1.5	+0.0	+12.7	+0.0	34.8	43.5	-8.7	Vert

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.209**
Work Order #: **73126** Date: 03/27/2000
Test Type: **Maximized Emissions** Time: 13:54:01
Equipment: **Passive Tag Reader** Sequence#: 7
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP820
S/N: 99N1635

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

Function	Manufacturer	Model #	S/N
Cable	Escort Memory Systems	TNC	CBL-1450 Rev-1-A
Antenna	Escort Memory Systems	LRP08	
Passive Tag Reader	Escort Memory Systems	LRP820	99N1635

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Compaq	Armada 1130T	7701BJZ34666
Power Supply	EMS	N/A	N/A

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Used Antenna is LRP08 and the Module is LRP820. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Cable dB	Log dB	Bicon dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	40.735M QP	50.8	-25.0	+0.7	+0.0	+10.9	+0.0	37.4	40.0	-2.6	Vert
^	40.715M	54.7	-25.0	+0.7	+0.0	+10.9	+0.0	41.3	40.0	+1.3	Vert
3	301.792M QP	43.1	-24.8	+3.3	+21.3	+0.0	+0.0	42.9	46.0	-3.1	Vert
^	301.840M	46.6	-24.8	+3.3	+21.3	+0.0	+0.0	46.4	46.0	+0.4	Vert
5	203.449M QP	44.0	-24.7	+2.3	+0.0	+18.3	+0.0	39.9	43.5	-3.6	Vert
^	203.457M	47.3	-24.7	+2.3	+0.0	+18.3	+0.0	43.2	43.5	-0.3	Vert
7	301.630M QP	42.1	-24.8	+3.3	+21.3	+0.0	+0.0	41.9	46.0	-4.1	Horiz
^	301.635M	45.0	-24.8	+3.3	+21.3	+0.0	+0.0	44.8	46.0	-1.2	Horiz

9	180.044M QP	44.4	-24.8	+2.2	+0.0	+16.7	+0.0	38.5	43.5	-5.0	Vert
^	180.046M	47.6	-24.8	+2.2	+0.0	+16.7	+0.0	41.7	43.5	-1.8	Vert
11	642.121M	40.2	-26.1	+5.6	+20.2	+0.0	+0.0	39.9	46.0	-6.1	Horiz
12	149.203M	47.2	-24.9	+1.9	+0.0	+12.8	+0.0	37.0	43.5	-6.5	Vert
13	54.291M	47.3	-24.9	+0.9	+0.0	+9.9	+0.0	33.2	40.0	-6.8	Vert
14	540.031M	41.6	-25.9	+4.8	+18.6	+0.0	+0.0	39.1	46.0	-6.9	Vert
15	540.040M QP	41.1	-25.9	+4.8	+18.6	+0.0	+0.0	38.6	46.0	-7.4	Horiz
^	540.039M	43.4	-25.9	+4.8	+18.6	+0.0	+0.0	40.9	46.0	-5.1	Horiz
17	64.040M QP	47.6	-24.9	+1.0	+0.0	+8.8	+0.0	32.5	40.0	-7.5	Vert
^	64.040M	50.5	-24.9	+1.0	+0.0	+8.8	+0.0	35.4	40.0	-4.6	Vert
19	189.897M QP	40.6	-24.7	+2.3	+0.0	+17.6	+0.0	35.8	43.5	-7.7	Vert
^	189.894M	42.5	-24.7	+2.3	+0.0	+17.6	+0.0	37.7	43.5	-5.8	Vert
21	480.045M	41.6	-25.8	+4.5	+17.7	+0.0	+0.0	38.0	46.0	-8.0	Vert
22	60.061M	46.5	-24.9	+1.0	+0.0	+9.4	+0.0	32.0	40.0	-8.0	Vert
23	67.848M QP	47.7	-25.0	+1.0	+0.0	+8.2	+0.0	31.9	40.0	-8.1	Vert
^	67.851M	50.1	-25.0	+1.0	+0.0	+8.2	+0.0	34.3	40.0	-5.7	Vert
25	176.328M QP	42.2	-24.8	+2.2	+0.0	+15.7	+0.0	35.3	43.5	-8.2	Vert
^	176.337M	46.3	-24.8	+2.2	+0.0	+15.7	+0.0	39.4	43.5	-4.1	Vert
27	902.859M QP	33.1	-25.6	+6.7	+23.3	+0.0	+0.0	37.5	46.0	-8.5	Horiz
^	902.833M	38.1	-25.6	+6.7	+23.3	+0.0	+0.0	42.5	46.0	-3.5	Horiz
29	108.535M	45.7	-25.1	+1.5	+0.0	+12.7	+0.0	34.8	43.5	-8.7	Vert
30	81.413M	47.6	-25.0	+1.1	+0.0	+7.3	+0.0	31.0	40.0	-9.0	Vert

