EMC EMISSION - TEST REPORT

Test Report No.	**B853901**	Issue Date	04 January 1999

Model / Serial No.	MB-A-C / 01
Product Type	MicroBadge Anti-Collision RFID Reader
Client	Micron Communications, Inc.
Manufacturer	Micron Communications, Inc.
License holder	Micron Communications, Inc.
Address	3176 South Denver Way Boise, Idaho 83707-0006
Test Criteria Applied	FCC Part 15 15.209C
Test Start Date:	16 November 1998
Test End Date:	09 December 1998
Test Result	■ **PASS** ☐ **FAIL**
Test Report Project No.	**B201853901**
Total Pages including Appendices	74

Reviewed By : Felix J. Chavez

Reviewed By : Shawn Singh

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TÜV Product Service Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV Product Service Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV Product Service Inc issued reports.

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TÜV PRODUCT SERVICE INC 40 Meadow Road Pinewood Springs, Lyons, CO 80540 Tel: 303 786 7999 Fax: 303 449 3004 Rev.No 1.0

DIRECTORY - EMISSIONS

STATEMENT OF MEASUREMENT UNCERTAINTY

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error of ±4 dB. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

EMISSIONS TEST REGULATIONS :

The tests were performed according to following regulations :

■ - Federal Communication Commission part 15 ☐ - Class A ■ - Class B
■ - Federal Communication Commission part 15, Subpart C ■ - 15.207 ■ - 15.209

All tests performed according to ANSI C63.4.

Emission Test Results:

Conducted emissions 150 kHz - 30 MHz

Test Result ■ **- PASS** ☐ **- FAIL** ☐ **- Not Applicable**

Passing Margin 6 dB at 12.7 MHz

Failing Margin _____ dB at _____ MHz

Remarks: _____

Radiated emissions (electric field) 30 MHz - 1000 MHz (Unintentional Radiator)

Test Result ■ **- PASS** ☐ **- FAIL** ☐ **- Not Applicable**

Passing Margin 1.8 dB at 265.8 MHz

Failing Margin _____ dB at _____ MHz

Remarks: _____

Radiated emissions (Magnetic field) 0.125 MHz - 1.250 MHz (Intentional Radiator)

Test Result ■ **- PASS** ☐ **- FAIL** ☐ **- Not Applicable**

Passing Margin 39.2 dB at 0.125 MHz

Failing Margin _____ dB at _____ MHz

Remarks: _____

GENERAL REMARKS:

All configurations were checked with passing results with the exception of the following two (2) configurations:

1) AntiCollision Reader 8”x22” antenna with 15’ RG174 cable.
2) AntiCollision Reader 4”x14” antenna with 15’ Thinnet cable.

The two (2) above configurations will not be marketed by Micron Communications, Inc.

Modifications required to pass: None

Test Specification Deviations: Additions to or Exclusions from: None

Test Equipment Used

Colorado Test Equipment

05-Nov-98

Report: B8539 **Date: 16 Nov.98-08 Dec.98** **Signature: Shawn Singh/Chris Poore**

Temp: 12-21° C **Rel. Humd.: 18-20%** **Atmo. Pressure: 79.5-80kPa**

Location	Tests	Manufacturer	Model Number	Serial Number	Description	Cal Date	Cal Due
PW	R	EMCO	3104C	9203-4508	Biconical antenna	19-Jun-98	19-Jun-99
PW	-3, R	EMCO	3146	9203-3376	Log Periodic Antenna	18-Jun-98	18-Jun-99
PW	C	EMCO	3825/2	9202-1945	LISN	15-Jul-98	15-Jul-99
PW	R	EMCO	6502	9205-2738	Magnetic loop	30-Oct-97	29-Oct-00
PW	R	Hewlett Packard	85650A	2043A00256	Quasi Peak Adapter (set 1)	17-Jun-98	17-Jun-99
PW	R, C	Hewlett Packard	85662A	2112A02220	Display Section	11-Mar-98	11-Mar-99
PW	C	Hewlett Packard	8568B	2304A02508	Spectrum Analyzer	17-Jun-98	17-Jun-99
PW	R, C	Hewlett Packard	8566B	2115A00853	Spectrum Analyzer (dc-22 GHz)	11-Mar-98	11-Mar-99
PW	R, C	Hewlett Packard	8566B	2410A00154	Spectrum Analyzer (dc-22 GHz)	01-Apr-98	01-Apr-99
PW	R	Mini-Circuits	ZHL-1042J(SMA)	D082098-3	Amplifier	23-Sep-98	23-Sep-99
PW	C	Polarad Electroni	ESH3-Z2	357.881J.32	Transient Limiter		
PW		Rhode & Schwarz	ESHS 30	842806/001	EMI Test Receiver	26-Oct-98	26-Oct-99
PW	C	Rhode & Schwarz	ESH2-Z5	830364/002	LISN 50 ohm/50uH 3 line	23-Feb-98	23-Feb-99
PW	C	Rhode & Schwarz	ESH3	872318/036	Low Frequency Receiver	03-Sep-98	03-Sep-99
PW		Schwarzbeck	NNLK 8129	8129126	LISN	27-Oct-98	27-Oct-99
PW	C	Solar	8028-50TS-24-	8305122	LISN (10 kHz-30 Mhz)	23-Feb-98	23-Feb-99

Appendix A

Transmitter Data Sheets

TUV PRODUCT SERVICE

RADIATED EMISSIONS SUMMARY

Report #	B8539	Operator: Shawn Singh
Date of test:	16 Nov 98	Engineer: Shawn Singh
Model No.:	MBIR	
Equipment tested:	Anti Collision Reader w/External 15" x22 " Antenna	
Requester:	Micron Communications, Inc.	
Representative:	Jack Henry	

TEST EQUIPMENT

EMCO 6502 Loop Antenna
Hewlett Packard 8566B Spectrum Analyzer

TEST DETAILS:

FCC Rules Section:	15.209
Fundamental Frequency:	0.125 MHz
Antenna description:	External Loop
Modulation Method:	None, continuous carrier
FCC Limit Distance:	300 meters
FCC Limit	19.2 uV/m 25.7 dBuV/m
FCC Default Falloff	40 dB/decade
Alternate Calculated Falloff	75.6 dB/decade
Falloff Used	75.6 dB/decade

MEASURED DATA:

Harmonic #	Freq. MHz	Readings dBuV/m					
		10 meters	Extrapolated Limit	Delta dB	30 meters	Extrapolated Limit	Delta dB
1	0.125	96.7	137.3	40.6	60.6	101.2	40.6
2	0.250	50.9	131.3	80.4	No emissions were found above the		
3	0.375	56.5	127.8	71.3	receiver's noise floor to 1.25 MHz.		
4	0.500						
5	0.625						
6	0.750						
7	0.875						
8	1.000						
9	1.125						
10	1.250						

CONCLUSION: The device under test passed emissions requirements under Section 15.209 with a passing margin of 40.6 dB at test distance of 10 meters using alternate calculated falloff distance extrapolation of 75.6 dB per decade.

TUV PRODUCT SERVICE

RADIATED EMISSIONS SUMMARY

Report #	B8539	Operator: Shawn Singh
Date of test:	16 Nov 98	Engineer: Shawn Singh
Model No.:	MBIR	
Equipment tested:	Anti Collision Reader w/External 8" x22 " Antenna	
Requester:	Micron Communications, Inc.	
Representative:	Jack Henry	

TEST EQUIPMENT

EMCO 6502 Loop Antenna
Hewlett Packard 8566B Spectrum Analyzer

TEST DETAILS:

FCC Rules Section:	15.209
Fundamental Frequency:	0.125 MHz
Antenna description:	External Loop
Modulation Method:	None, continuous carrier
FCC Limit Distance:	300 meters
FCC Limit	19.2 uV/m 25.7 dBuV/m
FCC Default Falloff	40 dB/decade
Alternate Calculated Falloff	71.6 dB/decade
Falloff Used	71.6 dB/decade

MEASURED DATA:

Harmonic #	Freq. MHz	Readings dBuV/m					
		10 meters	Extrapolated Limit	Delta dB	30 meters	Extrapolated Limit	Delta dB
1	0.125	92.2	131.4	39.2	58	97.2	39.2
2	0.250	50.9	125.2	74.3	No emissions were found above the		
3	0.375	51.9	121.7	69.8	receiver's noise floor to 1.25 MHz.		
4	0.500						
5	0.625						
6	0.750						
7	0.875						
8	1.000						
9	1.125						
10	1.250						

CONCLUSION: The device under test passed emissions requirements under Section 15.209 with a passing margin of 39.2 dB at test distance of 10 meters using alternate calculated falloff distance extrapolation of 71.6 dB per decade.

TUV PRODUCT SERVICE

RADIATED EMISSIONS SUMMARY

Report #	B8539	Operator: Shawn Singh
Date of test:	16 Nov 98	Engineer: Shawn Singh
Model No.:	MBIR	
Equipment tested:	Anti Collision Reader w/External 4" x14 " Antenna	
Requester:	Micron Communications, Inc.	
Representative:	Jack Henry	

TEST EQUIPMENT

EMCO 6502 Loop Antenna
Hewlett Packard 8566B Spectrum Analyzer

TEST DETAILS:

FCC Rules Section:	15.209
Fundamental Frequency:	0.125 MHz
Antenna description:	External Loop
Modulation Method:	None, continuous carrier
FCC Limit Distance:	300 meters
FCC Limit	19.2 uV/m 25.7 dBuV/m
FCC Default Falloff	40 dB/decade
Alternate Calculated Falloff	70 dB/decade
Falloff Used	70 dB/decade

MEASURED DATA:

Harmonic #	Freq. MHz	Readings dBuV/m					
		10 meters	Extrapolated Limit	Delta dB	30 meters	Extrapolated Limit	Delta dB
1	0.125	85.9	134	48.1	52.5	100.6	48.1
2	0.250	50.9	123	72.1	No emissions were found above the		
3	0.375	47.9	119.5	71.6	receiver's noise floor to 1.25 MHz.		
4	0.500						
5	0.625						
6	0.750						
7	0.875						
8	1.000						
9	1.125						
10	1.250						

CONCLUSION: The device under test passed emissions requirements under Section 15.209 with a passing margin of 48.1 dB at test distance of 10 meters using alternate calculated falloff distance extrapolation of 70 dB per decade.

Appendix B

Detailed Test Data Sheets

TÜV Product Service

RADIATED EMISSIONS DATA SHEET

SHEET __1__ OF _6___

TEST REPORT # B8539

TEST DISTANCE 10 Meters | DATE: 16-Nov-98

Test Area TT1-1 | TESTED BY: Shawn Singh

Test Standards FCC Pt 15 15.209C | REVIEWED BY:

Manufacturer Micron Communications, Inc. Representative Jack Henry

EUT Description Anti Collision Reader w/External 15" x 22" Antenna, S/N: 24169/016(Ant.)

EUT Model # MBIR EUT Serial # 1

Test Specification Deviations: Additions to or Exclusions from:

S\emc\datashee\BLDRform.xlscv/jVD Mar 96

FREQ. (MHz)	Reading (dBuV)	Factor (dB)	Condition [1] (dBuV/m)	Condition [2] (dBuV/m)	Azimuth (deg)	Polarization	Remarks: Rotated loop antenna for maximum emissions
0.125	86.8	9.9	96.7				
0.25	41	9.9	50.9				Noise Floor
0.375	46.6	9.9	56.5				
0.5	35	9.9	44.9				Noise Floor
0.625	35.6	9.9	45.5				
0.75	24	9.9	33.9				Noise Floor
0.875	32.6	9.9	42.5				
1	23	9.9	32.9				Noise Floor
1.125	26	9.9	35.9				Noise Floor
1.25	23	9.9	32.9				Noise Floor

Condition 1: Peak readings

Condition 2:

Modifications to EUT at time of test:

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TÜV Product Service

RADIATED EMISSIONS DATA SHEET

SHEET __2__ OF _6___

TEST REPORT # B8539

TEST DISTANCE 30 Meters | DATE: 16-Nov-98

Test Area TT1-1 | TESTED BY: Shawn Singh

Test Standards FCC Pt 15 15.209C | REVIEWED BY:

Manufacturer Micron Communications, Inc. Representative Jack Henry

EUT Description Anti Collision Reader w/External 15" x 22" Antenna, S/N: 24169/016(Ant.)

EUT Model # MBIR EUT Serial # 1

Test Specification Deviations: Additions to or Exclusions from:

S\emc\datashee\BLDRform.xlscv/jVD Mar 96

FREQ. (MHz)	Reading (dBuV)	Factor (dB)	Condition [1] (dBuV/m)	Condition [2] (dBuV/m)	Azimuth (deg)	Polarization	Remarks: Rotated loop antenna for maximum emissions
0.125	50.7	9.9	60.6				
0.25							No emissions's were found above
							receiver's noise floor.
1.25							

Condition 1: Peak readings

Condition 2:

Modifications to EUT at time of test:

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RADIATED EMISSIONS DATA SHEET

SHEET __3__ OF _6___

TEST REPORT # B8539

TEST DISTANCE 10 Meters | DATE: 16-Nov-98

Test Area TT1-1 | TESTED BY: Shawn Singh

Test Standards FCC Pt 15 15.209C | REVIEWED BY:

Manufacturer Micron Communications, Inc. Representative Jack Henry

EUT Description Anti Collision Reader w/External 8" x 22" Antenna, S/N: 001(Ant.)

