Appendix B

RADIATED MEASUREMENT INFORMATION

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0384

B.1 Radiated Measurement Photos

CDR REPEATER, 1 ch x 4W (A Band)

Part 2, Paragraph 2.993 and Part 24, Paragraph 24.238

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B.2 RADIATED MEASUREMENT TEST SETUP (see photos)

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B.3 RADIATED EMISSION DATA

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

CDR REPEATER, 1 ch x 4W (A Band) (Part 2, Paragraph 2.993)
CDR REPEATER, 1 ch x 7.1W (A, B, C, D, and E/F Bands) (Part 2, Paragraph 2.993, Part 24, Paragraph 24.238)
CDR REPEATER, 2 ch x 1W (B Band)
CDR REPEATER, 2 ch x 2W (B Band)

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dm SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1 ch X 4W A-Band TEST SITE: 3

EUT MODE: mormal - full power output BICONICAL: N/A

DATE: 21-Jun-98 LOG PERIODIC: N/A

NOTES: RBW & VBW 1MHz OTHER: 251

EUT in UPLINK Mode (2W) FCC ID LB41900CDMA

LNA Miteq AFD3-0208-40-ST #367

Coax # 657 & 665

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1863.75	37.6		45.6		32.8	78.4						0	1.5	
3727.47	-2.4		-5		39.7	37.3		84.4		-47.1				
5591.19	-5		-1.6		43.6	42.0		84.4		-42.4				
7454.91	1.5		2.5		46.4	48.9		84.4		-35.5				
9318.63					49.0	49.0		84.4		-35.4				
1857.5	33.9		37.1		32.7	69.8				69.82		0	1.5	
3715	-6		-1.2		39.6	38.4		84.4		-46				
5572.5	-2.5		-3.2		43.6	41.1		84.4		-43.3				
7430	2.2		1.5		46.3	48.5		84.4		-35.9				
9287.5					49.1	49.1		84.4		-35.3				
1851.25	43.8		41.6		32.7	76.5				76.48		0	1.5	
3702.5	4.8		6.4		39.6	46.0		84.4		-38.4				
5553.75	0.9		1.3		43.6	44.9		84.4		-39.5				
7405	5.1		5		46.3	51.4		84.4		-33				
9256.25	4.3		4.8		49.2	54.0		84.4		-30.4				

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TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dm SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1 ch X 4W A-Band TEST SITE: 3

EUT MODE: mormal - full power output BICONICAL: N/A

DATE: 22-Jun-98 LOG PERIODIC: N/A

NOTES: RBW & VBW 1MHz OTHER: 251

EUT in DOWNLINK Mode (4W) FCC ID LB41900CDMA

LNA Miteq AFD3-0208-40-ST #367

Coax # 657 & 665

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1931.25	47.8		46.9		33.2	81.0				80.97		0	1.5	
3862.5	-1.9		-1.2		40.4	39.2		84.4		-45.2				
5793.75	-2.3		-2.6		43.9	41.6		84.4		-42.8				
7725	1.9		1.9		46.8	48.7		84.4		-35.7				
9656.25					48.6	48.6		84.4		-35.8				
1937.5	47.5		45.7		33.2	80.7				80.71		0	1.5	
3875	-3.9		-4.1		40.5	36.6		84.4		-47.9				
5812.5	-4.9		-4.9		43.9	39.0		84.4		-45.4				
7750	-3.4		-3.1		46.9	43.8		84.4		-40.7				
9687.5					48.6	48.6		84.4		-35.8				
1943.75	41.5		44.7		33.3	78.0				77.95		0	1.5	
3887.5	1.1		-1.1		40.5	41.6		84.4		-42.8				
5831.25	-2.4		-3.4		44.0	41.6		84.4		-42.8				
7775	1.9		1.7		46.9	48.8		84.4		-35.6				
9718.75					48.7	48.7		84.4		-35.7				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S8310 TESTED BY: mw SPEC: FCC Part 2, Paragraph 2.993; Part 24, para 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1ch x 7.1W A-Band TEST SITE: 3

EUT MODE: Normal-Maximum Output Power BICONICAL: N/A

DATE: 10-Jul-98 LOG PERIODIC: N/A

NOTES: Duty Cycle= 0% OTHER: 453

RBW and VBW = 1 MHz.

EUT in uplink mode (1.0 W).