31	230.576M	42.1	-24.7	+2.6	+0.0	+16.8	+0.0	36.8	46.0	-9.2	Vert
32	122.108M	43.7	-25.0	+1.7	+0.0	+13.8	+0.0	34.2	43.5	-9.3	Vert
33	203.437M	37.9	-24.7	+2.3	+0.0	+18.3	+0.0	33.8	43.5	-9.7	Horiz
34	244.246M	42.0	-24.6	+2.7	+0.0	+16.1	+0.0	36.2	46.0	-9.8	Vert
35	221.040M	40.5	-24.7	+2.5	+0.0	+17.3	+0.0	35.6	46.0	-10.4	Horiz
36	240.045M	40.6	-24.6	+2.7	+0.0	+16.3	+0.0	35.0	46.0	-11.0	Vert
37	160.045M	41.7	-24.9	+2.0	+0.0	+13.7	+0.0	32.5	43.5	-11.0	Vert
38	189.907M	37.2	-24.7	+2.3	+0.0	+17.6	+0.0	32.4	43.5	-11.1	Horiz
39	120.075M	41.8	-25.0	+1.6	+0.0	+13.5	+0.0	31.9	43.5	-11.6	Vert
40	486.166M	37.8	-25.8	+4.5	+17.7	+0.0	+0.0	34.2	46.0	-11.8	Horiz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.209**
Work Order #: **74232** Date: 05/04/2000
Test Type: **Maximized Emissions** Time: 12:30:50
Equipment: **Passive Tag Reader** Sequence#: 8
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP820 w/LRP10 Ant
S/N:

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader	Escort Memory Systems	LRP820	
Antenna	Escort Memory Systems	LRP10	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Antenna is LP10 and the Module is LRP820. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Cable dB	Bicon dB	Log dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1 QP	40.750M	53.3	-25.0	+0.7	+10.9	+0.0	+0.0	39.9	40.0	-0.1	Vert
									Transient spikes QP'd out. With tag.		
^	40.734M	68.9	-25.0	+0.7	+10.9	+0.0	+0.0	55.5	40.0	+15.5	Vert
									Peaks of transient spikes well above CW		
3 QP	40.746M	52.0	-25.0	+0.7	+10.9	+0.0	+0.0	38.6	40.0	-1.4	Vert
									Transient spikes QP'd out. No tag		
4 QP	94.982M	53.0	-25.1	+1.4	+10.8	+0.0	+0.0	40.1	43.5	-3.4	Horiz
^	94.968M	54.0	-25.1	+1.4	+10.8	+0.0	+0.0	41.1	43.5	-2.4	Horiz
6 QP	40.721M	47.5	-25.0	+0.7	+10.9	+0.0	+0.0	34.1	40.0	-5.9	Horiz
^	40.695M	64.6	-25.0	+0.7	+10.9	+0.0	+0.0	51.2	40.0	+11.2	Horiz

8	54.305M QP	46.2	-24.9	+0.9	+9.9	+0.0	+0.0	32.1	40.0	-7.9	Vert
^	54.285M	54.8	-24.9	+0.9	+9.9	+0.0	+0.0	40.7	40.0	+0.7	Vert
10	149.193M	45.0	-24.9	+1.9	+12.8	+0.0	+0.0	34.8	43.5	-8.7	Horiz
11	108.539M	43.6	-25.1	+1.5	+12.7	+0.0	+0.0	32.7	43.5	-10.8	Horiz
12	54.250M	42.4	-24.9	+0.9	+10.0	+0.0	+0.0	28.4	40.0	-11.6	Horiz
13	149.220M	41.1	-24.9	+1.9	+12.8	+0.0	+0.0	30.9	43.5	-12.6	Vert
14	122.069M	40.2	-25.0	+1.7	+13.8	+0.0	+0.0	30.7	43.5	-12.8	Vert
15	108.544M QP	37.7	-25.1	+1.5	+12.7	+0.0	+0.0	26.8	43.5	-16.7	Vert
^	108.526M	48.7	-25.1	+1.5	+12.7	+0.0	+0.0	37.8	43.5	-5.7	Vert
17	230.540M	32.8	-24.7	+2.6	+16.8	+0.0	+0.0	27.5	46.0	-18.5	Horiz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.209**
Work Order #: **74232** Date: 05/05/2000
Test Type: **Maximized Emissions** Time: 12:44:05
Equipment: **Passive Tag Reader** Sequence#: 8
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP830 w/LRP04 Ant
S/N:

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader	Escort Memory Systems	LRP830	
Antenna	Escort Memory Systems	LRP04	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Antenna is LRP04 and the Module is LRP830. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Cable dB	Bicon dB	Log dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1 QP	141.547M	48.6	-24.9	+1.8	+13.3	+0.0	+0.0	38.8	43.5	-4.7	Horiz
^	141.559M	50.0	-24.9	+1.8	+13.3	+0.0	+0.0	40.2	43.5	-3.3	Horiz
3	149.201M	46.2	-24.9	+1.9	+12.8	+0.0	+0.0	36.0	43.5	-7.5	Horiz
4	176.378M	41.4	-24.8	+2.2	+15.7	+0.0	+0.0	34.5	43.5	-9.0	Horiz
5	67.897M	46.0	-25.0	+1.0	+8.2	+0.0	+0.0	30.2	40.0	-9.8	Vert
6 QP	40.774M	43.2	-25.0	+0.7	+10.9	+0.0	+0.0	29.8	40.0	-10.2	Vert
^	40.760M	51.0	-25.0	+0.7	+10.9	+0.0	+0.0	37.6	40.0	-2.4	Vert
8	203.497M	36.8	-24.7	+2.3	+18.3	+0.0	+0.0	32.7	43.5	-10.8	Horiz
9	122.087M	41.4	-25.0	+1.7	+13.8	+0.0	+0.0	31.9	43.5	-11.6	Horiz
10	40.763M	41.3	-25.0	+0.7	+10.9	+0.0	+0.0	27.9	40.0	-12.1	Horiz

