TÜV PRODUCT SERVICE

## Emissions Test Conditions: RADIATED EMISSIONS (Electric Field) (FCC Part 2, Paragraph 2.993 and Part 24, Paragraph 24.238

**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

**Test Equipment Used :**

| | Model Number | Manufacturer | Description | Serial Number | Prop. No. |
|---|---|---|---|---|---|
| ■ - | 8566B | Hewlett Packard | Spectrum Analyzer | 2115A00842 | 721 |
| ■ - | -- | Hewlett Packard | Spectrum Analyzer Display | 2112A02185 | 720 |
| ■ - | 3115 | EMCO | Antenna, Double Ridge Guide | 9412-4363 | 453 |
| ■ - | AFD3-0208-40-ST | Miteq, Inc. | Pre-Amplifier (30 dB gain), 2 to 8 GHz | 155382 | 367 |

Remarks: _____



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REPORT No: S8462 TESTED BY: mw mw SPEC: FCC Part 2, Para. 2.993 & Part 24, Para. 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CSR Repeater Model 1902 TEST SITE: 3

EUT MODE: Maximum output power, CW BICONICAL: N/A

DATE: 9/14 & 15/1998 LOG PERIODIC: N/A

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

2 CH X 2 W

No emissions detectable except fundamental and second harmonic.

Uplink, D-Band

| FREQ (MHz) | VERTICAL (dBuv) pk | VERTICAL (dBuv) av | HORIZONTAL (dBuv) pk | HORIZONTAL (dBuv) av | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) pk | MAX LEVEL (dBuV/m) av | SPEC LIMIT (dBuV/m) pk | SPEC LIMIT (dBuV/m) av | MARGIN (dB) pk | MARGIN (dB) av | EUT Rotatio | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1869.8 | 42.7 | | 42.5 | | 32.3 | **75.0** | | | | | | 220 | 1.2 | |
| 3739.6 | 9.6 | | 9.2 | | 39.6 | **49.2** | | 84.4 | | -35.2 | | | | |
| 5609.4 | 6.2 | | 6.4 | | 43.1 | **49.5** | | 84.4 | | -34.9 | | | | |
| 7479.2 | 11.4 | | 10.5 | | 46.0 | **57.4** | | 84.4 | | -27 | | 352 | 2 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1867.4 | 44.8 | | 42.8 | | 32.3 | **77.1** | | | | | | 193 | 1 | |
| 3734.8 | 8.9 | | 9.1 | | 39.6 | **48.7** | | 84.4 | | -35.7 | | | | |
| 5602.2 | 6.5 | | 7.1 | | 43.1 | **50.2** | | 84.4 | | -34.2 | | | | |
| 7469.6 | 10.3 | | 10.6 | | 45.9 | **56.5** | | 84.4 | | -27.9 | | 330 | 1.6 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1865.2 | 47.2 | | 48 | | 32.2 | **80.2** | | | | | | 30 | 1 | |
| 3730.4 | 9.1 | | 9.8 | | 39.6 | **49.4** | | 84.4 | | -35 | | | | |
| 5595.6 | 6.7 | | 5.9 | | 43.1 | **49.8** | | 84.4 | | -34.6 | | | | |
| 7460.8 | 12.2 | | 11.3 | | 45.9 | **58.1** | | 84.4 | | -26.3 | | 1 | 1 | |

REPORT No: S8462 TESTED BY: mw mw 1/7/97 SPEC: FCC Part 2, Para. 2.993 & Part 24, Para. 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CSR Repeater Model 1902 TEST SITE: 3

EUT MODE: Maximum output power, CW BICONICAL: N/A

DATE: 14-Sep-98 LOG PERIODIC: N/A

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

2 CH X 2 W

No emissions detectable after fourth harmonic.

Downlink, D-Band

| FREQ (MHz) | VERTICAL (dBuv) pk | VERTICAL (dBuv) av | HORIZONTAL (dBuv) pk | HORIZONTAL (dBuv) av | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) pk | MAX LEVEL (dBuV/m) av | SPEC LIMIT (dBuV/m) pk | SPEC LIMIT (dBuV/m) av | MARGIN (dB) pk | MARGIN (dB) av | EUT Rotatio | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1945.2 | 52.1 | | 51.9 | | 32.7 | **84.8** | | | | | | 26 | 1.2 | |
| 3890.4 | 6.9 | | 6.1 | | 40.2 | **47.1** | | 84.4 | | -37.3 | | | | |
| 5835.6 | 14.6 | | 11.7 | | 43.7 | **58.3** | | 84.4 | | -26.1 | | 15 | 1.4 | |
| 7780.8 | 13.1 | | 10.5 | | 46.3 | **59.4** | | 84.4 | | -25 | | 4 | 1.3 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1947.4 | 49 | | 48.2 | | 32.7 | **81.7** | | | | | | 81 | 1.4 | |
| 3894.8 | 6.9 | | 6.5 | | 40.2 | **47.1** | | 84.4 | | -37.3 | | | | |
| 5842.2 | 13.8 | | 13.5 | | 43.8 | **57.6** | | 84.4 | | -26.8 | | 342 | 1.6 | |
| 7789.6 | 12.1 | | 11.4 | | 46.3 | **58.4** | | 84.4 | | -26 | | 316 | 1.3 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1949.8 | 56.7 | | 55.9 | | 32.7 | **89.4** | | | | | | 287 | 1 | |
| 3899.6 | 9.1 | | 8.9 | | 40.2 | **49.3** | | 84.4 | | -35.1 | | | | |
| 5849.4 | 11.7 | | 13 | | 43.8 | **56.8** | | 84.4 | | -27.6 | | 259 | 1.5 | |
| 7799.2 | 10.8 | | 12.3 | | 46.4 | **58.7** | | 84.4 | | -25.7 | | 140 | 1.4 | |

