

MEASUREMENT/TECHNICAL REPORT



Intermec Technologies Corporation
2126
2.4 GHz Spread Spectrum Transmitter

REPORT NO: 981030-1

DATE: October 30 , 1998

APPENDIX J

SPREADSHEET FILES CONTAINED WITHIN:

sheets labled 981106.xls

File contains 18 pages as follows:

- 1-4 FCC TX Average Emissions
- 5-8 FCC TX Peak Emissions
- 9-10 Canada RX Emissions
- 11-14 ETSI 300-328 TX Emissions (reference)
- 15-16 ETSI 300-328 RX Emissions (reference)
- 17 RX Emissions below 1 GHz, Canada
- 18 RX Emissions below 1 GHz, ETSI 300-328 (reference)

AVERAGE TRANSMITTER RADIATED SPURIOUS EMISSIONS

FCC ID: EHA2126

Intermec Technologies Corporation

Product: Intermec DSSS Type II Radio, Approval

Norand Mobile Systems Division

Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL

EMC Test Laboratory

Test Date (mm/dd/yy): 11/06/98

Standard: FCC 15.247

Measurement System Calibration Date: 3/2/98

Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | H.P.filter + Cable Loss (dB) | Antenna Correction Factor dB/M | Amplifier Gain (dB) | Calculated Result dB(uV)/M | AVERAGE Limit @ 3 Meters < 1 GHz, 1 Meter > 1 GHz dB(uV)/Meter | Margin (dB) |
|-----------------------|------------------|--------------------------|------------------------------|--------------------------------|---------------------|----------------------------|--|-------------|
| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| Low Channel 01 | 2412.000 | MHz | | | | | | |
| 352 | Vert | 3.0 | 1.7 | 15.0 | | 19.7 | 46 | -26.3 |
| (IF) | Hor | 2.9 | 1.7 | 15.0 | | 19.6 | 46 | -26.4 |
| 704 | Vert | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| (IF * 2) | Hor | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| 1056 | Vert | 23.8 | 1.7 | 23.1 | | 48.6 | 64 | -15.4 |
| (IF * 3) | Hor | 23.7 | 1.7 | 23.1 | | 48.5 | 64 | -15.5 |