Preamp= 367. No emissions were detectable except fundamental.

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1863.75	33.9		40.2		32.2	72.4						269	1.1	
3727.5	6.2		11.3		39.6	50.9		84.4		-33.5		260	1	
5591.2	5.7		5.9		43.2	49.1		84.4		-35.3		132	1	
7455	10.7		10.2		45.9	56.6		84.4		-27.8		140	1	
1857.5	32.1		40.6		32.2	72.8						250	1	
3715	7		9.2		39.5	48.7		84.4		-35.7		239	1	
5572.5	5.8		6.3		43.1	49.4		84.4		-35		144	1	
7430	10.9		10.7		45.9	56.8		84.4		-27.6		0	1	
1851.25	33.1		40.2		32.2	72.4				72.37		263	1.1	
3702.5	9.4		11.5		39.5	51.0		84.4		-33.4		208	1.1	
5553.7	5.6		6.3		43.1	49.4		84.4		-35		187	1	
7405	11.2		12.1		45.8	57.9		84.4		-26.5		178	1	

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S8310 TESTED BY: mw SPEC: FCC Part 2 Para 2.993; Part 24 Para24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1ch x 7.1W A-Band TEST SITE: 3

EUT MODE: Normal - Full Output Power BICONICAL: N/A

DATE: 06-Jul-98 LOG PERIODIC: N/A

NOTES: RBW and VBW = 1 MHz. OTHER: 251

No emissions were detectable except fundamental.

EUT in Downlink Mode (7.1W).

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1931.25	39.9		34.4		33.2	73.1						54	2	
3862.5	5.1		4.7		40.4	45.5		84.4		-38.9				
5793.7	11.6		11.5		43.9	55.5		84.4		-28.9				
7725	10.4		10.6		46.8	57.6		84.4		-26.8		0	1	
1937.5	34.8		31.3		33.2	68.0						310	1.2	
3875	5.9		5.4		40.5	46.4		84.4		-38.1				
5812.5	11.8		11.4		43.9	55.7		84.4		-28.7		0	1	
7750	9.7		10.2		46.9	57.1		84.4		-27.4		1	1	
1943.75	33.1		36.5		33.3	69.8						219	1	
3887.5	5.6		5.8		40.5	46.3		84.4		-38.1				
5831.2	11.8		11.1		44.0	55.8		84.4		-28.6		43	1.1	
7775	10.8		10.9		46.9	57.8		84.4		-26.6		0	1	

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TÜV PRODUCT SERVICE

REPORT No: S8310 TESTED BY: mw SPEC: FCC Part 2, Paragraph 2.993; Part 24, para 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1ch x 7.1W B-Band TEST SITE: 3

EUT MODE: Normal - Full Output Power BICONICAL: N/A

DATE: 10-Jul-98 LOG PERIODIC: N/A

NOTES: Duty Cycle= 0% OTHER: 453

RBW and VBW = 1MHz.

EUT in uplink mode (1.0 W).

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1877.5	35.5		38.5		32.3	71.8				71.81		321	2	
3755	4.7		4.1		39.7	44.4		84.4		-40		292	1	
5632.5	5.8		5.9		43.3	49.2		84.4		-35.2		2	1.7	
7510	12.2		10.8		46.0	58.2		84.4		-26.2		90	1	
1871.25	36.7		34.6		32.3	69.0				68.98		1	2	
3742.5	4.6		4.9		39.6	44.5		84.4		-39.9		204	3	
5613.7	5.9		4.9		43.2	49.1		84.4		-35.3		352	1	
7285	10.8		9.5		45.7	56.5		84.4		-27.9		261	1	
1883.75	37.9		40.6		32.3	72.9				72.85		253	1.1	
3767.5	5.2		5.5		39.7	45.2		84.4		-39.2		57	1	
5651.2	6.1		7		43.3	50.3		84.4		-34.1		57	1	
7535	10.8		10.5		46.0	56.8		84.4		-27.8		133	1	

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TÜV PRODUCT SERVICE

REPORT No: S8310 TESTED BY: mw SPEC: FCC Part 2, Paragraph 2.993; Part 24, para 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1 ch x 7.1 W TEST SITE: 3

EUT MODE: Normal-Maximum Output Power BICONICAL: N/A

DATE: 10-Jul-98 LOG PERIODIC: N/A

NOTES: RBW and VB 100% OTHER: 453

No emissions detectable except fundamental.