REPORT No: S8462 TESTED BY: mw mw/PMT SPEC: FCC Part 2, Para. 2.993 & Part 24, Para. 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CSR Repeater Model 1902 TEST SITE: 3

EUT MODE: Maximum output power, CW BICONICAL: N/A

DATE: 14-Sep-98 LOG PERIODIC: N/A

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

2 CH X 2 W

No emissions detectable after fourth harmonic.

Uplink, E/F -Band

| FREQ (MHz) | VERTICAL (dBuv) pk | VERTICAL (dBuv) av | HORIZONTAL (dBuv) pk | HORIZONTAL (dBuv) av | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) pk | MAX LEVEL (dBuV/m) av | SPEC LIMIT (dBuV/m) pk | SPEC LIMIT (dBuV/m) av | MARGIN (dB) pk | MARGIN (dB) av | EUT Rotatio | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1894.8 | 53.5 | | 49.9 | | 32.4 | **85.9** | | | | | | 152 | 1 | |
| 3789.6 | 8.4 | | 8 | | 39.8 | **48.2** | | 84.4 | | -36.2 | | | | |
| 5684.4 | 6.1 | | 5.6 | | 43.3 | **49.4** | | 84.4 | | -35 | | | | |
| 7579.2 | 11.1 | | 11.7 | | 46.1 | **57.8** | | 84.4 | | -26.6 | | 344 | 1.2 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1890 | 56.6 | | 55.6 | | 32.4 | **89.0** | | | | | | 104 | 1.1 | |
| 3780 | 7.7 | | 7.6 | | 39.8 | **47.5** | | 84.4 | | -36.9 | | | | |
| 5670 | 5.6 | | 6.5 | | 43.3 | **49.8** | | 84.4 | | -34.6 | | | | |
| 7560 | 11.8 | | 11 | | 46.1 | **57.9** | | 84.4 | | -26.5 | | 1 | 1.2 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1885.2 | 51.4 | | 49.1 | | 32.4 | **83.8** | | | | | | 71 | 1.3 | |
| 3770.4 | 9 | | 9 | | 39.7 | **48.7** | | 84.4 | | -35.7 | | | | |
| 5655.6 | 6.9 | | 6.1 | | 43.2 | **50.1** | | 84.4 | | -34.3 | | | | |
| 7540.8 | 11.8 | | 11.5 | | 46.0 | **57.8** | | 84.4 | | -26.6 | | 9 | 1.6 | |

REPORT No: S8462 TESTED BY: mw mw/mot SPEC: FCC Part 2, Para. 2.993 & Part 24, Para. 24.238

CUSTOMER: Ortel Corporation TEST DIST: 3 Meters

E U T: CSR Repeater Model 1902 TEST SITE: 3

EUT MODE: Maximum output power, CW BICONICAL: N/A

DATE: 14-Sep-98 LOG PERIODIC: N/A

NOTES: RBW and VBW = 1 MHz. OTHER: 453
2 CH X 2 W
No emissions detectable after fourth harmonic.
Downlink, E/F- 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1965.2 | 41.2 | | 44.9 | | 32.8 | **77.7** | | | | | | 34 | 1.1 | |
| 3930.4 | 7.1 | | 5.8 | | 40.3 | **47.4** | | 84.4 | | -37 | | | | |
| 5895.6 | 13 | | 14 | | 43.9 | **57.9** | | 84.4 | | -26.5 | | 31 | 2 | |
| 7860.8 | 11.5 | | 11.3 | | 46.4 | **57.9** | | 84.4 | | -26.5 | | 344 | 1.2 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1970 | 41 | | 42.1 | | 32.8 | **74.9** | | | | | | 242 | 1 | |
| 3940 | 7.5 | | 7.7 | | 40.4 | **48.1** | | 84.4 | | -36.3 | | | | |
| 5910 | 15 | | 15.4 | | 43.9 | **59.3** | | 84.4 | | -25.1 | | 11 | 1.8 | |
| 7880 | 11.5 | | 11.6 | | 46.5 | **58.1** | | 84.4 | | -26.3 | | 10 | 3.8 | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1974.8 | 39.9 | | 41.7 | | 32.9 | **74.6** | | | | | | 54 | 1.6 | |
| 3940.6 | 6.8 | | 6.6 | | 40.4 | **47.2** | | 84.4 | | -37.2 | | | | |
| 5924.4 | 14.1 | | 14.2 | | 44.0 | **58.2** | | 84.4 | | -26.2 | | 0 | 1.5 | |
| 7899.2 | 11.6 | | 11.9 | | 46.5 | **58.4** | | 84.4 | | -26 | | 0 | 3.5 | |