| 1408 | Vert | 29.1 | 1.9 | 24.3 | | 55.3 | 64 | -8.7 |
| (IF * 4) | Hor | 24.3 | 1.9 | 24.3 | | 50.5 | 64 | -13.5 |
| 1760 | Vert | 25.6 | 4.3 | 25.8 | | 55.7 | 64 | -8.3 |
| (IF * 5) | Hor | 25.6 | 4.3 | 25.8 | | 55.7 | 64 | -8.3 |
| 2060 | Vert | 47.9 | 4.2 | 27.1 | 33.6 | 45.6 | 64 | -18.4 |
| (Fc-IF) | Hor | 47.3 | 4.2 | 27.1 | 33.6 | 45.0 | 64 | -19.0 |
| 2412 | Vert | | 4.0 | 28.0 | | | | |
| (Fc) | Hor | | 4.0 | 28.0 | | | | |
| 2816 | Vert | 31.7 | 4.2 | 29.3 | 33.8 | 31.4 | 64 | -32.6 |
| (IF*8) | Hor | 35.5 | 4.2 | 29.3 | 33.8 | 35.2 | 64 | -28.8 |
| 3468 | Vert | 30.3 | 3.8 | 30.6 | 33.8 | 30.9 | 64 | -33.1 |
| (Fc+IF*3) | Hor | 31.9 | 3.8 | 30.6 | 33.8 | 32.5 | 64 | -31.5 |
| 4824 | Vert | 52.9 | 4.8 | 32.8 | 32.9 | 57.6 | 64 | -6.4 |
| (Fc * 2) | Hor | 47.1 | 4.8 | 32.8 | 32.9 | 51.8 | 64 | -12.2 |
| 7236 | Vert | 36.6 | 6.3 | 36.8 | 33.3 | 46.4 | 64 | -17.6 |
| (Fc * 3) | Hor | 38.5 | 6.3 | 36.8 | 33.3 | 48.3 | 64 | -15.7 |
| 9648 | Vert | 32.1 | 7.1 | 37.4 | 33.5 | 43.1 | 64 | -20.9 |
| (Fc * 4) | Hor | 31.8 | 7.1 | 37.4 | 33.5 | 42.8 | 64 | -21.2 |
| 12060 | Vert | 29.5 | 7.9 | 39.1 | 32.4 | 44.1 | 64 | -19.9 |
| (Fc * 5) | Hor | 30.4 | 7.9 | 39.1 | 32.4 | 45.0 | 64 | -19.0 |
| 14472 | Vert | 31.5 | 8.8 | 40.8 | 31.3 | 49.8 | 64 | -14.2 |
| (Fc * 6) | Hor | 31.7 | 8.8 | 40.8 | 31.3 | 50.0 | 64 | -14.0 |
| 16884 | Vert | 31.4 | 11.1 | 40.3 | 31.1 | 51.7 | 64 | -12.3 |
| (Fc * 7) | Hor | 31.6 | 11.1 | 40.3 | 31.1 | 51.9 | 64 | -12.1 |
| 19296 | Vert | 38.9 | 1.9 | 44.2 | 31.1 | 53.9 | 64 | -10.1 |
| (Fc * 8) | Hor | 39.0 | 1.9 | 44.2 | 31.1 | 54.0 | 64 | -10.0 |
| 21708 | Vert | 37.6 | 1.4 | 44.3 | 30.5 | 52.8 | 64 | -11.2 |
| (Fc * 9) | Hor | 37.7 | 1.4 | 44.3 | 30.5 | 52.9 | 64 | -11.1 |
| 24120 | Vert | 38.1 | 1.1 | 45.1 | 30.8 | 53.5 | 64 | -10.5 |
| (Fc * 10) | Hor | 38.0 | 1.1 | 45.1 | 30.8 | 53.4 | 64 | -10.6 |