11	81.462M	43.7	-25.0	+1.1	+7.3	+0.0	+0.0	27.1	40.0	-12.9	Vert
12	244.178M	37.2	-24.6	+2.7	+16.1	+0.0	+0.0	31.4	46.0	-14.6	Vert
13	284.804M	31.9	-24.7	+3.1	+20.5	+0.0	+0.0	30.8	46.0	-15.2	Vert
14	176.353M	35.2	-24.8	+2.2	+15.7	+0.0	+0.0	28.3	43.5	-15.2	Vert
15	108.574M	39.0	-25.1	+1.5	+12.7	+0.0	+0.0	28.1	43.5	-15.4	Horiz
16	257.720M	34.5	-24.6	+2.9	+16.9	+0.0	+0.0	29.7	46.0	-16.3	Vert
17	122.106M	36.6	-25.0	+1.7	+13.8	+0.0	+0.0	27.1	43.5	-16.4	Vert
18	149.250M	37.2	-24.9	+1.9	+12.8	+0.0	+0.0	27.0	43.5	-16.5	Vert
19	230.593M	34.3	-24.7	+2.6	+16.8	+0.0	+0.0	29.0	46.0	-17.0	Vert
20	217.057M	32.7	-24.7	+2.4	+17.5	+0.0	+0.0	27.9	46.0	-18.1	Horiz
21	108.580M	36.1	-25.1	+1.5	+12.7	+0.0	+0.0	25.2	43.5	-18.3	Vert
22	244.188M	33.3	-24.6	+2.7	+16.1	+0.0	+0.0	27.5	46.0	-18.5	Horiz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.209**
Work Order #: **74232** Date: 05/05/2000
Test Type: **Maximized Emissions** Time: 10:58:24
Equipment: **Passive Tag Reader** Sequence#: 7
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP830 w/LRP08 Ant
S/N:

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader	Escort Memory Systems	LRP830	
Antenna	Escort Memory Systems	LRP08	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Antenna is LRP08 and the Module is LRP830. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Cable dB	Bicon dB	Log dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	176.370M	43.7	-24.8	+2.2	+15.7	+0.0	+0.0	36.8	43.5	-6.7	Horiz
2 QP	40.784M	45.5	-25.0	+0.7	+10.9	+0.0	+0.0	32.1	40.0	-7.9	Vert
^	40.761M	62.3	-25.0	+0.7	+10.9	+0.0	+0.0	48.9	40.0	+8.9	Vert
4	244.171M	42.6	-24.6	+2.7	+16.1	+0.0	+0.0	36.8	46.0	-9.2	Horiz
5	122.128M	43.6	-25.0	+1.7	+13.8	+0.0	+0.0	34.1	43.5	-9.4	Horiz
6	203.443M	36.8	-24.7	+2.3	+18.3	+0.0	+0.0	32.7	43.5	-10.8	Horiz
7	854.363M	32.0	-26.0	+6.3	+0.0	+22.6	+0.0	34.9	46.0	-11.1	Horiz
8	867.924M	31.5	-25.9	+6.4	+0.0	+22.8	+0.0	34.8	46.0	-11.2	Vert
9	217.027M	38.2	-24.7	+2.4	+17.5	+0.0	+0.0	33.4	46.0	-12.6	Vert
10	244.178M	38.9	-24.6	+2.7	+16.1	+0.0	+0.0	33.1	46.0	-12.9	Vert

11	176.370M	37.3	-24.8	+2.2	+15.7	+0.0	+0.0	30.4	43.5	-13.1	Vert
12	81.427M	43.5	-25.0	+1.1	+7.3	+0.0	+0.0	26.9	40.0	-13.1	Vert
13	203.491M	34.0	-24.7	+2.3	+18.3	+0.0	+0.0	29.9	43.5	-13.6	Vert
14	217.051M	36.6	-24.7	+2.4	+17.5	+0.0	+0.0	31.8	46.0	-14.2	Horiz
15	230.591M	37.1	-24.7	+2.6	+16.8	+0.0	+0.0	31.8	46.0	-14.2	Vert
16	257.741M	36.5	-24.6	+2.9	+16.9	+0.0	+0.0	31.7	46.0	-14.3	Vert
17	230.611M	36.8	-24.7	+2.6	+16.8	+0.0	+0.0	31.5	46.0	-14.5	Horiz
18	122.120M	38.3	-25.0	+1.7	+13.8	+0.0	+0.0	28.8	43.5	-14.7	Vert
19	67.870M	41.0	-25.0	+1.0	+8.2	+0.0	+0.0	25.2	40.0	-14.8	Vert
20	352.631M	33.3	-25.0	+3.5	+0.0	+18.7	+0.0	30.5	46.0	-15.5	Vert
21	149.252M	37.3	-24.9	+1.9	+12.8	+0.0	+0.0	27.1	43.5	-16.4	Vert
22	271.273M	31.5	-24.7	+3.0	+18.8	+0.0	+0.0	28.6	46.0	-17.4	Vert
23	40.762M	35.6	-25.0	+0.7	+10.9	+0.0	+0.0	22.2	40.0	-17.8	Horiz
24	108.564M	33.7	-25.1	+1.5	+12.7	+0.0	+0.0	22.8	43.5	-20.7	Vert
25	81.424M	35.7	-25.0	+1.1	+7.3	+0.0	+0.0	19.1	40.0	-20.9	Horiz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.209**
Work Order #: **74232** Date: 05/05/2000
Test Type: **Maximized Emissions** Time: 09:38:54
Equipment: **Passive Tag Reader** Sequence#: 6
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP830 w/LRP10 Ant
S/N:

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader	Escort Memory Systems	LRP830	
Antenna	Escort Memory Systems	LRP10	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table in the middle of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is in the normal mode reading a tag. The Antenna is LRP10 and the Module is LRP830. Frequency range investigated 9kHz - 1000MHz per 15.209. No spurs detected below 30Mhz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Cable dB	Bicon dB	Log dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1 QP	40.715M	48.1	-25.0	+0.7	+10.9	+0.0	+0.0	34.7	40.0	-5.3	Vert
^	40.712M	64.3	-25.0	+0.7	+10.9	+0.0	+0.0	50.9	40.0	+10.9	Vert
3	54.269M	48.0	-24.9	+0.9	+10.0	+0.0	+0.0	34.0	40.0	-6.0	Vert
4	67.835M	46.4	-25.0	+1.0	+8.2	+0.0	+0.0	30.6	40.0	-9.4	Horiz
5	149.169M	44.2	-24.9	+1.9	+12.8	+0.0	+0.0	34.0	43.5	-9.5	Horiz
6	108.474M	44.8	-25.1	+1.5	+12.7	+0.0	+0.0	33.9	43.5	-9.6	Vert
7	244.087M	38.5	-24.6	+2.7	+16.1	+0.0	+0.0	32.7	46.0	-13.3	Horiz
8	108.501M	41.0	-25.1	+1.5	+12.7	+0.0	+0.0	30.1	43.5	-13.4	Horiz
9 QP	40.751M	39.3	-25.0	+0.7	+10.9	+0.0	+0.0	25.9	40.0	-14.1	Horiz
^	40.749M	60.0	-25.0	+0.7	+10.9	+0.0	+0.0	46.6	40.0	+6.6	Horiz

11	203.387M	33.3	-24.7	+2.3	+18.3	+0.0	+0.0	29.2	43.5	-14.3	Horiz
12	203.418M	33.3	-24.7	+2.3	+18.3	+0.0	+0.0	29.2	43.5	-14.3	Vert
13	176.283M	35.7	-24.8	+2.2	+15.7	+0.0	+0.0	28.8	43.5	-14.7	Horiz
14	149.158M	38.7	-24.9	+1.9	+12.8	+0.0	+0.0	28.5	43.5	-15.0	Vert
15	176.268M	34.4	-24.8	+2.2	+15.7	+0.0	+0.0	27.5	43.5	-16.0	Vert
16	257.675M	34.5	-24.6	+2.9	+16.9	+0.0	+0.0	29.7	46.0	-16.3	Vert
17	122.047M	35.8	-25.0	+1.7	+13.7	+0.0	+0.0	26.2	43.5	-17.3	Horiz

Test Location: 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4362

Customer: **Escort Memory Systems**
Specification: **FCC 15.207**
Work Order #: **73126** Date: 03/27/2000
Test Type: **Conducted Emissions** Time: 11:48:51
Equipment: **Passive Tag Reader** Sequence#: 18
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP820
S/N: 99N1635

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader	Escort Memory Systems	LRP820	99N1635
Antenna	Escort Memory Systems	LRP08	
Cable	Escort Memory Systems	TNC	CBL-1450 Rev-1-A

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	BK Precision	1760	267-1041034
Laptop	Dell	LX4100D	07427 Rev A02-00

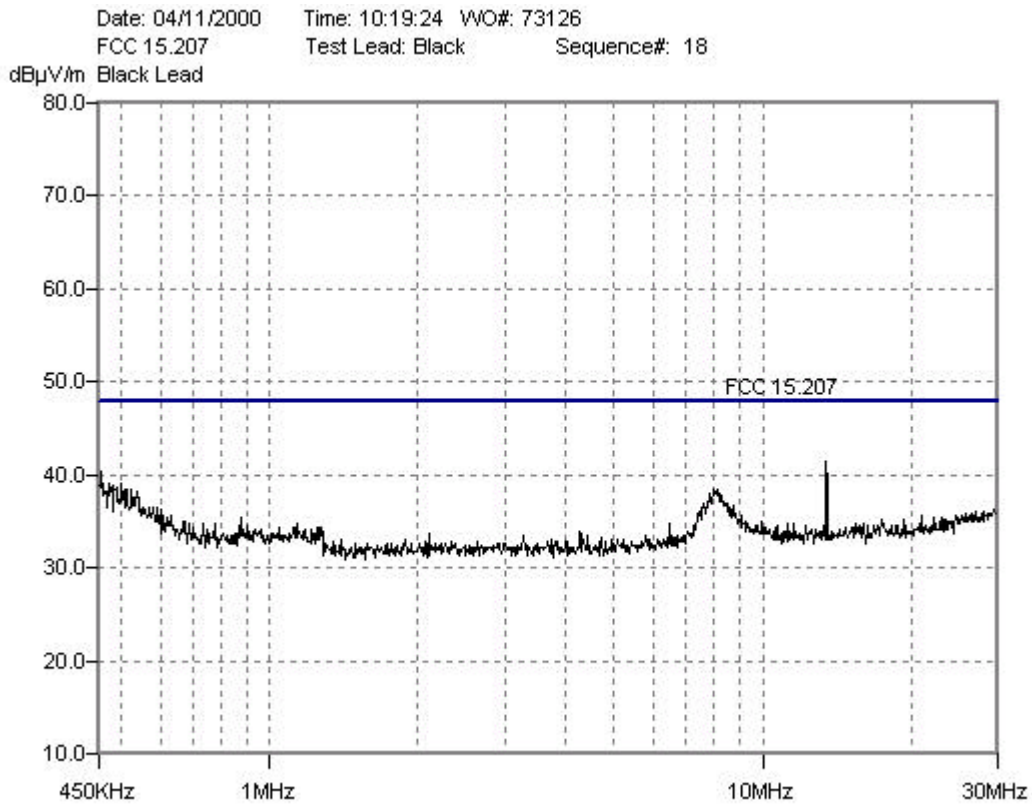
Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table next to the vertical ground plane at the edge of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is reading a tag. The EUT is the LRP820-08.