EUT Model # MBIR EUT Serial # 1

Test Specification Deviations: Additions to or Exclusions from:

S\emc\datashee\BLDRform.xlscv/jVD Mar 96

FREQ. (MHz)	Reading (dBuV)	Factor (dB)	Condition [1] (dBuV/m)	Condition [2] (dBuV/m)	Azimuth (deg)	Polarization	Remarks: Rotated loop antenna for maximum emissions
0.125	82.3	9.9	92.2				
0.25	41	9.9	50.9				Noise Floor
0.375	42	9.9	51.9				
0.5	35	9.9	44.9				
0.625	34	9.9	43.9				
0.75	24	9.9	33.9				Noise Floor
0.875	30	9.9	39.9				
1	23	9.9	32.9				Noise Floor
1.125	26	9.9	35.9				Noise Floor
1.25	23	9.9	32.9				Noise Floor

Condition 1: Peak readings

Condition 2:

Modifications to EUT at time of test:

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TÜV Product Service

RADIATED EMISSIONS DATA SHEET

SHEET __4__ OF _6___

TEST REPORT # B8539

TEST DISTANCE 30 Meters | DATE: 16-Nov-98

Test Area TT1-1 | TESTED BY: Shawn Singh

Test Standards FCC Pt 15 15.209C | REVIEWED BY:

Manufacturer Micron Communications, Inc. Representative Jack Henry

EUT Description Anti Collision Reader w/External 8" x 22" Antenna, S/N: 001(Ant.)

EUT Model # MBIR EUT Serial # 1

Test Specification Deviations: Additions to or Exclusions from:

S\emc\datashee\BLDRform.xlscv/jVD Mar 96

FREQ. (MHz)	Reading (dBuV)	Factor (dB)	Condition [1] (dBuV/m)	Condition [2] (dBuV/m)	Azimuth (deg)	Polarization	Remarks: Rotated loop antenna for maximum emissions
0.125	48.1	9.9	58				
0.25							No emissions's were found above
							receiver's noise floor.
1.25							

Condition 1: Peak readings

Condition 2:

Modifications to EUT at time of test:

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TÜV Product Service

RADIATED EMISSIONS DATA SHEET

SHEET __5__ OF _6___

TEST REPORT # B8539

TEST DISTANCE 10 Meters | DATE: 16-Nov-98

Test Area TT1-1 | TESTED BY: Shawn Singh

Test Standards FCC Pt 15 15.209C | REVIEWED BY:

Manufacturer Micron Communications, Inc. Representative Jack Henry

EUT Description Anti Collision Reader w/External 4" x 14" Antenna, S/N: 001(Ant.)

EUT Model # MBIR EUT Serial # 1

Test Specification Deviations: Additions to or Exclusions from:

S\emc\datashee\BLDRform.xlscv/jVD Mar 96

FREQ. (MHz)	Reading (dBuV)	Factor (dB)	Condition [1] (dBuV/m)	Condition [2] (dBuV/m)	Azimuth (deg)	Polarization	Remarks: Rotated loop antenna for maximum emissions
0.125	76	9.9	85.9				
0.25	41	9.9	50.9				Noise Floor
0.375	38	9.9	47.9				
0.5	35	9.9	44.9				
0.625	32	9.9	41.9				
0.75	24	9.9	33.9				
0.875	25	9.9	34.9				
1	23	9.9	32.9				
1.125	26	9.9	35.9				
1.25	23	9.9	32.9				

Condition 1: Peak readings

Condition 2:

Modifications to EUT at time of test:

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TÜV Product Service

RADIATED EMISSIONS DATA SHEET

SHEET __6__ OF _6___

TEST REPORT # B8539

TEST DISTANCE 30 Meters | DATE: 16-Nov-98

Test Area TT1-1 | TESTED BY: Shawn Singh

Test Standards FCC Pt 15 15.209C | REVIEWED BY: _____

Manufacturer Micron Communications, Inc. Representative Jack Henry

EUT Description Anti Collision Reader w/External 4" x 14" Antenna, S/N: 001(Ant.)

EUT Model # MBIR EUT Serial # 1

Test Specification Deviations: Additions to or Exclusions from:

S\emc\datashee\BLDRform.xlscv/jVD Mar 96

FREQ. (MHz)	Reading (dBuV)	Factor (dB)	Condition [1] (dBuV/m)	Condition [2] (dBuV/m)	Azimuth (deg)	Polarization	Remarks: Rotated loop antenna for maximum emissions
0.125	42.6	9.9	52.5				
0.25							No emissions's were found above
							receiver's noise floor.
1.25							

Condition 1: Peak readings

Condition 2: _____

Modifications to EUT at time of test:

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T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 5
3 Meter Antenna Distance — Date 12/08/98 Page 1
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/15"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Bicon Vertical									
0 degrees									
38.662	10	10.8	1	21.9	--	V	--	-18.1	-27.6
115.97	19.35	15.4	1.5	36.2	--	V	--	-7.3	-17.8
128.86	12.85	13.4	1.6	27.8	--	V	--	-15.7	-26.2
131.32	7.35	13.3	1.6	22.3	--	V	--	-21.2	-31.7
133.56	7.7	13.3	1.6	22.5	--	V	--	-21	-31.5
134.26	8.7	13.2	1.6	23.5	--	V	--	-20	-30.5
141.53	9.15	12.9	1.6	23.7	--	V	--	-19.8	-30.3
163.14	7.5	15.1	1.8	24.4	--	V	--	-19.1	-29.6
168.25	7.7	15.3	1.8	24.8	--	V	--	-18.7	-29.2
49.671	11.55	11.2	1.1	23.8	--	V	--	-16.2	-25.7
52.539	10	11	1.1	22.1	--	V	--	-17.9	-27.4
86.943	9.15	7.8	1.3	18.2	--	V	--	-21.8	-31.3
154.63	11.15	15.3	1.7	28.1	--	V	--	-15.4	-25.9
160.61	12.35	15.2	1.7	29.3	--	V	--	-14.2	-24.7
90 degrees									
38.662	13.95	10.8	1	25.8	--	V	--	-14.2	-23.7
86.943	10.15	7.8	1.3	19.2	--	V	--	-20.8	-30.3
131.32	9.75	13.3	1.6	24.7	--	V	--	-18.8	-29.3
133.56	11.6	13.3	1.6	26.4	--	V	--	-17.1	-27.6
134.00	10.8	13.2	1.6	25.6	--	V	--	-17.9	-28.4
180 degrees									
52.539	9.75	11	1.1	21.9	--	V	--	-18.1	-27.6
86.943	10.55	7.8	1.3	19.6	--	V	--	-20.4	-29.9
115.97	24.4	15.4	1.5	41.3	--	V	--	-2.2	-12.7
128.86	14.8	13.4	1.6	29.8	--	V	--	-13.7	-24.2
134.00	13.35	13.2	1.6	28.2	--	V	--	-15.3	-25.8
134.26	11.4	13.2	1.6	26.2	--	V	--	-17.3	-27.8
141.53	9.9	12.9	1.6	24.4	--	V	--	-19.1	-29.6
154.63	14.4	15.3	1.7	31.4	--	V	--	-12.1	-22.6
168.25	12.8	15.3	1.8	29.9	--	V	--	-13.6	-24.1
163.14	8.1	15.1	1.8	25	--	V	--	-18.5	-29

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 5
3 Meter Antenna Distance — Date 12/08/98 Page 2
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/15"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
270 degrees									
38.662	16	10.8	1	27.9	--	V	--	-12.1	-21.6
141.53	10.1	12.9	1.6	24.6	--	V	--	-18.9	-29.4
154.63	16.25	15.3	1.7	33.2	--	V	--	-10.3	-20.8
173 degrees, 1.0m									
115.97	23.6	15.4	1.5	40.5	--	V	--	-3	-13.5
Bicon Horizontal									
0 degrees									
38.662	6.95	10.8	1	18.8	--	H	--	-21.2	-30.7
115.97	5.2	15.4	1.5	22.1	--	H	--	-21.4	-31.9
134.03	4.85	13.2	1.6	19.7	--	H	--	-23.8	-34.3
154.63	5.9	15.3	1.7	22.9	--	H	--	-20.6	-31.1
168.25	7.7	15.3	1.8	24.8	--	H	--	-18.7	-29.2
154.63	8.35	15.3	1.7	25.3	--	H	--	-18.2	-28.7
134.26	6.45	13.2	1.6	21.3	--	H	--	-22.2	-32.7
130.26	7.6	13.4	1.6	22.6	--	H	--	-20.9	-31.4
193.27	7.95	16.8	1.9	26.7	--	H	--	-16.8	-27.3
90 degrees									
115.97	14.05	15.4	1.5	30.9	--	H	--	-12.6	-23.1
128.86	9.55	13.4	1.6	24.5	--	H	--	-19	-29.5
133.56	10.3	13.3	1.6	25.1	--	H	--	-18.4	-28.9
154.63	13.6	15.3	1.7	30.6	--	H	--	-12.9	-23.4
168.25	13.4	15.3	1.8	30.5	--	H	--	-13	-23.5
193.27	10.8	16.8	1.9	29.6	--	H	--	-13.9	-24.4
106.92	9.7	12.9	1.4	24.1	--	H	--	-19.4	-29.9
107.68	10.35	13.1	1.4	24.9	--	H	--	-18.6	-29.1
108.17	10.5	13.2	1.4	25.1	--	H	--	-18.4	-28.9
132.84	13.8	13.3	1.6	28.7	--	H	--	-14.8	-25.3
193.27	10.85	16.8	1.9	29.6	--	H	--	-13.9	-24.4
199.45	11.2	17	2	30.1	--	H	--	-13.4	-23.9

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 5
3 Meter Antenna Distance — Date 12/08/98 Page 3
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/15"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
180 degrees									
168.23	12.35	15.3	1.8	29.4	--	H	--	-14.1	-24.6
270 degrees									
86.943	10.55	7.8	1.3	19.6	--	H	--	-20.4	-29.9
106.92	11.1	12.9	1.4	25.5	--	H	--	-18	-28.5
107.68	12.65	13.1	1.4	27.2	--	H	--	-16.3	-26.8
108.17	12.95	13.2	1.4	27.6	--	H	--	-15.9	-26.4
132.84	14.25	13.3	1.6	29.1	--	H	--	-14.4	-24.9
154.63	13.3	15.3	1.7	30.3	--	H	--	-13.2	-23.7
163.14	8.35	15.1	1.8	25.2	--	H	--	-18.3	-28.8
Log vertical									
0 degrees									
200.01	4.85	11.5	2	18.3	--	V	--	-25.2	-35.7
265.84	19.95	12.3	2.3	34.6	--	V	--	-11.4	-22.3
264.41	15.4	12.3	2.3	30	--	V	--	-16	-26.9
267.54	13.1	12.4	2.3	27.9	--	H	--	-18.1	-29
287.92	10.05	13.6	2.5	26.1	--	H	--	-19.9	-30.8
309.26	9.3	15	2.6	26.8	--	V	--	-19.2	-30.1
321.79	8.05	14.7	2.7	25.4	--	V	--	-20.6	-31.5
465.23	6.8	16.9	3.5	27.2	--	V	--	-18.8	-29.7
532.07	5.35	18	3.8	27.2	--	V	--	-18.8	-29.7
664.99	4.5	20.7	4.6	29.9	--	V	--	-16.1	-27
798.74	9.1	21.5	5.4	36	--	V	--	-10	-20.9
90 degrees									
200.01	10.5	11.5	2	24	--	V	--	-19.5	-30
265.84	20.5	12.3	2.3	35.2	--	V	--	-10.8	-21.7
267.54	14.3	12.4	2.3	29.1	--	V	--	-16.9	-27.8
264.41	15.35	12.3	2.3	30	--	V	--	-16	-26.9
332.53	10.8	14.5	2.7	28	--	V	--	-18	-28.9
465.23	10.35	16.9	3.5	30.8	--	V	--	-15.2	-26.1
532.07	7.25	18	3.8	29.1	--	V	--	-16.9	-27.8
798.74	11.85	21.5	5.4	38.7	--	V	--	-7.3	-18.2
287.92	11.4	13.6	2.5	27.5	--	V	--	-18.5	-29.4
498.59	6.7	17.5	3.7	27.9	--	V	--	-18.1	-29
598.49	6.25	19	4.2	29.5	--	V	--	-16.5	-27.4
865.04	5.45	22.5	5.7	33.7	--	H	--	-12.3	-23.2