EUT in downlink mode (7.1 W).

B-Band

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1963.75	41.9		36.4		32.8	74.7						141	1.8	
3927.5	4.8		5		40.3	45.3		84.4		-39.1		112	2	
5891.2	9.2		11.1		44.0	55.1		84.4		-29.3		320	1.1	
7855	10.5		11.6		46.5	58.1		84.4		-26.3		319	1.1	
1957.5	46.9		40.1		32.8	79.7						74	1.3	
3915	6.3		4.2		40.3	46.6		84.4		-37.8		159	1.2	
5872.5	11		11.8		43.9	55.5		84.4		-28.9		288	2	
7830	9.9		10.5		46.5	57.0		84.4		-27.4		201	2	
1951.25	45.3		41.3		32.7	78.0						180	1.3	
3902.5	4.8		4.3		40.2	45.0		84.4		-39.4		238	1.1	
5853.7	10.8		11.2		43.9	55.1		84.4		-29.3		166	1	
7805	9.8		10.6		46.4	57.0		84.4		-27.4		166	1	

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TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dm SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1CH X 7.1W C Band TEST SITE: 3

EUT MODE: DOWNLINK BICONICAL: N/A

DATE: 3-Aug-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1976.25	47.5		50.5		32.9	83.4								
3952.5	3.9		4.3		40.4	44.7		84.4		-39.7				
5928.75	7.1		6.9		44.1	51.2		84.4		-33.2				
7905	10.1		10.3		46.6	56.9		84.4		-27.5				
9881.25	4.3		4.4		48.7	53.1		84.4		-31.3				
1982.5	49.1		48.3		32.9	82.0								
3965	2.9		3		40.5	43.5		84.4		-40.9				
5947.5	6.8		5.9		44.2	51.0		84.4		-33.4				
7930	9.2		8.9		46.6	55.8		84.4		-28.6				
9912.5	3.5		4.5		48.8	53.3		84.4		-31.1				
1988.75	47.8		40.7		32.9	80.7								
3977.5	3		2.5		40.5	43.5		84.4		-40.9				
5966.25	5.3		5.5		44.2	49.7		84.4		-34.7				
7955	8		7.3		46.6	54.6		84.4		-29.8				
9943.75	4.2		4		48.9	53.1		84.4		-31.3				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dm SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1CH X 7.1W C Band TEST SITE: 3

EUT MODE: UPLINK BICONICAL: N/A

DATE: 3-Aug-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1908.75	36.8		41.1		32.5	**73.6**								
3817.5	2.5		2.4		39.9	**42.4**		84.4		-42				
5726.25	2.8		1.6		43.5	**46.3**		84.4		-38.1				
7635	6.7		9.5		46.2	**55.7**		84.4		-28.7				
9543.75	4.5		3		47.8	**52.3**		84.4		-32.1				
1902.5	44.2		44.7		32.5	**77.2**								
3805	5.3		3.9		39.9	**45.2**		84.4		-39.2				
5707.5	4.9		3.7		43.5	**48.4**		84.4		-36				
7610	10.7		13.4		46.2	**59.6**		84.4		-24.8				
9512.5	5.6		4.6		47.7	**53.3**		84.4		-31.1				
1896.25	39.9		43.5		32.4	**75.9**				75.92				
3792.5	5		5.3		39.8	**45.1**		84.4		-39.3				
5688.75	4.1		4.9		43.4	**48.3**		84.4		-36.1				
7585	10.3		12.1		46.1	**58.2**		84.4		-26.2				
9481.25	5.7		5.3		47.7	**53.4**		84.4		-31				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dr SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1CH X 7.1W D Band TEST SITE: 3