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Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | H.P.filter + Cable Loss (dB) | Antenna Correction Factor dB/M | Amplifier Gain (dB) | Calculated Result dB(uV)/M | AVERAGE Limit @ 3 Meters < 1 GHz, 1 Meter > 1 GHz dB(uV)/Meter | Margin (dB) |
|-------------------------|------------------|--------------------------|------------------------------|--------------------------------|---------------------|----------------------------|--|-------------|
| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| Middle Channel 7 | 2442.000 | MHz | | | | | | |
| 352 | Vert | 3.0 | 1.7 | 15.0 | | 19.7 | 46 | -26.3 |
| (IF) | Hor | 2.7 | 1.7 | 15.0 | | 19.4 | 46 | -26.6 |
| 704 | Vert | 3.5 | 2.8 | 20.9 | | 27.2 | 46 | -18.8 |
| (IF * 2) | Hor | 3.5 | 2.8 | 20.9 | | 27.2 | 46 | -18.8 |
| 1056 | Vert | 23.8 | 1.7 | 23.1 | | 48.6 | 64 | -15.4 |
| (IF * 3) | Hor | 23.7 | 1.7 | 23.1 | | 48.5 | 64 | -15.5 |
| 1408 | Vert | 29.1 | 1.9 | 24.3 | | 55.3 | 64 | -8.7 |
| (IF * 4) | Hor | 24.3 | 1.9 | 24.3 | | 50.5 | 64 | -13.5 |
| 1760 | Vert | 25.6 | 4.3 | 25.8 | | 55.7 | 64 | -8.3 |
| (IF * 5) | Hor | 25.6 | 4.3 | 25.8 | | 55.7 | 64 | -8.3 |
| 2090 | Vert | 43.9 | 4.0 | 27.2 | 33.7 | 41.4 | 64 | -22.6 |
| (Fc-IF) | Hor | 40.7 | 4.0 | 27.2 | 33.7 | 38.2 | 64 | -25.8 |
| 2442 | Vert | | 3.9 | 28.1 | | | | |
| (Fc) | Hor | | 3.9 | 28.1 | | | | |
| 2816 | Vert | 38.6 | 4.3 | 29.5 | 32.9 | 39.5 | 64 | -24.5 |
| (IF*8) | Hor | 35.8 | 4.3 | 29.5 | 32.9 | 36.7 | 64 | -27.3 |
| 3498 | Vert | 32.5 | 3.7 | 30.7 | 32.9 | 34.0 | 64 | -30.0 |
| (Fc+IF*3) | Hor | 29.1 | 3.7 | 30.7 | 32.9 | 30.6 | 64 | -33.4 |
| 4884 | Vert | 60.9 | 4.7 | 32.9 | 32.9 | 65.6 | 64 | 1.6 |
| (Fc * 2) | Hor | 54.9 | 4.7 | 32.9 | 32.9 | 59.6 | 64 | -4.4 |
| 7326 | Vert | 38.0 | 6.0 | 37.2 | 33.3 | 47.9 | 64 | -16.1 |
| (Fc * 3) | Hor | 32.8 | 6.0 | 37.2 | 33.3 | 42.7 | 64 | -21.3 |
| 9768 | Vert | 32.8 | 6.7 | 37.6 | 33.4 | 43.7 | 64 | -20.3 |
| (Fc * 4) | Hor | 31.9 | 6.7 | 37.6 | 33.4 | 42.8 | 64 | -21.2 |
| 12210 | Vert | 30.6 | 7.8 | 39.2 | 32.4 | 45.2 | 64 | -18.8 |
| (Fc * 5) | Hor | 29.9 | 7.8 | 39.2 | 32.4 | 44.5 | 64 | -19.5 |
| 14652 | Vert | 31.8 | 9.0 | 40.5 | 31.4 | 49.9 | 64 | -14.1 |
| (Fc * 6) | Hor | 31.1 | 9.0 | 40.5 | 31.4 | 49.2 | 64 | -14.8 |
| 17094 | Vert | 32.0 | 11.4 | 41.5 | 31.1 | 53.8 | 64 | -10.2 |
| (Fc * 7) | Hor | 30.9 | 11.4 | 41.5 | 31.1 | 52.7 | 64 | -11.3 |
| 19536 | Vert | 39.1 | 1.4 | 44.0 | 31.3 | 53.2 | 64 | -10.8 |
| (Fc * 8) | Hor | 39.2 | 1.4 | 44.0 | 31.3 | 53.3 | 64 | -10.7 |
| 21978 | Vert | 37.8 | 2.0 | 44.7 | 30.4 | 54.1 | 64 | -9.9 |
| (Fc * 9) | Hor | 37.9 | 2.0 | 44.7 | 30.4 | 54.2 | 64 | -9.8 |
| 24420 | Vert | 38.3 | 2.3 | 45.6 | 31.3 | 54.9 | 64 | -9.1 |
| (Fc * 10) | Hor | 38.2 | 2.3 | 45.6 | 31.3 | 54.8 | 64 | -9.2 |