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 5
3 Meter Antenna Distance — Date 12/08/98 Page 4
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/15"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
180 degrees									
200.01	11.5	11.5	2	25	--	V	--	-18.5	-29
264.41	16.9	12.3	2.3	31.5	--	V	--	-14.5	-25.4
265.84	21.8	12.3	2.3	36.5	--	V	--	-9.5	-20.4
267.54	15.55	12.4	2.3	30.3	--	V	--	-15.7	-26.6
321.79	11.75	14.7	2.7	29.1	--	V	--	-16.9	-27.8
332.53	11.95	14.5	2.7	29.2	--	V	--	-16.8	-27.7
399.31	11.7	15.3	3.1	30.1	--	V	--	-15.9	-26.8
465.23	15.75	16.9	3.5	36.2	--	V	--	-9.8	-20.7
498.59	8.25	17.5	3.7	29.4	--	V	--	-16.6	-27.5
532.07	10.95	18	3.8	32.8	--	V	--	-13.2	-24.1
287.92	12	13.6	2.5	28.1	--	V	--	-17.9	-28.8
270 degrees									
200.01	13.05	11.5	2	26.5	--	V	--	-17	-27.5
Log Horizontal									
0 degrees									
264.39	13.65	12.3	2.3	28.3	--	H	--	-17.7	-28.6
265.84	18.15	12.3	2.3	32.8	--	H	--	-13.2	-24.1
90 degrees									
200.01	12.1	11.5	2	25.6	--	H	--	-17.9	-28.4
265.84	22.1	12.3	2.3	36.8	--	H	--	-9.2	-20.1
264.41	17.3	12.3	2.3	31.9	--	H	--	-14.1	-25
267.54	15.2	12.4	2.3	30	--	H	--	-16	-26.9
180 degrees									
233.14	12.65	11.1	2.2	25.9	--	H	--	-20.1	-31
287.92	10.5	13.6	2.5	26.6	--	H	--	-19.4	-30.3
270 degrees									
233.14	13.15	11.1	2.2	26.4	--	H	--	-19.6	-30.5
264.41	17.4	12.3	2.3	32	--	H	--	-14	-24.9
265.84	22.05	12.3	2.3	36.7	--	H	--	-9.3	-20.2
267.54	15	12.4	2.3	29.8	--	H	--	-16.2	-27.1
216.30	12.75	11.2	2.1	26	--	H	--	-20	-30.9
231.95	13.95	11.1	2.1	27.2	--	H	--	-18.8	-29.7

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 5
3 Meter Antenna Distance — Date 12/08/98 Page 5
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/15"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
107 degrees, 1.0m, vertical									
798.74	11.05	21.5	5.4	37.9	--	V	--	-8.1	-19

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run 5
3 Meter Antenna Distance Date 12/08/98 Page 6
Equipment Under Test: Reviewed FJC_____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/15"x22" ant., 7.5' Coax cable

Measurement Summary

Frequency	----- Final -----		Azimuth	Polar\		Delta	Delta
MHz	dBuV/m	uV/m	deg	Height		FCC B	FCC A
38.662	27.9	24.831	--	V	--	-12.1	-21.6
49.671	23.8	15.488	--	V	--	-16.2	-25.7
52.539	22.1	12.735	--	V	--	-17.9	-27.4
86.943	19.6	9.5499	--	V	--	-20.4	-29.9
106.92	25.5	18.836	--	H	--	-18	-28.5
107.68	27.2	22.908	--	H	--	-16.3	-26.8
108.17	27.6	23.988	--	H	--	-15.9	-26.4
115.97	41.3	116.14	--	V	--	-2.2	-12.7
128.86	29.8	30.902	--	V	--	-13.7	-24.2
130.26	22.6	13.489	--	H	--	-20.9	-31.4
131.32	24.7	17.179	--	V	--	-18.8	-29.3
132.84	29.1	28.510	--	H	--	-14.4	-24.9
133.56	26.4	20.892	--	V	--	-17.1	-27.6
134.00	28.2	25.703	--	V	--	-15.3	-25.8
134.26	26.2	20.417	--	V	--	-17.3	-27.8
141.53	24.6	16.982	--	V	--	-18.9	-29.4
154.63	33.2	45.708	--	V	--	-10.3	-20.8
160.61	29.3	29.174	--	V	--	-14.2	-24.7
163.14	25.2	18.197	--	H	--	-18.3	-28.8
168.25	30.5	33.496	--	H	--	-13	-23.5
193.27	29.6	30.199	--	H	--	-13.9	-24.4
199.45	30.1	31.988	--	H	--	-13.4	-23.9
200.01	26.5	21.134	--	V	--	-17	-27.5
216.30	26	19.952	--	H	--	-20	-30.9
231.95	27.2	22.908	--	H	--	-18.8	-29.7
233.14	26.4	20.892	--	H	--	-19.6	-30.5
264.41	32	39.810	--	H	--	-14	-24.9
265.84	36.8	69.183	--	H	--	-9.2	-20.1
267.54	30.3	32.734	--	V	--	-15.7	-26.6
287.92	28.1	25.409	--	V	--	-17.9	-28.8
309.26	26.8	21.877	--	V	--	-19.2	-30.1
321.79	29.1	28.510	--	V	--	-16.9	-27.8
332.53	29.2	28.840	--	V	--	-16.8	-27.7
399.31	30.1	31.988	--	V	--	-15.9	-26.8
465.23	36.2	64.565	--	V	--	-9.8	-20.7
498.59	29.4	29.512	--	V	--	-16.6	-27.5
532.07	32.8	43.651	--	V	--	-13.2	-24.1
598.49	29.5	29.853	--	V	--	-16.5	-27.4

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run 5
3 Meter Antenna Distance Date 12/08/98 Page 7
Equipment Under Test: Reviewed FJC_____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/15"x22" ant., 7.5' Coax cable

Measurement Summary (Cont'd)

Frequency	----- Final -----		Azimuth	Polar\		Delta	Delta
MHz	dBuV/m	uV/m	deg	Height		FCC B	FCC A
664.99	29.9	31.260	--	V	--	-16.1	-27
798.74	38.7	86.099	--	V	--	-7.3	-18.2
865.04	33.7	48.417	--	H	--	-12.3	-23.2

Minimum Passing Margin for FCC B is 2.2 dB at 115.97 MHz
Minimum Passing Margin for FCC A is 12.7 dB at 115.97 MHz

File B8539 Run 5

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 6
3 Meter Antenna Distance — Date 12/08/98 Page 1
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Log Vertical									
0 degrees									
216.30	6.95	11.2	2.1	20.2	--	V	--	-25.8	-36.7
264.41	15.8	12.3	2.3	30.4	--	V	--	-15.6	-26.5
265.84	20.35	12.3	2.3	35	--	V	--	-11	-21.9
267.54	13.2	12.4	2.3	28	--	V	--	-18	-28.9
287.92	9.45	13.6	2.5	25.5	--	V	--	-20.5	-31.4
309.26	9.1	15	2.6	26.6	--	V	--	-19.4	-30.3
321.79	7.55	14.7	2.7	24.9	--	V	--	-21.1	-32
465.23	6.55	16.9	3.5	27	--	V	--	-19	-29.9
532.07	5.15	18	3.8	27	--	V	--	-19	-29.9
798.74	8.9	21.5	5.4	35.8	--	V	--	-10.2	-21.1
90 degrees									
200.01	10.2	11.5	2	23.7	--	V	--	-19.8	-30.3
216.30	9	11.2	2.1	22.3	--	V	--	-23.7	-34.6
231.95	8.2	11.1	2.1	21.4	--	V	--	-24.6	-35.5
265.84	20.3	12.3	2.3	35	--	V	--	-11	-21.9
332.53	10.05	14.5	2.7	27.3	--	V	--	-18.7	-29.6
465.23	9.7	16.9	3.5	30.1	--	V	--	-15.9	-26.8
798.74	11.6	21.5	5.4	38.5	--	V	--	-7.5	-18.4
180 degrees									
216.30	9.5	11.2	2.1	22.8	--	V	--	-23.2	-34.1
265.84	21.85	12.3	2.3	36.5	--	V	--	-9.5	-20.4
287.92	12.1	13.6	2.5	28.2	--	V	--	-17.8	-28.7
321.79	10.35	14.7	2.7	27.7	--	V	--	-18.3	-29.2
465.23	15.85	16.9	3.5	36.3	--	V	--	-9.7	-20.6
532.07	10.3	18	3.8	32.2	--	V	--	-13.8	-24.7
270 degrees									
200.01	10.95	11.5	2	24.4	--	V	--	-19.1	-29.6
log horizontal									
0 degrees									
399.31	6.25	15.3	3.1	24.7	--	H	--	-21.3	-32.2
265.84	17.9	12.3	2.3	32.6	--	H	--	-13.4	-24.3

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 6
3 Meter Antenna Distance — Date 12/08/98 Page 2
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
90 degrees									
200.01	10.1	11.5	2	23.6	--	H	--	-19.9	-30.4
216.30	12.7	11.2	2.1	26	--	H	--	-20	-30.9
231.95	12.8	11.1	2.1	26	--	H	--	-20	-30.9
233.14	10.25	11.1	2.2	23.5	--	H	--	-22.5	-33.4
264.41	22.75	12.3	2.3	37.4	--	H	--	-8.6	-19.5
265.84	28.15	12.3	2.3	42.8	--	H	--	-3.2	-14.1
267.54	21.45	12.4	2.3	36.2	--	H	--	-9.8	-20.7
309.26	11	15	2.6	28.5	--	H	--	-17.5	-28.4
321.79	11.6	14.7	2.7	29	--	H	--	-17	-27.9
332.53	13.5	14.5	2.7	30.7	--	H	--	-15.3	-26.2
180 degrees									
200.01	13.1	11.5	2	26.6	--	H	--	-16.9	-27.4
231.95	17.1	11.1	2.1	30.3	--	H	--	-15.7	-26.6
233.14	15.75	11.1	2.2	29	--	H	--	-17	-27.9
287.92	12.85	13.6	2.5	28.9	--	H	--	-17.1	-28
332.53	18.7	14.5	2.7	35.9	--	H	--	-10.1	-21
399.31	9.7	15.3	3.1	28.1	--	H	--	-17.9	-28.8
598.49	6.05	19	4.2	29.3	--	H	--	-16.7	-27.6
270 degrees									
287.92	13.05	13.6	2.5	29.1	--	H	--	-16.9	-27.8
98 degrees, 1.0m									
265.84	27.1	12.3	2.3	41.8	--	H	--	-4.2	-15.1
maxim,ized cables									
265.84	28.15	12.3	2.3	42.8	--	H	--	-3.2	-14.1
Bicon Vertical									
0 degrees									
38.662	8.65	10.8	1	20.5	--	V	--	-19.5	-29
49.671	10.25	11.2	1.1	22.5	--	V	--	-17.5	-27
86.943	12.9	7.8	1.3	22	--	V	--	-18	-27.5
115.97	21.4	15.4	1.5	38.3	--	V	--	-5.2	-15.7
128.86	11	13.4	1.6	26	--	V	--	-17.5	-28
132.84	11.3	13.3	1.6	26.2	--	V	--	-17.3	-27.8
134.00	9.9	13.2	1.6	24.7	--	V	--	-18.8	-29.3
168.25	9.45	15.3	1.8	26.5	--	V	--	-17	-27.5

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 6
3 Meter Antenna Distance — Date 12/08/98 Page 3
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
90 degrees									
38.662	13.4	10.8	1	25.3	--	V	--	-14.7	-24.2
115.97	21.15	15.4	1.5	38	--	V	--	-5.5	-16
128.86	12.1	13.4	1.6	27.1	--	V	--	-16.4	-26.9
132.84	14.2	13.3	1.6	29.1	--	V	--	-14.4	-24.9
133.56	10.6	13.3	1.6	25.4	--	V	--	-18.1	-28.6
154.63	9.9	15.3	1.7	26.9	--	V	--	-16.6	-27.1
160.61	8	15.2	1.7	24.9	--	V	--	-18.6	-29.1
168.25	10.3	15.3	1.8	27.4	--	V	--	-16.1	-26.6
193.27	9.15	16.8	1.9	27.9	--	V	--	-15.6	-26.1
199.45	6.9	17	2	25.8	--	V	--	-17.7	-28.2
180 degrees									
115.97	23.25	15.4	1.5	40.1	--	V	--	-3.4	-13.9
154.63	13.45	15.3	1.7	30.4	--	V	--	-13.1	-23.6
199.45	7.5	17	2	26.4	--	V	--	-17.1	-27.6
270 degrees									
38.662	15.45	10.8	1	27.3	--	V	--	-12.7	-22.2
168.25	11.5	15.3	1.8	28.6	--	V	--	-14.9	-25.4
168 degrees, 1.0m									
115.97	23.55	15.4	1.5	40.4	--	V	--	-3.1	-13.6
maximized cables									
115.97	23.25	15.4	1.5	40.1	--	V	--	-3.4	-13.9
Bicon Horizontal									
0 degrees									
193.27	9.05	16.8	1.9	27.8	--	H	--	-15.7	-26.2
38.662	8.35	10.8	1	20.2	--	H	--	-19.8	-29.3
90 degrees									
115.97	14.65	15.4	1.5	31.5	--	H	--	-12	-22.5
132.84	14.9	13.3	1.6	29.8	--	H	--	-13.7	-24.2
133.56	11.65	13.3	1.6	26.5	--	H	--	-17	-27.5
154.63	12.2	15.3	1.7	29.2	--	H	--	-14.3	-24.8
168.25	11.75	15.3	1.8	28.8	--	H	--	-14.7	-25.2
193.27	11.55	16.8	1.9	30.3	--	H	--	-13.2	-23.7
199.45	8.1	17	2	27	--	H	--	-16.5	-27