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	Cable dB	dB	LISN dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.506M	39.9	+0.9		+0.7		+0.0	41.5	48.0	-6.5	Black
2	455.020k	40.0	+0.1		+0.3		+0.0	40.4	48.0	-7.6	Black
3	500.198k	38.5	+0.2		+0.3		+0.0	39.0	48.0	-9.0	Black
4	471.753k	38.6	+0.1		+0.3		+0.0	39.0	48.0	-9.0	Black
5	478.446k	38.4	+0.1		+0.3		+0.0	38.8	48.0	-9.2	Black
6	490.159k	38.1	+0.2		+0.3		+0.0	38.6	48.0	-9.4	Black
7	8.005M	32.1	+0.7		+5.7		+0.0	38.5	48.0	-9.5	Black
8	511.911k	38.0	+0.2		+0.3		+0.0	38.5	48.0	-9.5	Black
9	8.115M	32.4	+0.7		+5.3		+0.0	38.4	48.0	-9.6	Black

10	525.297k	37.9	+0.2	+0.3	+0.0	38.4	48.0	-9.6	Black
11	504.381k	37.8	+0.2	+0.3	+0.0	38.3	48.0	-9.7	Black
12	465.060k	37.9	+0.1	+0.3	+0.0	38.3	48.0	-9.7	Black
13	537.847k	37.7	+0.2	+0.3	+0.0	38.2	48.0	-9.8	Black
14	7.787M	32.6	+0.7	+4.7	+0.0	38.0	48.0	-10.0	Black
15	8.306M	32.4	+0.7	+4.6	+0.0	37.7	48.0	-10.3	Black


Date: 04/11/2000 Time: 10:19:24 WO#: 73126
FCC 15.207 Test Lead: Black Sequence#: 18
dBµV/m Black Lead
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

Test Location: 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4362

Customer: **Escort Memory Systems**
Specification: **FCC 15.207**
Work Order #: **73126** Date: 03/27/2000
Test Type: **Conducted Emissions** Time: 11:40:03
Equipment: **Passive Tag Reader** Sequence#: 17
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP20
S/N: 99N1635

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader*	Escort Memory Systems	LRP20	99N1635
Antenna	Escort Memory Systems	LRP10	
Cable	Escort Memory Systems	TNC	CBL-1450 Rev-1-A

Support Devices:

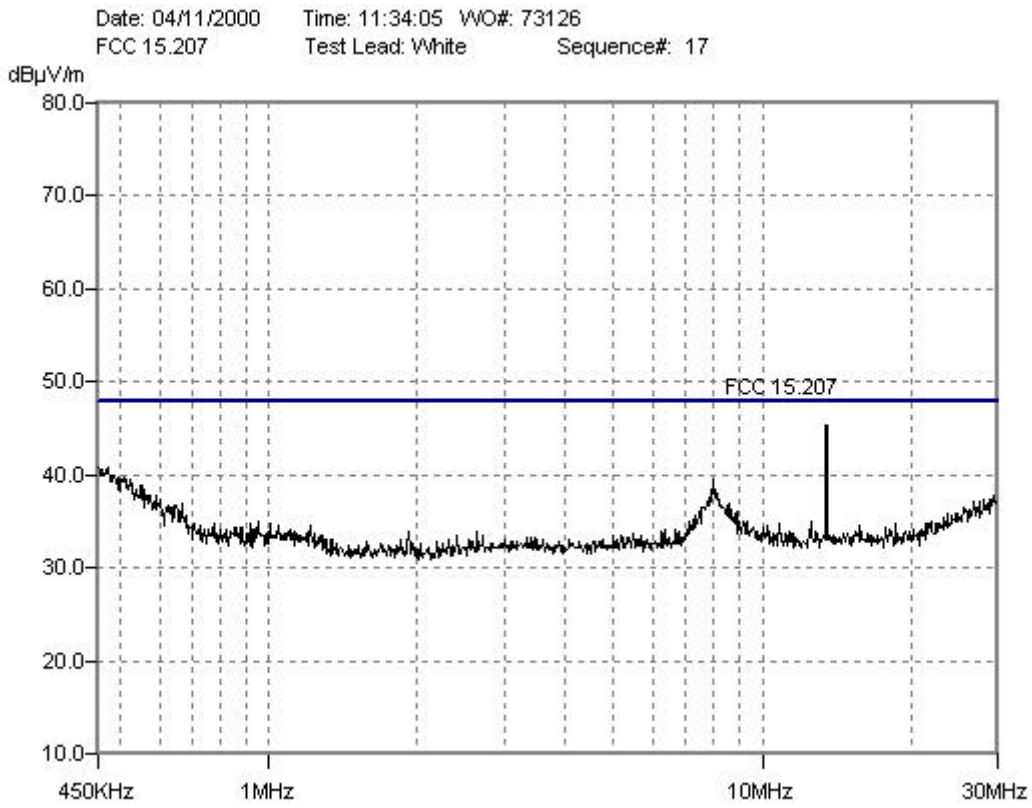
Function	Manufacturer	Model #	S/N
Power Supply	BK Precision	1760	267-1041034
Laptop	Dell	LX4100D	07427 Rev A02-00