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Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL

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Test Date (mm/dd/yy): 11/06/98

Standard: FCC 15.247

Measurement System Calibration Date: 3/2/98

Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | H.P.filter + Cable Loss (dB) | Antenna Correction Factor dB/M | Amplifier Gain (dB) | Calculated Result dB(uV)/M | AVERAGE Limit @ 3 Meters < 1 GHz, 1 Meter > 1 GHz dB(uV)/Meter | Margin (dB) |
|------------------------|------------------|--------------------------|------------------------------|--------------------------------|---------------------|----------------------------|--|-------------|
| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| High Channel 11 | 2462.000 | MHz | | | | | | |
| 352 | Vert | 3.0 | 1.7 | 15.0 | | 19.7 | 46 | -26.3 |
| (IF) | Hor | 2.9 | 1.7 | 15.0 | | 19.6 | 46 | -26.4 |
| 704 | Vert | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| (IF * 2) | Hor | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| 1056 | Vert | 23.8 | 1.7 | 23.1 | | 48.6 | 64 | -15.4 |
| (IF * 3) | Hor | 23.7 | 1.7 | 23.1 | | 48.5 | 64 | -15.5 |
| 1408 | Vert | 29.1 | 1.9 | 24.3 | | 55.3 | 64 | -8.7 |
| (IF * 4) | Hor | 24.3 | 1.9 | 24.3 | | 50.5 | 64 | -13.5 |
| 1760 | Vert | 25.6 | 4.3 | 25.8 | | 55.7 | 64 | -8.3 |
| (IF * 5) | Hor | 25.6 | 4.3 | 25.8 | | 55.7 | 64 | -8.3 |
| 2110 | Vert | 55.2 | 4.0 | 27.3 | 33.8 | 52.7 | 64 | -11.3 |
| (Fc-IF) | Hor | 45.5 | 4.0 | 27.3 | 33.8 | 43.0 | 64 | -21.0 |
| 2462 | Vert | | 3.8 | 28.2 | | | | |
| (Fc) | Hor | | 3.8 | 28.2 | | | | |
| 2816 | Vert | 34.7 | 4.4 | 29.6 | 32.7 | 36.0 | 64 | -28.0 |
| (Fc+IF) | Hor | 35.5 | 4.4 | 29.6 | 32.7 | 36.8 | 64 | -27.2 |
| 3518 | Vert | 29.7 | 3.6 | 30.8 | 32.7 | 31.4 | 64 | -32.6 |
| (Fc+IF*3) | Hor | 33.9 | 3.6 | 30.8 | 32.7 | 35.6 | 64 | -28.4 |
| 4924 | Vert | 57.7 | 4.4 | 32.9 | 32.7 | 62.3 | 64 | -1.7 |
| (Fc * 2) | Hor | 53.8 | 4.4 | 32.9 | 32.7 | 58.4 | 64 | -5.6 |
| 7386 | Vert | 38.3 | 5.9 | 37.4 | 33.3 | 48.3 | 64 | -15.7 |
| (Fc * 3) | Hor | 35.3 | 5.9 | 37.4 | 33.3 | 45.3 | 64 | -18.7 |
| 9848 | Vert | 33.9 | 6.0 | 37.8 | 33.3 | 44.4 | 64 | -19.6 |
| (Fc * 4) | Hor | 34.1 | 6.0 | 37.8 | 33.3 | 44.6 | 64 | -19.4 |
| 12310 | Vert | 30.1 | 7.2 | 39.3 | 32.2 | 44.4 | 64 | -19.6 |
| (Fc * 5) | Hor | 30.3 | 7.2 | 39.3 | 32.2 | 44.6 | 64 | -19.4 |
| 14772 | Vert | 31.4 | 9.2 | 40.2 | 31.6 | 49.2 | 64 | -14.8 |
| (Fc * 6) | Hor | 31.5 | 9.2 | 40.2 | 31.6 | 49.3 | 64 | -14.7 |
| 17234 | Vert | 31.7 | 10.9 | 43.4 | 31.0 | 55.0 | 64 | -9.0 |
| (Fc * 7) | Hor | 31.5 | 10.9 | 43.4 | 31.0 | 54.8 | 64 | -9.2 |
| 19696 | Vert | 39.3 | 1.8 | 44.0 | 31.4 | 53.7 | 64 | -10.3 |
| (Fc * 8) | Hor | 39.4 | 1.8 | 44.0 | 31.4 | 53.8 | 64 | -10.2 |
| 22158 | Vert | 37.9 | 1.2 | 45.0 | 30.4 | 53.7 | 64 | -10.3 |
| (Fc * 9) | Hor | 38.0 | 1.2 | 45.0 | 30.4 | 53.8 | 64 | -10.2 |
| 24620 | Vert | 38.6 | 1.7 | 45.9 | 31.5 | 54.7 | 64 | -9.3 |
| (Fc * 10) | Hor | 38.2 | 1.7 | 45.9 | 31.5 | 54.3 | 64 | -9.7 |

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Set Up: Cushcraft 15 dBi Yagi, radio tested as module HORIZONTAL