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 6
3 Meter Antenna Distance — Date 12/08/98 Page 4
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
180 degrees									
193.27	11.25	16.8	1.9	30	--	H	--	-13.5	-24
199.45	10.6	17	2	29.5	--	H	--	-14	-24.5
270 degrees									
154.63	12.8	15.3	1.7	29.8	--	H	--	-13.7	-24.2

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run 6
3 Meter Antenna Distance Date 12/08/98 Page 5
Equipment Under Test: Reviewed FJC_____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' Coax cable

Measurement Summary

Frequency	----- Final -----		Azimuth	Polar\		Delta	Delta
MHz	dBuV/m	uV/m	deg	Height		FCC B	FCC A
38.662	27.3	23.173	--	V	--	-12.7	-22.2
49.671	22.5	13.335	--	V	--	-17.5	-27
86.943	22	12.589	--	V	--	-18	-27.5
115.97	40.4	104.71	--	V	--	-3.1	-13.6
128.86	27.1	22.646	--	V	--	-16.4	-26.9
132.84	29.8	30.902	--	H	--	-13.7	-24.2
133.56	26.5	21.134	--	H	--	-17	-27.5
134.00	24.7	17.179	--	V	--	-18.8	-29.3
154.63	30.4	33.113	--	V	--	-13.1	-23.6
160.61	24.9	17.579	--	V	--	-18.6	-29.1
168.25	28.8	27.542	--	H	--	-14.7	-25.2
193.27	30.3	32.734	--	H	--	-13.2	-23.7
199.45	29.5	29.853	--	H	--	-14	-24.5
200.01	26.6	21.379	--	H	--	-16.9	-27.4
216.30	26	19.952	--	H	--	-20	-30.9
231.95	30.3	32.734	--	H	--	-15.7	-26.6
233.14	29	28.183	--	H	--	-17	-27.9
264.41	37.4	74.131	--	H	--	-8.6	-19.5
265.84	42.8	138.03	--	H	--	-3.2	-14.1
267.54	36.2	64.565	--	H	--	-9.8	-20.7
287.92	29.1	28.510	--	H	--	-16.9	-27.8
309.26	28.5	26.607	--	H	--	-17.5	-28.4
321.79	29	28.183	--	H	--	-17	-27.9
332.53	35.9	62.373	--	H	--	-10.1	-21
399.31	28.1	25.409	--	H	--	-17.9	-28.8
465.23	36.3	65.313	--	V	--	-9.7	-20.6
532.07	32.2	40.738	--	V	--	-13.8	-24.7
598.49	29.3	29.174	--	H	--	-16.7	-27.6
798.74	38.5	84.139	--	V	--	-7.5	-18.4

Minimum Passing Margin for FCC B is 3.1 dB at 115.97 MHz
Minimum Passing Margin for FCC A is 13.6 dB at 115.97 MHz

File B8539 Run 6

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 7
3 Meter Antenna Distance — Date 12/08/98 Page 1
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/4"x14" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Bicon Vertical									
0 degrees									
38.662	9	10.8	1	20.9	--	V	--	-19.1	-28.6
115.97	19.9	15.4	1.5	36.8	--	V	--	-6.7	-17.2
128.86	11.95	13.4	1.6	26.9	--	V	--	-16.6	-27.1
132.84	12.7	13.3	1.6	27.6	--	V	--	-15.9	-26.4
133.56	9.6	13.3	1.6	24.4	--	V	--	-19.1	-29.6
168.25	8.45	15.3	1.8	25.5	--	V	--	-18	-28.5
90 degrees									
38.662	13.05	10.8	1	24.9	--	V	--	-15.1	-24.6
115.97	19.7	15.4	1.5	36.6	--	V	--	-6.9	-17.4
132.84	15.95	13.3	1.6	30.8	--	V	--	-12.7	-23.2
133.56	12.35	13.3	1.6	27.2	--	V	--	-16.3	-26.8
154.63	11.05	15.3	1.7	28	--	V	--	-15.5	-26
160.61	8.75	15.2	1.7	25.7	--	V	--	-17.8	-28.3
168.25	9.5	15.3	1.8	26.6	--	V	--	-16.9	-27.4
193.27	9.8	16.8	1.9	28.6	--	V	--	-14.9	-25.4
199.45	6.35	17	2	25.3	--	V	--	-18.2	-28.7
180 degrees									
115.97	23.2	15.4	1.5	40.1	--	V	--	-3.4	-13.9
134.26	9.25	13.2	1.6	24.1	--	V	--	-19.4	-29.9
154.63	14.2	15.3	1.7	31.2	--	V	--	-12.3	-22.8
168.25	11	15.3	1.8	28.1	--	V	--	-15.4	-25.9
270 degrees									
38.662	15.65	10.8	1	27.5	--	V	--	-12.5	-22
168.25	10.75	15.3	1.8	27.8	--	V	--	-15.7	-26.2
115.97	23	15.4	1.5	39.9	--	V	--	-3.6	-14.1
176 degrees, 1.0m, maximized									
115.97	23.6	15.4	1.5	40.5	--	V	--	-3	-13.5

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 7
3 Meter Antenna Distance — Date 12/08/98 Page 2
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/4"x14" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Bicon Horizontal									
0 degrees									
168.25	8.65	15.3	1.8	25.7	--	H	--	-17.8	-28.3
193.27	7.45	16.8	1.9	26.2	--	H	--	-17.3	-27.8
90 degrees									
115.97	13.4	15.4	1.5	30.3	--	H	--	-13.2	-23.7
132.84	15.15	13.3	1.6	30	--	H	--	-13.5	-24
133.56	12.05	13.3	1.6	26.9	--	H	--	-16.6	-27.1
134.00	10.7	13.2	1.6	25.5	--	H	--	-18	-28.5
154.63	13.1	15.3	1.7	30.1	--	H	--	-13.4	-23.9
168.25	10.65	15.3	1.8	27.7	--	H	--	-15.8	-26.3
193.27	11.75	16.8	1.9	30.5	--	H	--	-13	-23.5
199.45	8.8	17	2	27.7	--	H	--	-15.8	-26.3
180 degrees									
199.45	9.1	17	2	28	--	H	--	-15.5	-26
270 degrees									
154.63	12.9	15.3	1.7	29.9	--	H	--	-13.6	-24.1
Log Vertical									
0 degrees									
265.84	18.25	12.3	2.3	32.9	--	V	--	-13.1	-24
287.92	12.15	13.6	2.5	28.2	--	V	--	-17.8	-28.7
321.79	10.25	14.7	2.7	27.6	--	V	--	-18.4	-29.3
332.53	12.15	14.5	2.7	29.4	--	V	--	-16.6	-27.5
90 degrees									
200.01	7.05	11.5	2	20.5	--	V	--	-23	-33.5
265.84	27.2	12.3	2.3	41.9	--	V	--	-4.1	-15
264.41	22	12.3	2.3	36.6	--	V	--	-9.4	-20.3
267.54	19.1	12.4	2.3	33.9	--	V	--	-12.1	-23
332.53	16.1	14.5	2.7	33.3	--	V	--	-12.7	-23.6
465.23	11.1	16.9	3.5	31.5	--	V	--	-14.5	-25.4
798.74	10.3	21.5	5.4	37.2	--	V	--	-8.8	-19.7

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 7
3 Meter Antenna Distance — Date 12/08/98 Page 3
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/4"x14" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
180 degrees									
200.01	9.7	11.5	2	23.2	--	V	--	-20.3	-30.8
321.79	14.95	14.7	2.7	32.3	--	V	--	-13.7	-24.6
332.53	22.05	14.5	2.7	39.3	--	V	--	-6.7	-17.6
399.31	12.8	15.3	3.1	31.2	--	V	--	-14.8	-25.7
465.23	15.05	16.9	3.5	35.5	--	V	--	-10.5	-21.4
532.07	10.95	18	3.8	32.8	--	V	--	-13.2	-24.1
270 degrees									
200.01	9.95	11.5	2	23.4	--	V	--	-20.1	-30.6
86 degrees, 1.0m									
265.84	26.8	12.3	2.3	41.5	--	V	--	-4.5	-15.4
Log Horizontal									
0 degrees									
216.30	6.75	11.2	2.1	20	--	H	--	-26	-36.9
231.95	8.95	11.1	2.1	22.2	--	H	--	-23.8	-34.7
265.84	22.8	12.3	2.3	37.5	--	H	--	-8.5	-19.4
90 degrees									
200.01	13.8	11.5	2	27.3	--	H	--	-16.2	-26.7
216.30	13.45	11.2	2.1	26.7	--	H	--	-19.3	-30.2
231.95	15.4	11.1	2.1	28.6	--	H	--	-17.4	-28.3
233.14	14.8	11.1	2.2	28.1	--	H	--	-17.9	-28.8
264.41	22.75	12.3	2.3	37.4	--	H	--	-8.6	-19.5
265.84	27.25	12.3	2.3	41.9	--	H	--	-4.1	-15
267.54	19.6	12.4	2.3	34.4	--	H	--	-11.6	-22.5
180 degrees									
231.95	16.3	11.1	2.1	29.5	--	H	--	-16.5	-27.4
233.14	15.75	11.1	2.2	29	--	H	--	-17	-27.9
287.92	12.05	13.6	2.5	28.1	--	H	--	-17.9	-28.8
309.26	8.95	15	2.6	26.5	--	H	--	-19.5	-30.4
332.53	21.75	14.5	2.7	39	--	H	--	-7	-17.9

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 7
3 Meter Antenna Distance — Date 12/08/98 Page 4
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/4"x14" ant., 7.5' Coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
270 degrees									
233.14	15.4	11.1	2.2	28.7	--	H	--	-17.3	-28.2
287.92	15.8	13.6	2.5	31.9	--	H	--	-14.1	-25
99 degrees, 1.0m									
264.40	22.65	12.3	2.3	37.3	--	H	--	-8.7	-19.6

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run 7
3 Meter Antenna Distance Date 12/08/98 Page 5
Equipment Under Test: Reviewed FJC_____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/4"x14" ant., 7.5' Coax cable

Measurement Summary

Frequency MHz	Final dBuV/m	Final uV/m	Azimuth deg	Polar\ Height		Delta FCC B	Delta FCC A
38.662	27.5	23.713	--	V	--	-12.5	-22
115.97	40.5	105.92	--	V	--	-3	-13.5
128.86	26.9	22.130	--	V	--	-16.6	-27.1
132.84	30.8	34.673	--	V	--	-12.7	-23.2
133.56	27.2	22.908	--	V	--	-16.3	-26.8
134.00	25.5	18.836	--	H	--	-18	-28.5
134.26	24.1	16.032	--	V	--	-19.4	-29.9
154.63	31.2	36.307	--	V	--	-12.3	-22.8
160.61	25.7	19.275	--	V	--	-17.8	-28.3
168.25	28.1	25.409	--	V	--	-15.4	-25.9
193.27	30.5	33.496	--	H	--	-13	-23.5
199.45	28	25.118	--	H	--	-15.5	-26
200.01	27.3	23.173	--	H	--	-16.2	-26.7
216.30	26.7	21.627	--	H	--	-19.3	-30.2
231.95	29.5	29.853	--	H	--	-16.5	-27.4
233.14	29	28.183	--	H	--	-17	-27.9
264.41	37.4	74.131	--	H	--	-8.6	-19.5
265.84	41.9	124.45	--	V	--	-4.1	-15
267.54	34.4	52.480	--	H	--	-11.6	-22.5
287.92	31.9	39.355	--	H	--	-14.1	-25
309.26	26.5	21.134	--	H	--	-19.5	-30.4
321.79	32.3	41.209	--	V	--	-13.7	-24.6
332.53	39.3	92.257	--	V	--	-6.7	-17.6
399.31	31.2	36.307	--	V	--	-14.8	-25.7
465.23	35.5	59.566	--	V	--	-10.5	-21.4
532.07	32.8	43.651	--	V	--	-13.2	-24.1
798.74	37.2	72.443	--	V	--	-8.8	-19.7

Minimum Passing Margin for FCC B is 3 dB at 115.97 MHz
Minimum Passing Margin for FCC A is 13.5 dB at 115.97 MHz

File B8539 Run 7

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 8
3 Meter Antenna Distance — Date 12/08/98 Page 1
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 15' Thinnet coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Bicon Vertical									
0 degrees									
180 degrees									
115.97	24	15.4	1.5	40.9	--	V	--	-2.6	-13.1
171 degrees, 1.0m									
115.9	24.2	15.4	1.5	41.1	--	V	--	-2.4	-12.9
38.662	10.1	10.8	1	22	--	V	--	-18	-27.5
132.84	14.45	13.3	1.6	29.3	--	V	--	-14.2	-24.7
154.63	13.7	15.3	1.7	30.7	--	V	--	-12.8	-23.3
168.25	12.3	15.3	1.8	29.4	--	V	--	-14.1	-24.6
193.27	8.05	16.8	1.9	26.8	--	V	--	-16.7	-27.2
270 degrees									
38.662	15.85	10.8	1	27.7	--	V	--	-12.3	-21.8
134.00	11	13.2	1.6	25.8	--	V	--	-17.7	-28.2
168.25	12	15.3	1.8	29.1	--	V	--	-14.4	-24.9
90 degrees									
132.84	16	13.3	1.6	30.9	--	V	--	-12.6	-23.1
133.56	13.05	13.3	1.6	27.9	--	V	--	-15.6	-26.1
134.00	12.75	13.2	1.6	27.6	--	V	--	-15.9	-26.4
193.27	10.5	16.8	1.9	29.3	--	V	--	-14.2	-24.7
0 degrees									
128.86	12.6	13.4	1.6	27.6	--	V	--	-15.9	-26.4
Bicon Horizontal									
0 degrees									
193.27	8.55	16.8	1.9	27.3	--	H	--	-16.2	-26.7
90 degrees									
132.84	14.8	13.3	1.6	29.7	--	H	--	-13.8	-24.3
154.63	12.85	15.3	1.7	29.8	--	H	--	-13.7	-24.2
193.27	10.85	16.8	1.9	29.6	--	H	--	-13.9	-24.4
199.45	6.2	17	2	25.1	--	H	--	-18.4	-28.9
180 degrees									
134.26	8.25	13.2	1.6	23.1	--	H	--	-20.4	-30.9