EUT MODE: downlink BICONICAL: N/A

DATE: 30-Jul-98 LOG PERIODIC: N/A

NOTES: OTHER: 453

RBW 1MHz VBW 1MHz

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1946.25	37.6		33.6		32.7	70.3								
3892.5	3.3		2.9		40.2	43.5		84.4		-40.9				
5838.75	5.5		7.4		43.8	51.2		84.4		-33.2				
7784.94	16.7		22.4		46.4	68.8		84.4		-15.6				
9731.13	-0.8		0.6		48.3	48.9		84.4		-35.5				
1947.5	29.7		34.3		32.7	67.0								
3895	3.9		3.2		40.2	44.1		84.4		-40.3				
5842.5	6.8		5.1		43.9	50.7		84.4		-33.7				
7790	24.4		26.8		46.4	73.2		84.4		-11.2		0	1.5	
9737.5	3.8		4.3		48.3	52.6		84.4		-31.8				
1948.75	38.7		36.1		32.7	71.4								
3897.5	3.1		3.7		40.2	43.9		84.4		-40.5				
5846.25	5.8		6.4		43.9	50.3		84.4		-34.1				
7795	21.6		22.8		46.4	69.2		84.4		-15.2				
9743.75	3.9		3.7		48.3	52.2		84.4		-32.2				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dm SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1CH X 7.1W D Band TEST SITE: 3

EUT MODE: uplink BICONICAL: N/A

DATE: 30-Jul-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1866.25	49		44.6		32.3	81.3								
3732.5	1.9		2.4		39.6	42.0		84.4		-42.4				
5598.75	3.3		1.2		43.2	46.5		84.4		-37.9				
7465	4.4		5.9		45.9	51.8		84.4		-32.6				
9331.25	4.1		4.1		48.1	52.2		84.4		-32.2				
1867.5	44.3		39.6		32.3	76.6								
3735	3.2		3.6		39.6	43.2		84.4		-41.2				
5602.5	1.5		-1.1		43.2	44.7		84.4		-39.7				
7470	6.4		4.7		46.0	52.4		84.4		-32				
9337.5	5.2		3.7		48.1	53.3		84.4		-31.1				
1868.75	41.7		39.6		32.3	74.0								
3737.5	1.8		3.8		39.6	43.4		84.4		-41				
5606.25	0.75		1.5		43.2	44.7		84.4		-39.7				
7475	6.2		5.2		46.0	52.2		84.4		-32.2				
9343.75	3.7		3.9		48.1	52.0		84.4		-32.4				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dm SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1CH X 7.1W E / F Band TEST SITE: 3

EUT MODE: DOWNLINK BICONICAL: N/A

DATE: 31-Jul-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1966.25	38.3		41.5		32.8	74.3								
3932.5	3.2		2.5		40.3	43.5		84.4		-40.9				
5898.75	7.4		5.1		44.0	51.4		84.4		-33				
7865	11.1		12.5		46.5	59.0		84.4		-25.4				
9831.25	4.2		2.4		48.6	52.8		84.4		-31.6				
1970	38.5		39.1		32.8	71.9								
3940	5.6		3.8		40.4	46.0		84.4		-38.4				
5910	5.9		7.1		44.0	51.1		84.4		-33.3				
7880	11.3		12.8		46.5	59.3		84.4		-25.1				
9850	1.9		2.7		48.6	51.3		84.4		-33.1				
1973.75	37		38.7		32.9	71.6								
3947.5	3.2		2.8		40.4	43.6		84.4		-40.8				
5921.25	5.2		5.1		44.1	49.3		84.4		-35.1				
7895	13		9.9		46.6	59.6		84.4		-24.8				
9868.75	4.5		4.9		48.7	53.6		84.4		-30.8				

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TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 1CH X 7.1W TEST SITE: 3
E / F Band

EUT MODE: UPLINK BICONICAL: N/A

DATE: 31-Jul-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental
30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1886.25	0.4		1.7		32.4	34.1								
3772.5	-1.7		2.5		39.7	42.2		84.4		-42.2				
5658.75	-1.3		0.6		43.3	43.9		84.4		-40.5				
7545	5.7		5.6		46.1	51.8		84.4		-32.6				
9431.25	5.6		5.5		47.9	53.5		84.4		-30.9				
1890	1.6		1.6		32.4	34.0								
3780	2.4		2.2		39.8	42.2		84.4		-42.2				
5670	1.3		2.4		43.4	45.8		84.4		-38.6				
7560	5		6.3		46.1	52.4		84.4		-32				
9450	3.1		2.7		47.8	50.9		84.4		-33.5				
1893.75	4.5		0		32.4	36.9								
3767.5	4.1		4.1		39.7	43.8		84.4		-40.6				
5641.25	0		0		43.3	43.3		84.4		-41.1				
7515	4.6		4.6		46.0	50.6		84.4		-33.8				
9388.75	2		2		48.0	50.0		84.4		-34.4				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 2CH X 1W TEST SITE: 3
B Band