Test Conditions / Notes:

The EUT with its antenna stands on the 80cm high wood table next to the vertical ground plane at the edge of the turntable. The module is connected to the antenna and to the Laptop. Two other MIL ports are connected to each other. One MIL Port isn't used and isn't filled on the LRP820. The Laptop runs engineering test software ANT_TUNE and is located on the wood table too. The EUT is powered by 24VDC. The EUT is reading a tag. The EUT is the LRP820-08.

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBµV	Cable dB	LISN dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.526M	43.9	+0.9	+0.6			+0.0	45.4	48.0	-2.6	White
2	473.426k	40.3	+0.1	+0.3			+0.0	40.7	48.0	-7.3	White
3	451.673k	40.2	+0.1	+0.4			+0.0	40.7	48.0	-7.3	White
4	460.040k	40.1	+0.1	+0.4			+0.0	40.6	48.0	-7.4	White
5	485.139k	39.5	+0.1	+0.3			+0.0	39.9	48.0	-8.1	White
6	477.609k	39.5	+0.1	+0.3			+0.0	39.9	48.0	-8.1	White
7	508.565k	39.2	+0.2	+0.3			+0.0	39.7	48.0	-8.3	White
8	495.178k	39.2	+0.2	+0.3			+0.0	39.7	48.0	-8.3	White
9	7.992M	33.2	+0.7	+5.6			+0.0	39.5	48.0	-8.5	White
10	523.624k	39.0	+0.2	+0.3			+0.0	39.5	48.0	-8.5	White
11	550.396k	38.5	+0.2	+0.2			+0.0	38.9	48.0	-9.1	White
12	560.436k	38.1	+0.2	+0.2			+0.0	38.5	48.0	-9.5	White
13	537.010k	38.0	+0.2	+0.3			+0.0	38.5	48.0	-9.5	White
14	7.882M	32.6	+0.7	+5.1			+0.0	38.4	48.0	-9.6	White
15	8.087M	32.0	+0.7	+5.3			+0.0	38.0	48.0	-10.0	White


Date: 04/11/2000 Time: 11:34:05 WO#: 73126
FCC 15.207 Test Lead: White Sequence#: 17
dBµV/m
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.207**
Work Order #: **73232** Date: 05/08/2000
Test Type: **Conducted Emissions** Time: 09:25:03
Equipment: **Passive Tag Reader** Sequence#: 15
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP830
S/N:

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader	Escort Memory Systems	LRP830	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	LX4100D	07427 Rev A02-00

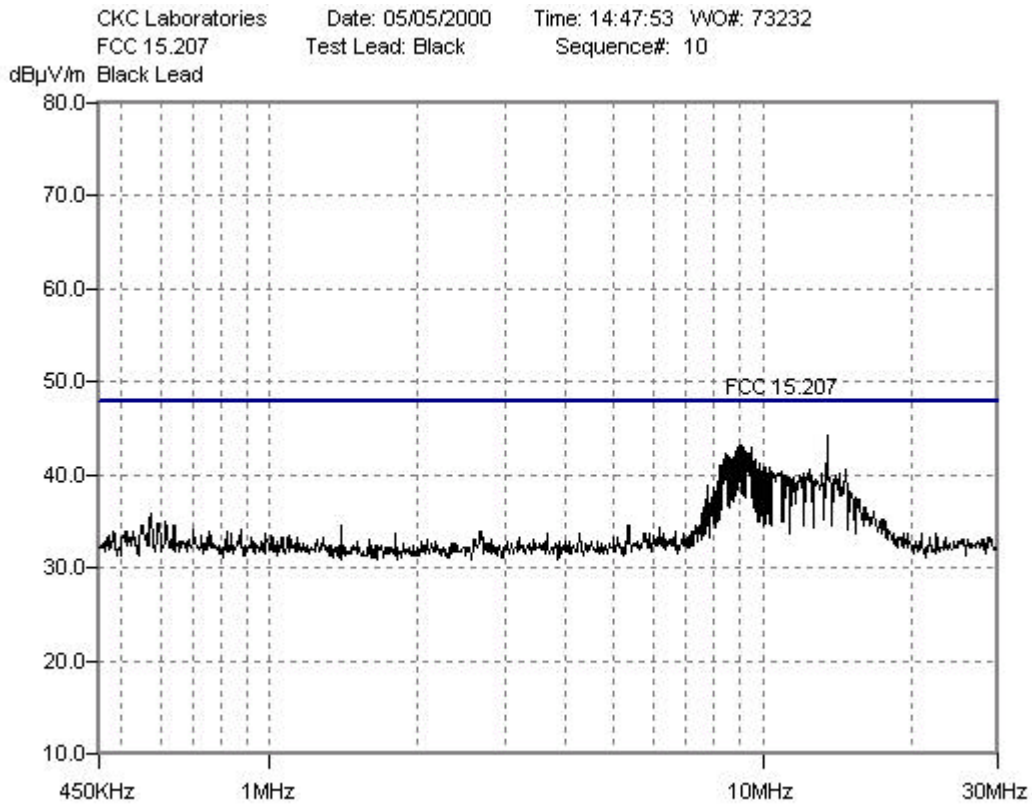
Test Conditions / Notes:

The EUT is located on the table in the Barn conducted room. The module is connected to the Laptop. The Laptop runs engineering test software ANT_TUNE and is located on the wood table also. Two other MIL ports are connected to each other. One Port (Device Net) isn't used and isn't filled on the LRP830. The EUT is powered by 24VDC power supply, which is operating on 120VAC/60Hz Through the LISN. The EUT is reading a tag. The EUT is the LRP830. AC power line conducted measurements made with 50ohm dummy load connected to the EUT antenna output terminals IAW ANSI C63.4-1992, Appendix I1(2).

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	Cable dB	LISN dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.576M	43.1	+0.2	+1.0			+0.0	44.3	48.0	-3.7	Black
2	9.098M	37.9	+0.2	+5.1			+0.0	43.2	48.0	-4.8	Black
3	9.016M	37.6	+0.2	+5.4			+0.0	43.2	48.0	-4.8	Black
4	8.934M	37.5	+0.2	+5.3			+0.0	43.0	48.0	-5.0	Black
5	9.521M	39.3	+0.2	+3.4			+0.0	42.9	48.0	-5.1	Black
6	9.193M	38.0	+0.2	+4.7			+0.0	42.9	48.0	-5.1	Black
7	9.275M	37.9	+0.2	+4.4			+0.0	42.5	48.0	-5.5	Black
8	8.852M	37.3	+0.2	+5.0			+0.0	42.5	48.0	-5.5	Black
9	9.432M	38.4	+0.2	+3.8			+0.0	42.4	48.0	-5.6	Black
10	8.428M	38.8	+0.2	+3.3			+0.0	42.3	48.0	-5.7	Black

11	8.510M	38.4	+0.2	+3.6	+0.0	42.2	48.0	-5.8	Black
12	8.770M	37.1	+0.2	+4.6	+0.0	41.9	48.0	-6.1	Black
13	8.599M	37.7	+0.2	+4.0	+0.0	41.9	48.0	-6.1	Black
14	8.688M	37.2	+0.2	+4.3	+0.0	41.7	48.0	-6.3	Black
15	8.346M	38.4	+0.2	+3.0	+0.0	41.6	48.0	-6.4	Black


CKC Laboratories
Date: 05/05/2000
Time: 14:47:53
WO#: 73232
FCC 15.207
Test Lead: Black
Sequence#: 10
dBµV/m
Black Lead
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Escort Memory Systems**
Specification: **FCC 15.207**
Work Order #: **73232** Date: 05/08/2000
Test Type: **Conducted Emissions** Time: 09:30:45
Equipment: **Passive Tag Reader** Sequence#: 16
Manufacturer: Escort Memory Systems Tested By: Skip Doyle
Model: LRP830
S/N:

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

Function	Manufacturer	Model #	S/N
Passive Tag Reader	Escort Memory Systems	LRP830	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	LX4100D	07427 Rev A02-00