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 8
3 Meter Antenna Distance — Date 12/08/98 Page 2
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 15' Thinnet coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
270 degrees									
134.26	9.05	13.2	1.6	23.9	--	H	--	-19.6	-30.1
154.63	14.7	15.3	1.7	31.7	--	H	--	-11.8	-22.3
193.27	10.1	16.8	1.9	28.9	--	H	--	-14.6	-25.1
Log vertical									
0 degrees									
265.84	22.05	12.3	2.3	36.7	--	V	--	-9.3	-20.2
287.92	12.3	13.6	2.5	28.4	--	V	--	-17.6	-28.5
798.74	8.55	21.5	5.4	35.4	--	V	--	-10.6	-21.5
90 degrees									
200.01	8.1	11.5	2	21.6	--	V	--	-21.9	-32.4
216.30	11	11.2	2.1	24.3	--	V	--	-21.7	-32.6
231.95	10.75	11.1	2.1	24	--	V	--	-22	-32.9
321.79	10.55	14.7	2.7	27.9	--	V	--	-18.1	-29
332.53	15.85	14.5	2.7	33.1	--	V	--	-12.9	-23.8
798.74	10.7	21.5	5.4	37.6	--	V	--	-8.4	-19.3
865.04	5.55	22.5	5.7	33.8	--	V	--	-12.2	-23.1
180 degrees									
200.01	8.05	11.5	2	21.5	--	V	--	-22	-32.5
321.79	11.75	14.7	2.7	29.1	--	V	--	-16.9	-27.8
332.53	17.3	14.5	2.7	34.5	--	V	--	-11.5	-22.4
399.31	10.4	15.3	3.1	28.8	--	V	--	-17.2	-28.1
465.23	15.25	16.9	3.5	35.7	--	V	--	-10.3	-21.2
532.07	9.1	18	3.8	31	--	V	--	-15	-25.9
270 degrees									
798.74	10.5	21.5	5.4	37.4	--	V	--	-8.6	-19.5
Log Horizontal									
270 degrees									
216.30	12.8	11.2	2.1	26.1	--	H	--	-19.9	-30.8
231.95	13.2	11.1	2.1	26.4	--	H	--	-19.6	-30.5
287.92	13.45	13.6	2.5	29.5	--	H	--	-16.5	-27.4
180 degrees									
200.01	11.95	11.5	2	25.4	--	H	--	-18.1	-28.6
231.95	14.25	11.1	2.1	27.5	--	H	--	-18.5	-29.4

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 8
3 Meter Antenna Distance — Date 12/08/98 Page 3
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 15' Thinnet coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
265.84	22.2	12.3	2.3	36.9	--	H	--	-9.1	-20
332.53	18.8	14.5	2.7	36	--	H	--	-10	-20.9
90 degrees									
233.14	13.6	11.1	2.2	26.9	--	H	--	-19.1	-30
265.84	25	12.3	2.3	39.7	--	H	--	-6.3	-17.2
264.41	20.8	12.3	2.3	35.4	--	H	--	-10.6	-21.5
267.54	18.6	12.4	2.3	33.4	--	H	--	-12.6	-23.5
287.92	14.55	13.6	2.5	30.6	--	H	--	-15.4	-26.3
309.26	10.95	15	2.6	28.5	--	H	--	-17.5	-28.4
0 degrees									
265.84	20.35	12.3	2.3	35	--	H	--	-11	-21.9
98 degrees, 1.0m, maximized cables									
265.84	26.3	12.3	2.3	41	--	V	--	-5	-15.9

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run 8
3 Meter Antenna Distance Date 12/08/98 Page 4
Equipment Under Test: Reviewed FJC_____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 15' Thinnet coax cable

Measurement Summary

Frequency	----- Final -----		Azimuth	Polar\		Delta	Delta
MHz	dBuV/m	uV/m	deg	Height		FCC B	FCC A
38.662	27.7	24.266	--	V	--	-12.3	-21.8
115.97	41.1	113.50	--	V	--	-2.4	-12.9
128.86	27.6	23.988	--	V	--	-15.9	-26.4
132.84	30.9	35.075	--	V	--	-12.6	-23.1
133.56	27.9	24.831	--	V	--	-15.6	-26.1
134.00	27.6	23.988	--	V	--	-15.9	-26.4
134.26	23.9	15.667	--	H	--	-19.6	-30.1
154.63	31.7	38.459	--	H	--	-11.8	-22.3
168.25	29.4	29.512	--	V	--	-14.1	-24.6
193.27	29.6	30.199	--	H	--	-13.9	-24.4
199.45	25.1	17.988	--	H	--	-18.4	-28.9
200.01	25.4	18.620	--	H	--	-18.1	-28.6
216.30	26.1	20.183	--	H	--	-19.9	-30.8
231.95	27.5	23.713	--	H	--	-18.5	-29.4
233.14	26.9	22.130	--	H	--	-19.1	-30
264.41	35.4	58.884	--	H	--	-10.6	-21.5
265.84	41	112.20	--	V	--	-5	-15.9
267.54	33.4	46.773	--	H	--	-12.6	-23.5
287.92	30.6	33.884	--	H	--	-15.4	-26.3
309.26	28.5	26.607	--	H	--	-17.5	-28.4
321.79	29.1	28.510	--	V	--	-16.9	-27.8
332.53	36	63.095	--	H	--	-10	-20.9
399.31	28.8	27.542	--	V	--	-17.2	-28.1
465.23	35.7	60.953	--	V	--	-10.3	-21.2
532.07	31	35.481	--	V	--	-15	-25.9
798.74	37.6	75.857	--	V	--	-8.4	-19.3
865.04	33.8	48.977	--	V	--	-12.2	-23.1

Minimum Passing Margin for FCC B is 2.4 dB at 115.97 MHz
Minimum Passing Margin for FCC A is 12.9 dB at 115.97 MHz

File B8539 Run 8

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 9
3 Meter Antenna Distance — Date 12/08/98 Page 1
Equipment Under Test: — Engineer
Micron Communications Inc. — Tech: CKP
Micro Badge Industrial Reader — Requester
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' Thinnet coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Log Horizontal									
0 degrees									
231.95	10.55	11.1	2.1	23.8	--	H	--	-22.2	-33.1
233.14	12	11.1	2.2	25.3	--	H	--	-20.7	-31.6
264.41	14.65	12.3	2.3	29.3	--	H	--	-16.7	-27.6
265.84	19.8	12.3	2.3	34.5	--	H	--	-11.5	-22.4
267.54	14.45	12.4	2.3	29.2	--	H	--	-16.8	-27.7
332.53	11.9	14.5	2.7	29.1	--	H	--	-16.9	-27.8
798.74	6.2	21.5	5.4	33.1	--	H	--	-12.9	-23.8
90 degrees									
200.01	10.4	11.5	2	23.9	--	H	--	-19.6	-30.1
231.95	13.7	11.1	2.1	26.9	--	H	--	-19.1	-30
233.14	14.45	11.1	2.2	27.7	--	H	--	-18.3	-29.2
264.41	22.45	12.3	2.3	37.1	--	H	--	-8.9	-19.8
265.84	26.55	12.3	2.3	41.2	--	H	--	-4.8	-15.7
267.54	19.7	12.4	2.3	34.5	--	H	--	-11.5	-22.4
321.79	12.85	14.7	2.7	30.2	--	H	--	-15.8	-26.7
332.53	15.25	14.5	2.7	32.5	--	H	--	-13.5	-24.4
465.23	7.6	16.9	3.5	28	--	H	--	-18	-28.9
180 degrees									
200.01	12.1	11.5	2	25.6	--	H	--	-17.9	-28.4
231.95	16.3	11.1	2.1	29.5	--	H	--	-16.5	-27.4
233.14	15.45	11.1	2.2	28.7	--	H	--	-17.3	-28.2
332.53	18.4	14.5	2.7	35.6	--	H	--	-10.4	-21.3
465.23	9.9	16.9	3.5	30.3	--	H	--	-15.7	-26.6
798.74	5.25	21.5	5.4	32.1	--	H	--	-13.9	-24.8
270 degrees									
287.92	13.9	13.6	2.5	30	--	H	--	-16	-26.9
Log vertical									
270 degrees									
200.01	12	11.5	2	25.5	--	V	--	-18	-28.5
798.74	9.8	21.5	5.4	36.7	--	V	--	-9.3	-20.2

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site
3 Meter Antenna Distance
Equipment Under Test:
Micron Communications Inc.
Micro Badge Industrial Reader
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' Thinnet coax cable

Report B8539 Run 9
Date 12/08/98 Page 2
Engineer
Tech: CKP
Requester

Frequency MHz	Level dB	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
180 degrees									
200.01	12.2	11.5	2	25.7	--	V	--	-17.8	-28.3
216.30	10.3	11.2	2.1	23.6	--	V	--	-22.4	-33.3
332.53	18.3	14.5	2.7	35.5	--	V	--	-10.5	-21.4
399.31	9.8	15.3	3.1	28.2	--	V	--	-17.8	-28.7
465.23	13.85	16.9	3.5	34.3	--	V	--	-11.7	-22.6
532.07	8.85	18	3.8	30.7	--	V	--	-15.3	-26.2
90 degrees									
200.01	12	11.5	2	25.5	--	V	--	-18	-28.5
216.30	10.6	11.2	2.1	23.9	--	V	--	-22.1	-33
798.74	9.7	21.5	5.4	36.6	--	V	--	-9.4	-20.3
0 degrees									
798.74	7.85	21.5	5.4	34.7	--	V	--	-11.3	-22.2
92 degrees, 1.0m, Horizontal									
265.84	24.4	12.3	2.3	39.1	--	H	--	-6.9	-17.8
Bicon Vertical									
0 degrees									
115.97	18.9	15.4	1.5	35.8	--	V	--	-7.7	-18.2
132.84	13.25	13.3	1.6	28.1	--	V	--	-15.4	-25.9
168.25	9.65	15.3	1.8	26.7	--	V	--	-16.8	-27.3
193.27	7.4	16.8	1.9	26.2	--	V	--	-17.3	-27.8
90 degrees									
38.662	12.85	10.8	1	24.7	--	V	--	-15.3	-24.8
115.97	19.6	15.4	1.5	36.5	--	V	--	-7	-17.5
132.84	13.7	13.3	1.6	28.6	--	V	--	-14.9	-25.4
133.56	10.9	13.3	1.6	25.7	--	V	--	-17.8	-28.3
134.00	11.1	13.2	1.6	25.9	--	V	--	-17.6	-28.1
193.27	11	16.8	1.9	29.8	--	V	--	-13.7	-24.2

~~1809 degrees~~ CKP

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site
3 Meter Antenna Distance
Equipment Under Test:
Micron Communications Inc.
Micro Badge Industrial Reader
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' Thinnet coax cable

Report B8539 Run 9
Date 12/08/98 Page 3
Engineer
Tech: CKP
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
180 degrees									
115.97	22.6	15.4	1.5	39.5	--	V	--	-4	-14.5
132.84	13.5	13.3	1.6	28.4	--	V	--	-15.1	-25.6
133.56	11.8	13.3	1.6	26.6	--	V	--	-16.9	-27.4
270 degrees									
38.662	15.3	10.8	1	27.2	--	V	--	-12.8	-22.3
134.00	11.85	13.2	1.6	26.7	--	V	--	-16.8	-27.3
154.63	11.45	15.3	1.7	28.4	--	V	--	-15.1	-25.6
168.25	11.65	15.3	1.8	28.7	--	V	--	-14.8	-25.3
199.45	8.35	17	2	27.3	--	V	--	-16.2	-26.7
~~Bicon Horizontal~~ CKP									
~~270 degrees~~ CKP									
171 degrees, 1.0m, ~~Horizontal~~ Vertical									
115.97	22.6	15.4	1.5	39.5	--	V	--	-4	-14.5
Bicon Horizontal									
270 degrees									
115.97	8.65	15.4	1.5	25.5	--	H	--	-18	-28.5
132.84	9.6	13.3	1.6	24.5	--	H	--	-19	-29.5
154.63	15.6	15.3	1.7	32.6	--	H	--	-10.9	-21.4
168.25	9.85	15.3	1.8	26.9	--	H	--	-16.6	-27.1
180 degrees									
132.84	11.95	13.3	1.6	26.8	--	H	--	-16.7	-27.2
199.45	8.4	17	2	27.3	--	H	--	-16.2	-26.7
90 degrees									
115.97	14.2	15.4	1.5	31.1	--	H	--	-12.4	-22.9
132.84	13.4	13.3	1.6	28.3	--	H	--	-15.2	-25.7
168.25	12.9	15.3	1.8	30	--	H	--	-13.5	-24
193.27	11.95	16.8	1.9	30.7	--	H	--	-12.8	-23.3
199.45	10.25	17	2	29.2	--	H	--	-14.3	-24.8
0 degrees									
193.27	9.55	16.8	1.9	28.3	--	H	--	-15.2	-25.7