EUT MODE: UPLINK BICONICAL: N/A

DATE: 6-Aug-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental
30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatbo	Antenna Height	
1871.25	26.9		29.9		32.3	62.2								
3742.5	2.1		2.9		39.6	42.5		84.4		-41.9				
5613.75	0.6		1.8		43.2	45.0		84.4		-39.4				
7485	5.8		5.6		46.0	51.8		84.4		-32.6				
9356.25	3.4		3.5		48.1	51.6		84.4		-32.8				
1877.5	34.9		30		32.3	67.2								
3755	2.5		2.8		39.7	42.5		84.4		-41.9				
5632.5	1.6		1.2		43.3	44.9		84.4		-39.5				
7510	6.6		5.7		46.0	52.6		84.4		-31.8				
9387.5	3.4		2.7		48.0	51.4		84.4		-33				
1883.75	35.6		33.5		32.3	67.9								
3767.5	3.1		3		39.7	42.8		84.4		-41.6				
5651.25	0.5		1		43.3	44.3		84.4		-40.1				
7535	5.9		6.1		46.0	52.1		84.4		-32.3				
9418.75	3.2		3.7		47.9	51.6		84.4		-32.8				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 2CH X 1W B Band TEST SITE: 3

EUT MODE: DOWNLINK BICONICAL: N/A

DATE: 6-Aug-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1951.25	35		36.6		32.7	69.3								
3902.5	7.5		7.9		40.2	48.1		84.4		-36.3				
5853.75	13.1		12.9		43.9	57.0		84.4		-27.4				
7805	12.9		13.3		46.4	59.7		84.4		-24.7				
9756.25	12.8		12.7		48.4	61.2		84.4		-23.2				
1957.5	33.3		35.5		32.8	68.3								
3915	6		6.5		40.3	46.8		84.4		-37.6				
5872.5	13.1		12.3		43.9	57.0		84.4		-27.4				
7830	12.9		13.3		46.5	59.8		84.4		-24.6				
9787.5	12.5		12.3		48.4	60.9		84.4		-23.5				
1963.75	31.6		35.2		32.8	68.0								
3927.5	2.3		2.8		40.3	43.1		84.4		-41.3				
5891.25	5.8		6.6		44.0	50.6		84.4		-33.8				
7855	5.5		4		46.5	52.0		84.4		-32.4				
9818.75	2.8		3		48.5	51.5		84.4		-32.9				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 2CH X 2W B Band TEST SITE: 3

EUT MODE: UPLINK BICONICAL: N/A

DATE: 31-Jul-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1871.25	24.5		32.5		32.3	64.8								
3742.5	2.7		2.3		39.6	42.3		84.4		-42.1				
5613.75	1.7		1.2		43.2	44.9		84.4		-39.5				
7485	6.2		5.6		46.0	52.2		84.4		-32.2				
9356.25	3.7		3.6		48.1	51.8		84.4		-32.6				
1877.5	32.4		32.6		32.3	64.9								
3755	2.3		3		39.7	42.7		84.4		-41.7				
5632.5	0.3		0.7		43.3	44.0		84.4		-40.4				
7510	5.3		5.3		46.0	51.3		84.4		-33.1				
9387.5	4.1		4.3		48.0	52.3		84.4		-32.1				
1883.75	35.8		31.5		32.3	68.1								
3767.5	5.6		2.4		39.7	45.3		84.4		-39.1				
5651.25	5.4		1		43.3	48.7		84.4		-35.7				
7535	8.1		6		46.0	54.1		84.4		-30.3				
9418.75	5.6		5.5		47.9	53.5		84.4		-30.9				

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TÜV PRODUCT SERVICE

REPORT No: S-8310 TESTED BY: dl SPEC: FCC Part 2 para 2.993

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater 2CH X 2W B Band TEST SITE: 3