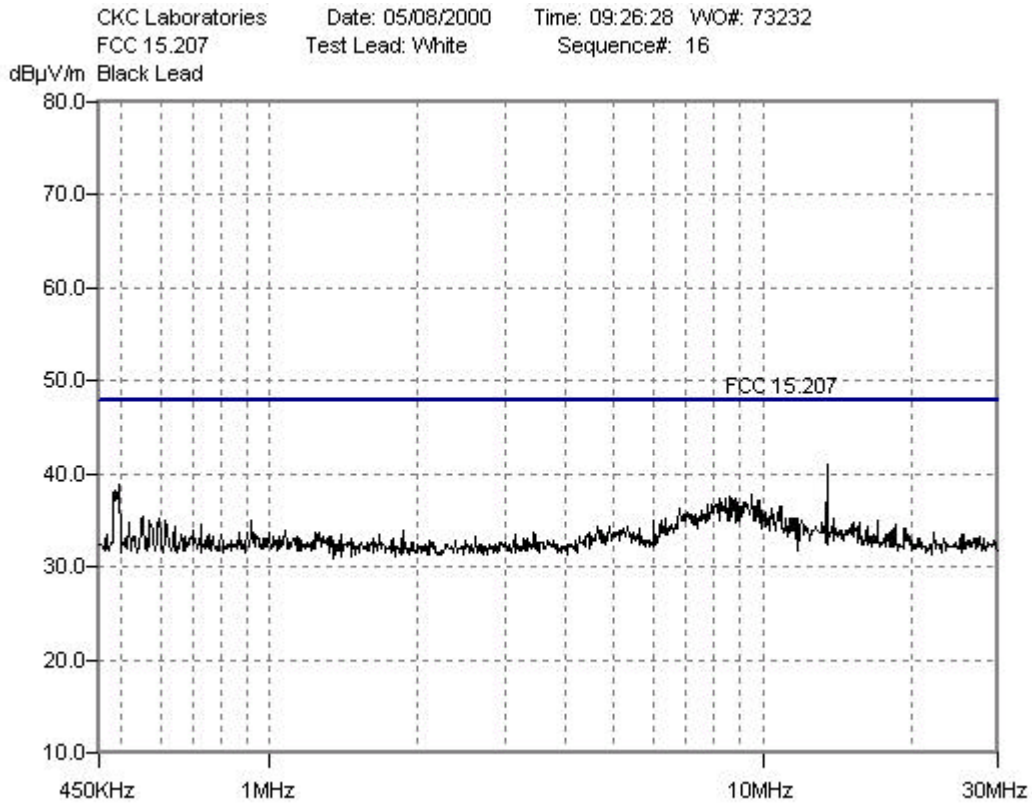
Test Conditions / Notes:

The EUT is located on the table in the Barn conducted room. The module is connected to the Laptop. The Laptop runs engineering test software ANT_TUNE and is located on the wood table also. Two other MIL ports are connected to each other. One Port (Device Net) isn't used and isn't filled on the LRP830. The EUT is powered by 24VDC power supply, which is operating on 120VAC/60Hz Through the LISN. The EUT is reading a tag. The EUT is the LRP830. AC power line conducted measurements made with 50ohm dummy load connected to the EUT antenna output terminals IAW ANSI C63.4-1992, Appendix I1(2).

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBµV	Cable dB	dB	LISN dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.576M	40.4	+0.2		+0.4		+0.0	41.0	48.0	-7.0	White
2	493.505k	38.1	+0.1		+0.6		+0.0	38.8	48.0	-9.2	White
3	486.812k	37.5	+0.1		+0.6		+0.0	38.2	48.0	-9.8	White
4	483.466k	37.3	+0.1		+0.6		+0.0	38.0	48.0	-10.0	White
5	9.535M	36.8	+0.2		+0.7		+0.0	37.7	48.0	-10.3	White
6	8.620M	35.9	+0.2		+1.5		+0.0	37.6	48.0	-10.4	White
7	8.783M	36.0	+0.2		+1.2		+0.0	37.4	48.0	-10.6	White
8	8.456M	35.5	+0.2		+1.7		+0.0	37.4	48.0	-10.6	White
9	8.701M	35.8	+0.2		+1.3		+0.0	37.3	48.0	-10.7	White
10	8.210M	35.0	+0.2		+2.1		+0.0	37.3	48.0	-10.7	White

11	9.863M	36.4	+0.2	+0.6	+0.0	37.2	48.0	-10.8	White
12	9.781M	36.3	+0.2	+0.7	+0.0	37.2	48.0	-10.8	White
13	8.961M	35.8	+0.2	+1.0	+0.0	37.0	48.0	-11.0	White
14	8.865M	35.7	+0.2	+1.1	+0.0	37.0	48.0	-11.0	White
15	8.292M	34.9	+0.2	+1.9	+0.0	37.0	48.0	-11.0	White


CKC Laboratories
Date: 05/08/2000
Time: 09:26:28
WO#: 73232
FCC 15.207
Test Lead: White
Sequence#: 16
dBµV/m
Black Lead
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

TEMPERATURE TESTING

TEMPERATURE	VOLTAGE	FREQUENCY
-30°C	28.6 VDC	13.560318 MHz
-30°C	24.0 VDC	13.560318 MHz
-30°C	20.4 VDC	13.560318 MHz
-20°C	28.6 VDC	13.560315 MHz
-20°C	24.0 VDC	13.560315 MHz
-20°C	20.4 VDC	13.560315 MHz
-10°C	28.6 VDC	13.560260 MHz
-10°C	24.0 VDC	13.560260 MHz
-10°C	20.4 VDC	13.560259 MHz
0°C	28.6 VDC	13.560185 MHz
0°C	24.0 VDC	13.560185 MHz
0°C	20.4 VDC	13.560184 MHz
10°C	28.6 VDC	13.560155 MHz
10°C	24.0 VDC	13.560155 MHz
10°C	20.4 VDC	13.560155 MHz
20°C	28.6 VDC	13.560031 MHz
20°C	24.0 VDC	13.560031 MHz
20°C	20.4 VDC	13.560030 MHz
30°C	28.6 VDC	13.560008 MHz
30°C	24.0 VDC	13.560008 MHz
30°C	20.4 VDC	13.560008 MHz
40°C	28.6 VDC	13.559892 MHz
40°C	24.0 VDC	13.559892 MHz
40°C	20.4 VDC	13.559892 MHz
50°C	28.6 VDC	13.559850 MHz
50°C	24.0 VDC	13.559850 MHz
50°C	20.4 VDC	13.559850 MHz