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run 9
3 Meter Antenna Distance Date 12/08/98 Page 4
Equipment Under Test: Engineer _____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' Thinnet coax cable

Measurement Summary

Frequency MHz	Final dBuV/m	Final uV/m	Azimuth deg	Polar\ Height	Delta FCC B	Delta FCC A
38.662	27.2	22.908	--	V --	-12.8	-22.3
115.97	39.5	94.406	--	V --	-4	-14.5
132.84	28.6	26.915	--	V --	-14.9	-25.4
133.56	26.6	21.379	--	V --	-16.9	-27.4
134.00	26.7	21.627	--	V --	-16.8	-27.3
154.63	32.6	42.657	--	H --	-10.9	-21.4
168.25	30	31.622	--	H --	-13.5	-24
193.27	30.7	34.276	--	H --	-12.8	-23.3
199.45	29.2	28.840	--	H --	-14.3	-24.8
200.01	25.7	19.275	--	V --	-17.8	-28.3
216.30	23.9	15.667	--	V --	-22.1	-33
231.95	29.5	29.853	--	H --	-16.5	-27.4
233.14	28.7	27.227	--	H --	-17.3	-28.2
264.41	37.1	71.614	--	H --	-8.9	-19.8
265.84	41.2	114.81	--	H --	-4.8	-15.7
267.54	34.5	53.088	--	H --	-11.5	-22.4
287.92	30	31.622	--	H --	-16	-26.9
321.79	30.2	32.359	--	H --	-15.8	-26.7
332.53	35.6	60.255	--	H --	-10.4	-21.3
399.31	28.2	25.703	--	V --	-17.8	-28.7
465.23	34.3	51.88	--	V --	-11.7	-22.6
532.07	30.7	34.276	--	V --	-15.3	-26.2
798.74	36.7	68.391	--	V --	-9.3	-20.2

Minimum Passing Margin for FCC B is 4 dB at 115.97 MHz
Minimum Passing Margin for FCC A is 14.5 dB at 115.97 MHz

File B8539 Run 9

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 10
3 Meter Antenna Distance — Date 12/08/98 Page 1
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' RG174/u coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Bicon Vertical									
0 degrees									
115.97	11.6	15.4	1.5	28.5	--	V	--	-15	-25.5
132.84	10.4	13.3	1.6	25.3	--	V	--	-18.2	-28.7
160.61	9.95	15.2	1.7	26.9	--	V	--	-16.6	-27.1
168.25	8.9	15.3	1.8	26	--	V	--	-17.5	-28
90 degrees									
38.662	12.9	10.8	1	24.8	--	V	--	-15.2	-24.7
132.84	13.2	13.3	1.6	28.1	--	V	--	-15.4	-25.9
133.56	9.9	13.3	1.6	24.7	--	V	--	-18.8	-29.3
134.00	10.25	13.2	1.6	25.1	--	V	--	-18.4	-28.9
193.27	10.85	16.8	1.9	29.6	--	V	--	-13.9	-24.4
199.45	7.7	17	2	26.6	--	V	--	-16.9	-27.4
180 degrees									
115.97	19.35	15.4	1.5	36.2	--	V	--	-7.3	-17.8
134.00	11.7	13.2	1.6	26.5	--	V	--	-17	-27.5
134.26	10.15	13.2	1.6	25	--	V	--	-18.5	-29
154.63	11.95	15.3	1.7	28.9	--	V	--	-14.6	-25.1
270 degrees									
38.662	15.35	10.8	1	27.2	--	V	--	-12.8	-22.3
168.25	10	15.3	1.8	27.1	--	V	--	-16.4	-26.9
193 degrees, 1.0m									
115.97	19.8	15.4	1.5	36.7	--	V	--	-6.8	-17.3
maximized cables									
115.97	21.15	15.4	1.5	38	--	V	--	-5.5	-16
Bicon Horizontal									
0 degrees									
115.97	12.1	15.4	1.5	29	--	H	--	-14.5	-25
90 degrees									
128.86	13.8	13.4	1.6	28.8	--	H	--	-14.7	-25.2
132.84	13.55	13.3	1.6	28.4	--	H	--	-15.1	-25.6
133.56	10.5	13.3	1.6	25.3	--	H	--	-18.2	-28.7
154.63	12.75	15.3	1.7	29.7	--	H	--	-13.8	-24.3
168.25	13.85	15.3	1.8	30.9	--	H	--	-12.6	-23.1

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 10
3 Meter Antenna Distance — Date 12/08/98 Page 2
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' RG174/u coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
193.27	12.5	16.8	1.9	31.3	--	H	--	-12.2	-22.7
199.45	11.55	17	2	30.5	--	H	--	-13	-23.5
180 degrees									
199.45	10.55	17	2	29.5	--	H	--	-14	-24.5
270 degrees									
115.97	13.3	15.4	1.5	30.2	--	H	--	-13.3	-23.8
128.86	13.65	13.4	1.6	28.6	--	H	--	-14.9	-25.4
132.84	15.65	13.3	1.6	30.5	--	H	--	-13	-23.5
133.56	13.1	13.3	1.6	27.9	--	H	--	-15.6	-26.1
134.00	11.6	13.2	1.6	26.4	--	H	--	-17.1	-27.6
134.26	10.55	13.2	1.6	25.4	--	H	--	-18.1	-28.6
154.63	12.75	15.3	1.7	29.7	--	H	--	-13.8	-24.3
193.27	12.45	16.8	1.9	31.2	--	H	--	-12.3	-22.8
Log Horizontal									
270 degrees									
216.30	10.9	11.2	2.1	24.2	--	H	--	-21.8	-32.7
231.95	14.3	11.1	2.1	27.5	--	H	--	-18.5	-29.4
233.14	14.8	11.1	2.2	28.1	--	H	--	-17.9	-28.8
264.41	21.95	12.3	2.3	36.6	--	H	--	-9.4	-20.3
265.84	26.05	12.3	2.3	40.7	--	H	--	-5.3	-16.2
267.54	19.25	12.4	2.3	34	--	H	--	-12	-22.9
287.92	14.1	13.6	2.5	30.2	--	H	--	-15.8	-26.7
321.79	10.5	14.7	2.7	27.9	--	H	--	-18.1	-29
332.53	10.15	14.5	2.7	27.4	--	H	--	-18.6	-29.5
180 degrees									
200.01	14.35	11.5	2	27.8	--	H	--	-15.7	-26.2
231.95	15.6	11.1	2.1	28.8	--	H	--	-17.2	-28.1
309.26	10.3	15	2.6	27.8	--	H	--	-18.2	-29.1
332.53	16.25	14.5	2.7	33.5	--	H	--	-12.5	-23.4
399.31	7.9	15.3	3.1	26.3	--	H	--	-19.7	-30.6
465.23	8.7	16.9	3.5	29.1	--	H	--	-16.9	-27.8
90 degrees									
216.30	11.6	11.2	2.1	24.9	--	H	--	-21.1	-32
264.41	25.55	12.3	2.3	40.2	--	H	--	-5.8	-16.7
265.84	29.5	12.3	2.3	44.2	--	H	--	-1.8	-12.7

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run 10
3 Meter Antenna Distance — Date 12/08/98 Page 3
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' RG174/u coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
267.54	22.7	12.4	2.3	37.5	--	H	--	-8.5	-19.4
309.26	12.75	15	2.6	30.3	--	H	--	-15.7	-26.6
321.79	10.8	14.7	2.7	28.2	--	H	--	-17.8	-28.7
0 degrees									
no higher emissions found									
93 degrees, 1.0m									
265.84	28.85	12.3	2.3	43.5	--	H	--	-2.5	-13.4
Log Vertical									
0 degrees									
798.74	7.75	21.5	5.4	34.6	--	V	--	-11.4	-22.3
90 degrees									
321.79	11.05	14.7	2.7	28.4	--	V	--	-17.6	-28.5
332.53	15.1	14.5	2.7	32.3	--	V	--	-13.7	-24.6
798.74	9.6	21.5	5.4	36.5	--	V	--	-9.5	-20.4
865.04	5.1	22.5	5.7	33.3	--	V	--	-12.7	-23.6
180 degrees									
287.92	14.3	13.6	2.5	30.4	--	V	--	-15.6	-26.5
321.79	11.9	14.7	2.7	29.3	--	V	--	-16.7	-27.6
332.53	19.2	14.5	2.7	36.4	--	V	--	-9.6	-20.5
399.31	10	15.3	3.1	28.4	--	V	--	-17.6	-28.5
465.23	14.3	16.9	3.5	34.7	--	V	--	-11.3	-22.2
532.07	8.95	18	3.8	30.8	--	V	--	-15.2	-26.1
598.49	7	19	4.2	30.2	--	V	--	-15.8	-26.7
270 degrees									
798.74	9.45	21.5	5.4	36.3	--	V	--	-9.7	-20.6

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run 10
3 Meter Antenna Distance Date 12/08/98 Page 4
Equipment Under Test: Reviewed FJC_____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 7.5' RG174/u coax cable

Measurement Summary

Frequency	----- Final -----		Azimuth	Polar\		Delta	Delta
MHz	dBuV/m	uV/m	deg	Height		FCC B	FCC A
38.662	27.2	22.908	--	V	--	-12.8	-22.3
115.97	38	79.432	--	V	--	-5.5	-16
128.86	28.8	27.542	--	H	--	-14.7	-25.2
132.84	30.5	33.496	--	H	--	-13	-23.5
133.56	27.9	24.831	--	H	--	-15.6	-26.1
134.00	26.5	21.134	--	V	--	-17	-27.5
134.26	25.4	18.620	--	H	--	-18.1	-28.6
154.63	29.7	30.549	--	H	--	-13.8	-24.3
160.61	26.9	22.130	--	V	--	-16.6	-27.1
168.25	30.9	35.075	--	H	--	-12.6	-23.1
193.27	31.3	36.728	--	H	--	-12.2	-22.7
199.45	30.5	33.496	--	H	--	-13	-23.5
200.01	27.8	24.547	--	H	--	-15.7	-26.2
216.30	24.9	17.579	--	H	--	-21.1	-32
231.95	28.8	27.542	--	H	--	-17.2	-28.1
233.14	28.1	25.409	--	H	--	-17.9	-28.8
264.41	40.2	102.32	--	H	--	-5.8	-16.7
265.84	44.2	162.18	--	H	--	-1.8	-12.7
267.54	37.5	74.989	--	H	--	-8.5	-19.4
287.92	30.4	33.113	--	V	--	-15.6	-26.5
309.26	30.3	32.734	--	H	--	-15.7	-26.6
321.79	29.3	29.174	--	V	--	-16.7	-27.6
332.53	36.4	66.069	--	V	--	-9.6	-20.5
399.31	28.4	26.302	--	V	--	-17.6	-28.5
465.23	34.7	54.325	--	V	--	-11.3	-22.2
532.07	30.8	34.673	--	V	--	-15.2	-26.1
598.49	30.2	32.359	--	V	--	-15.8	-26.7
798.74	36.5	66.834	--	V	--	-9.5	-20.4
865.04	33.3	46.238	--	V	--	-12.7	-23.6

Minimum Passing Margin for FCC B is 1.8 dB at 265.84 MHz
Minimum Passing Margin for FCC A is 12.7 dB at 265.84 MHz

File B8539 Run 10

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run B
3 Meter Antenna Distance — Date 12/08/98 Page 1
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' RG174/u coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Log Horizontal									
0 degrees									
231.95	9.7	11.1	2.1	22.9	--	H	--	-23.1	-34
233.14	8.15	11.1	2.2	21.4	--	H	--	-24.6	-35.5
264.41	17.85	12.3	2.3	32.5	--	H	--	-13.5	-24.4
265.84	22	12.3	2.3	36.7	--	H	--	-9.3	-20.2
267.54	16.65	12.4	2.3	31.4	--	H	--	-14.6	-25.5
90 degrees									
200.01	9.05	11.5	2	22.5	--	H	--	-21	-31.5
231.95	13.6	11.1	2.1	26.8	--	H	--	-19.2	-30.1
264.41	21.1	12.3	2.3	35.7	--	H	--	-10.3	-21.2
265.84	24.8	12.3	2.3	39.5	--	H	--	-6.5	-17.4
267.54	19.15	12.4	2.3	33.9	--	H	--	-12.1	-23
321.79	12.7	14.7	2.7	30.1	--	H	--	-15.9	-26.8
332.53	15.8	14.5	2.7	33	--	H	--	-13	-23.9
180 degrees									
200.01	13.05	11.5	2	26.5	--	H	--	-17	-27.5
231.95	15.9	11.1	2.1	29.1	--	H	--	-16.9	-27.8
233.14	15.6	11.1	2.2	28.9	--	H	--	-17.1	-28
264.41	22.75	12.3	2.3	37.4	--	H	--	-8.6	-19.5
265.84	26.65	12.3	2.3	41.3	--	H	--	-4.7	-15.6
267.54	19.8	12.4	2.3	34.6	--	H	--	-11.4	-22.3
332.53	20.45	14.5	2.7	37.7	--	H	--	-8.3	-19.2
399.31	6.7	15.3	3.1	25.1	--	H	--	-20.9	-31.8
465.23	7.55	16.9	3.5	28	--	H	--	-18	-28.9
270 degrees									
200.01	13.45	11.5	2	26.9	--	H	--	-16.6	-27.1
287.92	12.9	13.6	2.5	29	--	H	--	-17	-27.9
202 degrees, 1.0m									
265.84	27.75	12.3	2.3	42.4	--	H	--	-3.6	-14.5
maximized cables									
265.84	28.95	12.3	2.3	43.6	--	V	--	-2.4	-13.3