EUT MODE: DOWNLINK BICONICAL: N/A

DATE: 31-Jul-98 LOG PERIODIC: N/A

NOTES: RBW 1MHz VBW 1MHz OTHER: 453

No emissions detected at 3m other than harmonics of fundamental

30 dB LNA #367 above 2000 MHz

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1951.25	40.3		38.8		32.7	**73.0**								
3902.5	5.2		2.6		40.2	**45.4**		84.4		-39				
5853.75	6.4		5.9		43.9	**50.3**		84.4		-34.1				
7805	5.9		5.6		46.4	**52.3**		84.4		-32.1				
9756.25	4.3		3.4		48.4	**52.7**		84.4		-31.7				
1957.5	40.5		38.8		32.8	**73.3**								
3915	1.7		3.5		40.3	**43.8**		84.4		-40.6				
5872.5	6.2		6.7		43.9	**50.6**		84.4		-33.8				
7830	6.3		5.5		46.5	**52.8**		84.4		-31.6				
9787.5	3.3		3.3		48.4	**51.7**		84.4		-32.7				
1963.75	40.3		38.7		32.8	**73.1**								
3927.5	3.8		5.1		40.3	**45.4**		84.4		-39				
5891.25	6.1		0.7		44.0	**50.1**		84.4		-34.3				
7855	6.1		5.9		46.5	**52.6**		84.4		-31.8				
9818.75	3		3.5		48.5	**52.0**		84.4		-32.4				

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 619 546 3999 FAX 619 546 0364

B.4 RADIATED MEASUREMENT EQUIPMENT

Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz - 20 GHz were performed in a horizontal and vertical polarization at the following test location :

☐ - Test not applicable

■ - Roof (Small Open Area Test Site)
☐ - Canyon #1 (10- and 30-Meter Open Area Test Site), Carroll Canyon, San Diego
☐ - Canyon #2 (3- and 10-Meter Open Area Test Site), Carroll Canyon, San Diego

Testing was performed at a test distance of:

☐ - 1 meters
■ - 3 meters
☐ - 10 meters

☐ - 30 meters

	Model No.	Prop. #	Description	Manufacturer	Serial #	Cal Date
☐	8566B	407	Spectrum Analyzer	Hewlett Packard	2311A02209	10/01/98
☐	85662B	406	Spectrum Analyzer Display	Hewlett Packard	2309A04682	10/01/98
■	8566B	720	Spectrum Analyzer	Hewlett Packard	211500842	02/18/99
■	8566B	721	Spectrum Analyzer Display	Hewlett Packard	2112A02185	02/18/99
☐	3115	453	Antenna, Double Ridge Guide	EMCO	9412-4363	09/01/98
■	3115	251	Antenna, Double Ridge Guide	EMCO	2495	08/98
☐	ZJL-3G	649	Pre-Amplifier, 1 to 2 GHz	Minicircuits	--	01/23/99
■	AMF-5D-010180-35-10P	719	Pre-Amplifier, 1 to 18 GHz	Miteq, Inc.	549460	04/07/99
☐	AFD3-0208-40-ST	367	Pre-Amplifier, 2 to 8 GHz	Miteq, Inc.	155382	10/21/98
☐	AFS4-08001800-70-10P-4	368	Pre-Amplifier, 8 to 18 GHz	Miteq, Inc.	167	03/09/99
☐	91888-2	252	Horn Antenna (1 to 2 GHz)	Eaton	101	10/31/98
☐	91889-2	253	Horn Antenna (2 to 3.6 GHz)	Eaton	101	10/31/98
☐	91892-1	254	Reflector Antenna (3.6 to 18 GHz)	Eaton	--	ncr
☐	94613-1	255	Horn Antenna (3.6 to 7.6 GHz)	Eaton	--	10/31/98
☐	91891-2	256	Horn Antenna (7.3 to 12 GHz)	Eaton	--	10/31/98
☐	94614-1	257	Horn Antenna (12 to 18 GHz)	Eaton	--	10/31/98

Remarks: _____

8 FIELD STRENGTH CALCULATION

If a preamplifier was used during the Radiated Emission Testing, it is required that the amplifier gain must be subtracted from the Spectrum Analyzer (Meter) Reading. In addition, a correction factor for the antenna , cable used and a distance factor, if any, must be applied to the Meter Reading before a true field strength reading can be obtained. In the automatic measurement, these considerations are automatically presented as a part of the print out. In the case of manual measurements and for greater efficiency and convenience, instead of using these correlation factors for each meter reading, the specification limit was modified to reflect these correlation factors at each frequency value so that the meter readings can be compared directly to the modified specification limit. This modified specification limit is referred to as the "Corrected Meter Reading Limit" or simply the CMRL, which is the actual field strength present at the antenna. The quantity can be derived in the following manner:

Corrected Meter Reading Limit (CMRL) = SAR + AF + CL - AG - DC

Where, SAR = Spectrum Analyzer Reading
AF = Antenna Factor
CL = Cable Loss
AG = Amplifier Gain (if any)
DC = Distance Correction (if any)

Assume the following situation: A meter reading of 29.4 dBuV was obtained from a Class A computing device measured at 83 MHz. Assume an antenna factor of 9.2 dB, a cable loss of 1.4 dB and amplifier gain of 20.0 dB at 83 MHz. The final field strength would be determined as follows:

CMRL = 29.4 dBuV + 9.2dB = 1.4 dB - 20 dB/M - 0.0 dB

CMRL = 20.0 dBuV/M

This result is well below the FCC and CSA Class A limit of 29.5 dbuV/m at 83 MHz.

For the manual mode of measurement, a table of corrected meter reading limit was used to permit immediate comparison of the meter reading to determine if the measure emission amplitude exceeded the specification limit at that specific frequency.

Appendix BB

RADIATED MEASUREMENT INFORMATION

BB.1 Radiated Measurement Photos

Same as original filing.

B.2 RADIATED MEASUREMENT TEST SETUP

Same as original filing.

B.3 RADIATED EMISSION DATA

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

CDR REPEATER, Model CDR1912 2 CH x 3.55 W (A Band) (Part 2, Paragraph 2.993 and Part 24, Para 24.238) (Uplink and Downlink)

B.4 RADIATED MEASUREMENT EQUIPMENT

Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz - 20 GHz were performed in a horizontal and vertical polarization at the following test location :

☐ - **Test not applicable**

■ - Roof (Small Open Area Test Site)
☐ - Canyon #1 (10- and 30-Meter Open Area Test Site), Carroll Canyon, San Diego
☐ - Canyon #2 (3- and 10-Meter Open Area Test Site), Carroll Canyon, San Diego

Testing was performed at a test distance of:

☐ - 1 meters
■ - 3 meters
☐ - 10 meters

☐ - 30 meters

	Model No.	Prop. #	Description	Manufacturer	Serial #	Cal Date
☐	8566B	407	Spectrum Analyzer	Hewlett Packard	2311A02209	10/01/98
☐	85662B	406	Spectrum Analyzer Display	Hewlett Packard	2309A04682	10/01/98
■	8566B	720	Spectrum Analyzer	Hewlett Packard	211500842	02/18/99
■	85662B	721	Spectrum Analyzer Display	Hewlett Packard	2112A02185	02/18/99
■	3115	453	Antenna, Double Ridge Guide	EMCO	9412-4363	09/01/98
☐	3115	251	Antenna, Double Ridge Guide	EMCO	2495	08/98
☐	ZJL-3G	649	Pre-Amplifier, 1 to 2 GHz	Minicircuits	--	01/23/99
☐	AMF-5D-010180-35-10P	719	Pre-Amplifier, 1 to 18 GHz	Miteq, Inc.	549460	04/07/99
■	AFD3-0208-40-ST	367	Pre-Amplifier, 2 to 8 GHz	Miteq, Inc.	155382	10/21/98
☐	AFS4-08001800-70-10P-4	368	Pre-Amplifier, 8 to 18 GHz	Miteq, Inc.	167	03/09/99
☐	91888-2	252	Horn Antenna (1 to 2 GHz)	Eaton	101	10/31/98
☐	91889-2	253	Horn Antenna (2 to 3.6 GHz)	Eaton	101	10/31/98
☐	91892-1	254	Reflector Antenna (3.6 to 18 GHz)	Eaton	--	ncr
☐	94613-1	255	Horn Antenna (3.6 to 7.6 GHz)	Eaton	--	10/31/98
☐	91891-2	256	Horn Antenna (7.3 to 12 GHz)	Eaton	--	10/31/98
☐	94614-1	257	Horn Antenna (12 to 18 GHz)	Eaton	--	10/31/98

Remarks: _____

8 FIELD STRENGTH CALCULATION

If a preamplifier was used during the Radiated Emission Testing, it is required that the amplifier gain must be subtracted from the Spectrum Analyzer (Meter) Reading. In addition, a correction factor for the antenna , cable used and a distance factor, if any, must be applied to the Meter Reading before a true field strength reading can be obtained. In the automatic measurement, these considerations are automatically presented as a part of the print out. In the case of manual measurements and for greater efficiency and convenience, instead of using these correlation factors for each meter reading, the specification limit was modified to reflect these correlation factors at each frequency value so that the meter readings can be compared directly to the modified specification limit. This modified specification limit is referred to as the "Corrected Meter Reading Limit" or simply the CMRL, which is the actual field strength present at the antenna. The quantity can be derived in the following manner:

Corrected Meter Reading Limit (CMRL) = SAR + AF + CL - AG - DC

Where, SAR = Spectrum Analyzer Reading
AF = Antenna Factor
CL = Cable Loss
AG = Amplifier Gain (if any)
DC = Distance Correction (if any)

Assume the following situation: A meter reading of 29.4 dBuV was obtained from a Class A computing device measured at 83 MHz. Assume an antenna factor of 9.2 dB, a cable loss of 1.4 dB and amplifier gain of 20.0 dB at 83 MHz. The final field strength would be determined as follows:

CMRL = 29.4 dBuV + 9.2dB = 1.4 dB - 20 dB/M - 0.0 dB

CMRL = 20.0 dBuV/M

This result is well below the FCC and CSA Class A limit of 29.5 dbuV/m at 83 MHz.

For the manual mode of measurement, a table of corrected meter reading limit was used to permit immediate comparison of the meter reading to determine if the measure emission amplitude exceeded the specification limit at that specific frequency.

REPORT No: S8310 TESTED BY: mw SPEC: FCC Part 2, 2.993 and Part 24, 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater, Model CDR1912 TEST SITE: 3

EUT MODE: Full Output Power, Uplink BICONICAL: N/A

DATE: 04-Sep-98 LOG PERIODIC: N/A

NOTES: RBW and VBW = 1 MHz. OTHER: 453

2 CH X 3.55 W

A-Band; FCC ID: LB41900CDMA

No emissions detecable except fundamental.

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1851.25	42.9		43.5		32.2	**75.7**								
3702.5	6.9		7.6		39.5	**46.0**		84.4		-38.4				
5553.75	6.6		6.7		43.1	**49.8**		84.4		-34.6				
7405	10		10.7		45.8	**56.5**		84.4		-27.9		208	1.8	
1857.5	41.8		42.1		32.2	**74.3**								
3715	7.8		6.1		39.5	**47.3**		84.4		-37.1				
5572.5	6.7		7.2		43.1	**50.3**		84.4		-34.1				
7430	10.6		10.2		45.9	**56.5**		84.4		-27.9		51	1.5	
1863.75	41.2		42.3		32.2	**74.5**								
3727.5	7.5		6.7		39.6	**47.1**		84.4		-37.3				
5591.25	7.5		8.2		43.2	**51.4**		84.4		-33				
7455	11.7		11		45.9	**57.6**		84.4		-26.8		34	1.4	

REPORT No: S8310 TESTED BY: mw *mw* SPEC: FCC Part 2, 2.993 and Part 24, 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CDR Repeater, Model CDR1912 TEST SITE: 3

EUT MODE: Full Output Power, Downlink BICONICAL: N/A

DATE: 04-Sep-98 LOG PERIODIC: N/A

NOTES: RBW and VBW = 1 MHz. OTHER: 453

2 CH X 3.55 W

A-Band; FCC ID: LB41900CDMA

No emissions detectable except fundamental.

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CORRECTION FACTOR (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotatio	Antenna Height	
1931.25	37.1		36.9		32.6	**69.7**								
3862.5	5.9		5.9		40.1	**46.0**		84.4		-38.4				
5793.75	6.2		7.2		43.7	**50.9**		84.4		-33.5				
7725	10.2		10.6		46.3	**56.9**		84.4		-27.5		288	1.8	
1937.5	36.5		36.4		32.7	**69.2**								
3875	6.3		7		40.1	**47.1**		84.4		-37.3				
5812.5	12.1		11.7		43.8	**55.9**		84.4		-28.5		12	1.1	
7750	10.4		10.3		46.4	**56.8**		84.4		-27.7		357	1.3	
1943.75	36.1		35.9		32.7	**68.8**				68.79				
3887.5	6.7		7.3		40.2	**47.5**		84.4		-36.9				
5831.25	12.2		11.5		43.8	**56.0**		84.4		-28.4		239	1.5	
7775	9.9		10.7		46.4	**57.1**		84.4		-27.3		351	1	