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run B
3 Meter Antenna Distance — Date 12/08/98 Page 2
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' RG174/u coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
Log Vertical									
Log Vertical									
270 degrees									
200.01	12.95	11.5	2	26.4	--	V	--	-17.1	-27.6
465.23	9.3	16.9	3.5	29.7	--	V	--	-16.3	-27.2
798.74	10.5	21.5	5.4	37.4	--	V	--	-8.6	-19.5
180 degrees									
265.84	22.8	12.3	2.3	37.5	--	V	--	-8.5	-19.4
267.54	17.65	12.4	2.3	32.4	--	V	--	-13.6	-24.5
321.79	13.8	14.7	2.7	31.2	--	V	--	-14.8	-25.7
332.53	20	14.5	2.7	37.2	--	V	--	-8.8	-19.7
399.31	9.15	15.3	3.1	27.6	--	V	--	-18.4	-29.3
465.23	14.7	16.9	3.5	35.1	--	V	--	-10.9	-21.8
532.07	7.8	18	3.8	29.7	--	V	--	-16.3	-27.2
90 degrees									
200.01	12.7	11.5	2	26.2	--	V	--	-17.3	-27.8
264.41	23.25	12.3	2.3	37.9	--	V	--	-8.1	-19
267.54	20.45	12.4	2.3	35.2	--	V	--	-10.8	-21.7
865.04	4.95	22.5	5.7	33.2	--	V	--	-12.8	-23.7
0 degrees									
no higher emissions observed									
183 degrees, 1.0m									
332.53	20.6	14.5	2.7	37.8	--	V	--	-8.2	-19.1
Bicon Vertical									
0 degrees									
38.662	8.95	10.8	1	20.8	--	V	--	-19.2	-28.7
115.97	15.8	15.4	1.5	32.7	--	V	--	-10.8	-21.3
132.84	14.35	13.3	1.6	29.2	--	V	--	-14.3	-24.8
133.56	11.45	13.3	1.6	26.3	--	V	--	-17.2	-27.7
134.00	10.65	13.2	1.6	25.5	--	V	--	-18	-28.5
193.27	8.65	16.8	1.9	27.4	--	V	--	-16.1	-26.6
199.45	6.05	17	2	25	--	V	--	-18.5	-29

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run B
3 Meter Antenna Distance — Date 12/08/98 Page 3
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' RG174/u coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
90 degrees									
38.662	11.85	10.8	1	23.7	--	V	--	-16.3	-25.8
115.97	18.85	15.4	1.5	35.7	--	V	--	-7.8	-18.3
128.86	13.7	13.4	1.6	28.7	--	V	--	-14.8	-25.3
132.84	16.35	13.3	1.6	31.2	--	V	--	-12.3	-22.8
133.56	12.95	13.3	1.6	27.8	--	V	--	-15.7	-26.2
134.00	12.2	13.2	1.6	27	--	V	--	-16.5	-27
134.26	9.95	13.2	1.6	24.8	--	V	--	-18.7	-29.2
193.27	12.45	16.8	1.9	31.2	--	V	--	-12.3	-22.8
199.45	8.2	17	2	27.1	--	V	--	-16.4	-26.9
180 degrees									
115.97	22.05	15.4	1.5	38.9	--	V	--	-4.6	-15.1
134.00	11.45	13.2	1.6	26.3	--	V	--	-17.2	-27.7
270 degrees									
38.662	14.35	10.8	1	26.2	--	V	--	-13.8	-23.3
199.45	10.05	17	2	29	--	V	--	-14.5	-25
166 degrees, 1.0m									
115.97	22.2	15.4	1.5	39.1	--	V	--	-4.4	-14.9
Bicon Horizontal									
270 Degrees									
115.97	11.6	15.4	1.5	28.5	--	H	--	-15	-25.5
132.84	10.3	13.3	1.6	25.2	--	H	--	-18.3	-28.8
133.56	8.3	13.3	1.6	23.1	--	H	--	-20.4	-30.9
134.00	7.6	13.2	1.6	22.4	--	H	--	-21.1	-31.6
154.63	12.7	15.3	1.7	29.7	--	H	--	-13.8	-24.3
180 degrees									
132.84	11.15	13.3	1.6	26	--	H	--	-17.5	-28
133.56	8.75	13.3	1.6	23.6	--	H	--	-19.9	-30.4
134.00	7.45	13.2	1.6	22.3	--	H	--	-21.2	-31.7
199.45	9.25	17	2	28.2	--	H	--	-15.3	-25.8

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site — Report B8539 Run B
3 Meter Antenna Distance — Date 12/08/98 Page 4
Equipment Under Test: — Reviewed FJC_____
Micron Communications Inc. — Tech: CKP_____
Micro Badge Industrial Reader — Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' RG174/u coax cable

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height		Delta FCC B	Delta FCC A
90 degrees									
115.97	15.3	15.4	1.5	32.2	--	H	--	-11.3	-21.8
168.25	9.85	15.3	1.8	26.9	--	H	--	-16.6	-27.1
199.45	9.2	17	2	28.1	--	H	--	-15.4	-25.9
0 degrees									
No higher emissions observed									

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW2 Test Site Figure____ Report B8539 Run B
3 Meter Antenna Distance Date 12/08/98 Page 5
Equipment Under Test: Reviewed FJC_____
Micron Communications Inc. Tech: CKP_____
Micro Badge Industrial Reader Requester_____
Notes: M/N: MBIR, S/N: 01, w/8"x22" ant., 25' RG174/u coax cable

Measurement Summary

Frequency MHz	Final dBuV/m	Final uV/m	Azimuth deg	Polar\ Height		Delta FCC B	Delta FCC A
38.662	26.2	20.417	--	V	--	-13.8	-23.3
115.97	39.1	90.157	--	V	--	-4.4	-14.9
128.86	28.7	27.227	--	V	--	-14.8	-25.3
132.84	31.2	36.307	--	V	--	-12.3	-22.8
133.56	27.8	24.547	--	V	--	-15.7	-26.2
134.00	27	22.387	--	V	--	-16.5	-27
134.26	24.8	17.378	--	V	--	-18.7	-29.2
154.63	29.7	30.549	--	H	--	-13.8	-24.3
168.25	26.9	22.130	--	H	--	-16.6	-27.1
193.27	31.2	36.307	--	V	--	-12.3	-22.8
199.45	29	28.183	--	V	--	-14.5	-25
200.01	26.9	22.130	--	H	--	-16.6	-27.1
231.95	29.1	28.510	--	H	--	-16.9	-27.8
233.14	28.9	27.861	--	H	--	-17.1	-28
264.41	37.9	78.523	--	V	--	-8.1	-19
265.84	43.6	151.35	--	V	--	-2.4	-13.3
267.54	35.2	57.544	--	V	--	-10.8	-21.7
287.92	29	28.183	--	H	--	-17	-27.9
321.79	31.2	36.307	--	V	--	-14.8	-25.7
332.53	37.8	77.624	--	V	--	-8.2	-19.1
399.31	27.6	23.988	--	V	--	-18.4	-29.3
465.23	35.1	56.885	--	V	--	-10.9	-21.8
532.07	29.7	30.549	--	V	--	-16.3	-27.2
798.74	37.4	74.131	--	V	--	-8.6	-19.5
865.04	33.2	45.708	--	V	--	-12.8	-23.7

Minimum Passing Margin for FCC B is 2.4 dB at 265.84 MHz
Minimum Passing Margin for FCC A is 13.3 dB at 265.84 MHz

File B8539 Run B

TUV PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
MICRON COMM., MDL: MBIR, S/N: 01, 120VAC/60HZ
LINE, USING 4"X14" ANTENNA, 15' RG174/U CABLE

Report: B8539 Run C
Date: 09-DEC-98 Page 1
Engineer
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA FCC CLASS B
0.485	24.0	-24.0
1.374	24.0	-24.0
5.74	33.0	-15.0
12.49	38.0	-10.0
12.62	39.0	-9.0
12.74	42.0	-6.0
12.87	39.0	-9.0
17.96	27.0	-21.0

Minimum Passing Margin for FCC CLASS B is 6 dB at 12.7 MHz

File B8539 Run C

TUV PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
MICRON COMM., MDL: MBIR, S/N: 01, 120VAC/60HZ
NEUTRAL, USING 4"X14" ANTENNA, 15' RG174/U CABLE

Report: B8539 Run D
Date: 09-DEC-98 Page 1
Engineer
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA FCC CLASS B
0.525	24.0	-24.0
1.370	25.0	-23.0
5.75	34.0	-14.0
12.62	37.0	-11.0
12.75	41.0	-7.0
12.87	40.0	-8.0
12.99	38.0	-10.0
17.36	28.0	-20.0

Minimum Passing Margin for FCC CLASS B is 7 dB at 12.7 MHz

File B8539 Run D

TUV PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
MICRON COMM., MDL: MBIR, S/N: 01, 120VAC/60HZ
NEUTRAL, USING 15"X22" ANTENNA, 15' THINNET CABLE

Report: B8539 Run E
Date: 09-DEC-98 Page 1
Engineer _____
Tech _____

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA FCC CLASS B
1.120	23.0	-25.0
1.370	33.0	-15.0
1.490	24.0	-24.0
5.49	40.0	-8.0
5.62	40.0	-8.0
11.12	38.0	-10.0
11.24	39.0	-9.0
11.49	38.0	-10.0
11.62	37.0	-11.0
18.04	34.0	-14.0

Minimum Passing Margin for FCC CLASS B is 8 dB at 5.4 MHz

File B8539 Run E

TUV PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
MICRON COMM., MDL: MBIR, S/N: 01, 120VAC/60HZ
LINE, USING 15"X22" ANTENNA, 15' THINNET CABLE

Report: B8539 Run F
Date: 09-DEC-98 Page 1
Engineer
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA FCC CLASS B
0.525	23.0	-25.0
1.250	22.0	-26.0
1.370	33.0	-15.0
5.49	40.0	-8.0
5.62	39.0	-9.0
10.87	37.0	-11.0
11.12	38.0	-10.0
11.24	38.0	-10.0
11.49	37.0	-11.0
19.37	31.0	-17.0

Minimum Passing Margin for FCC CLASS B is 8 dB at 5.4 MHz

File B8539 Run F

TUV PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
MICRON COMM., MDL: MBIR, S/N: 01, 120VAC/60HZ
LINE, USING 8"X22" ANTENNA, 15' THINNET CABLE

Report: B8539 Run G
Date: 09-DEC-98 Page 1
Engineer
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA FCC CLASS B
0.485	24.0	-24.0
1.374	31.0	-17.0
1.499	27.0	-21.0
5.75	35.0	-13.0
6.12	31.0	-17.0
10.86	38.0	-10.0
10.98	39.0	-9.0
11.11	38.0	-10.0
18.04	36.0	-12.0

Minimum Passing Margin for FCC CLASS B is 9 dB at 10.9 MHz

File B8539 Run G

TUV PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
MICRON COMM., MDL: MBIR, S/N: 01, 120VAC/60HZ
NEUTRAL, USING 8"X22" ANTENNA, 15' THINNET CABLE

Report: B8539 Run H
Date: 09-DEC-98 Page 1
Engineer
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA FCC CLASS B
0.525	23.0	-25.0
1.370	32.0	-16.0
1.490	26.0	-22.0
5.50	35.0	-13.0
5.75	35.0	-13.0
5.87	33.0	-15.0
10.73	37.0	-11.0
10.86	39.0	-9.0
10.98	39.0	-9.0
11.11	39.0	-9.0
11.23	38.0	-10.0
18.03	36.0	-12.0

Minimum Passing Margin for FCC CLASS B is 9 dB at 10.8 MHz

File B8539 Run H

Appendix C

Test Plan

and

Constructional Data Form

Test Plan
for Electromagnetic Compatibility Testing

General Information (if you need assistance completing this form contact your TÜV Product Service representative.)

Company:	**Micron Communication**	Quote Number:	
Contact:	**Jack Henry**	Phone: (business hrs)	**208-333-7464**
E-mail Address:	**jhenry@micron.com**	Phone: (after hrs)	**208-345-8901**

Product Description

Description: **MicroBadge Anti-Collision RFID Reader**

Model Number: **MB-A-C** Serial Number: **01**

Test Objective

- ☐ EMC Directive 89/336/EEC (EMC)
- ☐ Machinery Directive 89/392/EEC (EMC
- ☐ Medical Device Directive 93/42/EEC (EMC)
- ☒ FCC **15** Part **209** (list)
- ☐ Vehicle Directive 72/245/EEC (EMC)
- ☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)
- ☐ Other _____ (list)

Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

Failure

If a failure occurs, TUV Product Service should:

- ☐ Call contact listed above, if not available then stop testing.
- ☐ Continue testing to complete test series.
- ☒ Continue testing to define corrective action.
- ☐ Stop testing.

Authorization

Mark Tuttle Customer authorization to perform tests according to this test plan.	**12/15/98** Date
Test Plan Prepared By (please print)	Date
Shawn Singh Reviewed by TÜV Product Service Associate	**1/4/98** Date

Test Plan
for Electromagnetic Compatibility Testing

Equipment Under Test Transportation

☒ Transportation between sites by customer.
☐ Other (consult your TÜV Product Service representative)

Dimensions and Weight

Length **3.5"** Width **4.5"**

Height **2.2"** Weight **9 oz.**

Facilities

Power Requirements

☐	230 VAC 50 Hz	Single Phase		Amps
☐	400 VAC 50 Hz	Three Phase		Amps per phase
☒	120 VAC 60 Hz	Single Phase	**0.200**	Amps
☐	208 VAC 60 Hz	Three Phase		Amps per phase
☐		VDC		Amps
☐	Battery	VDC	Expected life	hours
☐	Other			

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Other

☐ Air cfm psi ☐ Water gpm psi
☐ Other (describe)

Test Plan Attachments

Constructional *Data Form (CDF)* * The CDF is required for all test plans.
☒ Applicable (attached)

Immunity Test Plan Details
☐ Applicable (attached) ☐ N/A

Emissions Test Plan Details
☐ Applicable (attached) ☐ N/A

On Site Test Plan Details
☐ Applicable (attached) ☐ N/A

Constructional Data Form
for Electromagnetic Compatibility Testing

A completed form helps ensure that product testing will go smoothly. Add attachments as necessary for additional documentation. For additional help, please contact your TÜV Product Service Representative.

Press TAB to go to the next field.

Applicant -- Enter company information pertaining to the location where the product is manufactured and for the manufacturer's contact soliciting the testing.

Company: **Micron Communications, Inc.**

Address: **3176 S. Denver Way**

Boise, Idaho 83707-0006

Phone: **208-333-7464** Fax: **208-333-7445**

Contact: **Jack C. Henry** Position: **Regulatory Complicance Manager**

General Equipment Description -- Indicate which attachments you are providing with this document. It is recommended that you provide those listed.

Type of Equipment: **MicroBadge Anti-Collision RFID Reader** Model No.: **MB-A-C**

Serial No.: **01** FCC ID No.: **LC6-MB-A-C**

General description: **The MicroBadge Anti-Collision RFID reader is a self-contained low frequency reader for powering and interrogating passive RFID transponders. The reader is configured to interface with other electronic devices via an RS-232 or RS-485 connection.**

Product Variant/Options: **Two different product casing: desktop and industrial versions.**

Three external antennas.

Attachments: (only required for certification)

☒ External Photographs ☒ Product Literature ☐ High Level Bill of Materials

Press TAB to go to the next field. Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 12/15/98 **Signature of Applicant:**

Constructional Data Form
for Electromagnetic Compatibility Testing

Installation and Environmental Conditions (describe) -- Describe the intended installation. Include details such as power connection and system grounding approaches. Describe the intended operating environment, include details such as humidity, cooling, heating and hazardous environments. Attaching a copy of an Installation manual is recommended for proper documentation of your system. Please indicate.

Installation: Power connector is a standard class 2 transformer (plug in). There is a DB9 connection to a computer.

Intended operation environment: Industrial, dry, non hazardous, any humidity, and temperature
-40 degree C to 70 degree C.

☒ Installation manual/instructions (attached, only required for certification)

Power Requirements -- Indicate your system power requirements for the equipment to be tested.

Rated Voltage **12 VDC** Rated Input Power _____

Protection Class -- Indicate your product's protection class. Contact your TÜV Product Service representative and is only required for certification.

Type: _____ Class: _____

Press TAB to go to the next field. Date and sign each page of the CDF. Original signatures must be present on each page.

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TÜV PRODUCT SERVICE

I/O Ports and Cables

Indicate all interface cables which can be attached to the equipment even if they are not sold as part of your system. Describe the port (e.g., Parallel, Serial, SCSI), list its type (e.g., AC, DC, Signal, Control) and number of ports/cables of type. Indicate if the I/O port is to be exercised during testing. List the type of transmission and if the cable is an EUT assembly-to-assembly interconnection cable (PC to printer, to modem). Indicate whether the cable is shielded or not, type of shield (e.g. Braid, Foil) and how terminated (e.g. 360 degree to conductive shell, pigtail) at both ends of the cable. If a cable can have a typical length of ≥ 3.0 meters, then it is required to test with a cable of at least 3.0 meters.

I/O Ports and Cables

Description: **RS232 (Standard Type) and RS485**

Type of Port: **RS232 or RS485** # of ports/cables of type **1**

Exercised during testing?	☒	Yes	☐	No
Assembly ↔ Assembly Interconnect	☐	Yes	☒	No
Cable shielded:	☒	Yes	☐	No

Shield Type (describe) **Standard**

Termination: (describe) **DB9**

Transmission Type: ☐ Analog ☒ Digital

Length of cable: **6'** Maximum: **6'** Tested:**6'**

I/O Ports and Cables

Description: **RG-174 Coaxial Cable (Antenna Cable)**

Type of Port: # of ports/cables of type

Exercised during testing?	☒	Yes	☐	No
Assembly ↔ Assembly Interconnect	☐	Yes	☒	No
Cable shielded:	☒	Yes	☐	No

Shield Type (describe) **Braid (Single-Shielded)**

Termination: (describe) **360 Degrees**

Transmission Type: ☐ Analog ☒ Digital

Length of cable: **7.5'** Maximum: **25'** Tested: **7.5', 15', 25'**

I/O Ports and Cables

Description: **Thin Net Coaxial Cable (Antenna Cable)**

Type of Port: # of ports/cables of type

Exercised during testing?	☒	Yes	☐	No
Assembly ↔ Assembly Interconnect	☐	Yes	☒	No
Cable shielded:	☒	Yes	☐	No

Shield Type (describe) **Braid (Double-Shielded)**

Termination: (describe) **360 Degrees**

Transmission Type: ☐ Analog ☒ Digital

Length of cable: **7.5'** Maximum: **25'** Tested: **7.5', 15', 25'**

Press TAB to go to the next field. Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 12/15/98 **Signature of Applicant:**

Constructional Data Form
for Electromagnetic Compatibility Testing

EUT configurations -- Provide a technical description of all possible EUT configurations. Specify if more than one configuration is to be tested.

RS232 output to PC with hyperterminal software.
RS485 output to PC with hyperterminal software

EUT Software and Operation Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. Consult with your TÜV Product Service Representative when typical operating modes are not practical. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. This pattern must be sent to the parallel port device, serial port device, and must be write/read/verified to each storage device. Monitors must display the H pattern, typically in white letters on a black background. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing.

General Description: (describe) **Hyperterminal/Win95**

Software Revision Level: (list and describe) **N/A**

Operating modes to be tested: (list and describe) **On**

☒ Operation manual/instructions (attached)

Press TAB to go to the next field. Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 12/15/98 **Signature of Applicant:**

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System, Subsystem, Major Subassemblies or Internal Peripherals -- List and describe all system, subsystem, major subassemblies and all internal peripherals. This should include such things as an external monitor, parallel interface peripheral, serial interface peripheral, internal disk drives or internal circuit boards. It is recommended that circuit diagrams, assembly and subassembly drawings be attached. Please indicate.

Description	*Model #*	*Serial #*	*FCC ID #*
15 x 22 Pnael Antenna	**MP0068**	**24169/016**	
8 x 22 Panel Antenna	**MP0063**	**001**	
4 x 14 Panel Antenna	**MP0093**	**001**	

☐ **Technical Drawings attached**

Interfacing Equipment and/or Simulators (which are not part of the EUT) -- List and Describe all equipment or peripherals that will be connected to the EUT. For FCC testing a minimum configuration is required. If you have questions about this minimum configuration contact your TÜV Product Service representative.

Description	*Model #*	*Serial #*	*FCC ID #*
Micron PC	**M1000-13-TFT**	**56402599**	**JBQM1000PC**
Micron AC Adapter	**310-0073-00**	**3102540770469**	**N/A**
HP Printer	**560C**	**US4B4150X0**	**B94C2121X**

Press TAB to go to the next field. Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 12/15/98 **Signature of Applicant:**

Constructional Data Form
for Electromagnetic Compatibility Testing

EMC System Details -- List all frequencies and sub-harmonics which are 10kHz or above for such things as oscillators, horizontal line rate of monitors, and clock rates of incorporated OEM assemblies. List all power supplies. Indicate switching frequencies. List power line filters and indicate the manufacturer, model and location on EUT. Indicate all components used for high frequency noise reduction. (e.g., ceramic capacitor, 0.01µF, 1 ea. at C12 - C20).

Oscillator Frequencies

Frequency	*Sub-harmonics*	*EUT Location*	*Description of Use*
16 MHz		**Motherboard, Y1**	**uP Clock**
125 kHz		**Motherboard**	**Int.to Transponder omm.**

Power Supply

Frequency	*Manufacturer*	*Model #*	*Serial #*	*Type (list frequency)*
	Phihong	**PSA-300-150**	**C73911910D3**	**AC Adapter**

Power Line Filters

Manufacturer	*Model #*	*Qty*	*Location on EUT*

Critical EMI Components (Capacitors, ferrites, etc.)

Description	*Manufacturer*	*Part # or Value*	*Qty*	*Location on EUT*

Press TAB to go to the next field. Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 12/15/98 **Signature of Applicant:**

TÜV PRODUCT SERVICE INC 40 Meadow Road Pinewood Springs, Lyons, CO 80540 Tel: 303 786 7999 Fax: 303 449 3004 Rev.No 1.0

Constructional Data Form
for Electromagnetic Compatibility Testing

Other EMI Critical Construction Detail -- Indicate any other measures taken to reduce high frequency noise, (e.g., grounding the circuit board on the right rear corner with 0.25" braid, 3 inches long to the chassis).

Description of Enclosure -- Describe the principle materials of the enclosure (e.g., plastic, plastic with shielding material, metal, metal with specific shielding contact points, metal with paint on all surfaces).

Plastic

Press TAB to go to the next field. Date and sign each page of the CDF. Original signatures must be present on each page.

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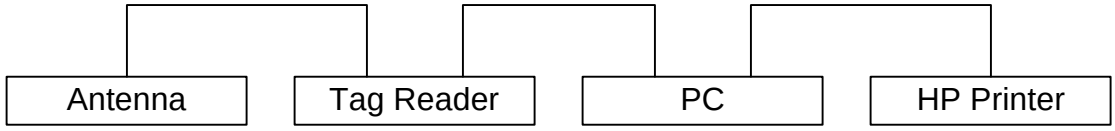
Constructional Data Form
for Electromagnetic Compatibility Testing

System Configuration Block Diagram -- Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.



Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 12/15/98 **Signature of Applicant:**

Appendix D

Measurement of Protocol

MEASUREMENT PROTOCOL FOR FCC

GENERAL INFORMATION

Measurement Uncertainty

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. These test systems have a measurement uncertainty of ±4.5 dB. The equipment comprising the test systems are calibrated on an annual basis.

Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into it's characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

CONDUCTED EMISSIONS

The final level, expressed in dBµV, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the FCC limit.

To convert between dBµV and µV, the following conversions apply:

dBµV = 20(log µV)

µV = Inverse log(dBµV/20)

RADIATED EMISSIONS

The final level, expressed in dBµV/m, is arrived at by taking the reading from the spectrum analyzer (Level dBµV) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has the FCC limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets in Attachment B. The amplifier gain is automatically accounted for by using an analyzer offset.

Example:

Frequency (MHz)	Level (dBµV)	+	Factor & Cable (dB)	=	Final (dBµV/m)	-	FCC B Limit (dBµV/m)	=	Delta FCC B (dB)
32.21	13.9	+	16.3	=	30.2	-	40.0	=	-9.8

DETAILS OF TEST PROCEDURES

General Standard Information

The test methods used comply with ANSI C63.4-1992 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

Conducted Emissions

Conducted emissions on the 60 Hz power interface of the EUT are measured in the frequency range of 450 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω/50 μH (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver or spectrum analyzer with quasi-peak and average detection and recorded on the data sheets.

Magnetic Field Radiated Emissions

Magnetic field radiated emissions from the EUT are measured in the frequency range of 9 kHz to 30 MHz using a spectrum analyzer and loop antenna. Measurements between 9 kHz and 30 MHz are made with 10 kHz/6 dB bandwidth and peak or quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, and the EUT are rotated 360 degrees.

Electric Field Radiated Emissions

Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3 meters horizontally from the EUT . To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees. Intentional radiators are rotated through three orthogonal axes to determine the attitude that maximizes the emissions.

Appendix E

Test Setup Photographs
(see attached photos)

Test Setup Photo(s)
Conducted Emissions

Test Setup Photo(s)
Radiated Emissions

Test Setup Photo(s)
Radiated Emissions