Test Date (mm/dd/yy): 11/06/98

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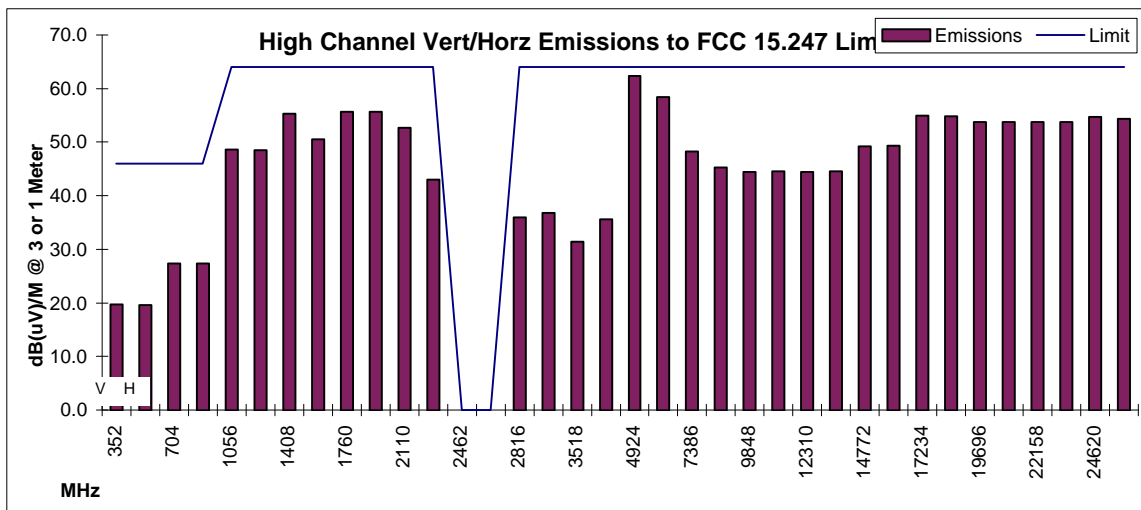
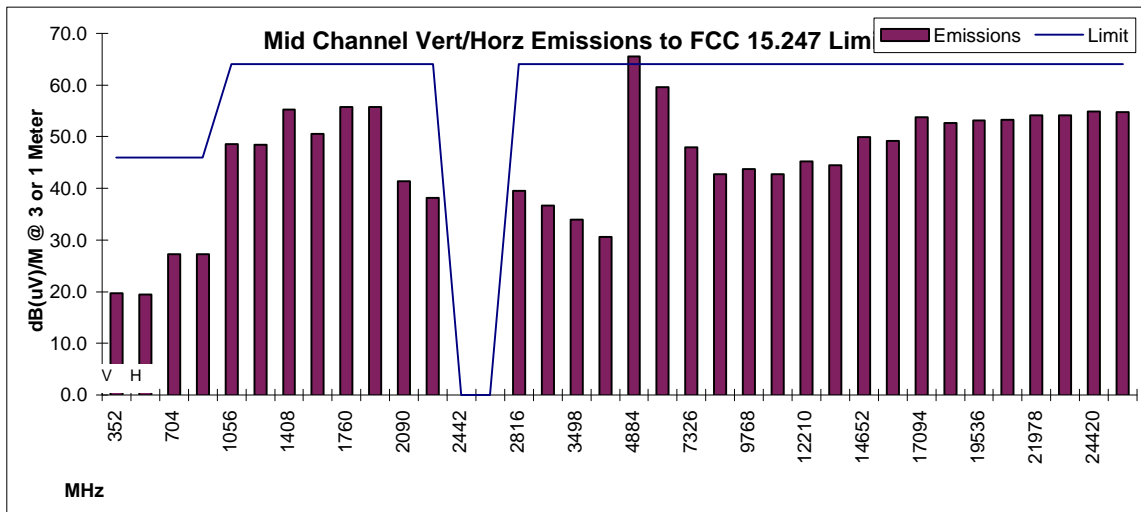
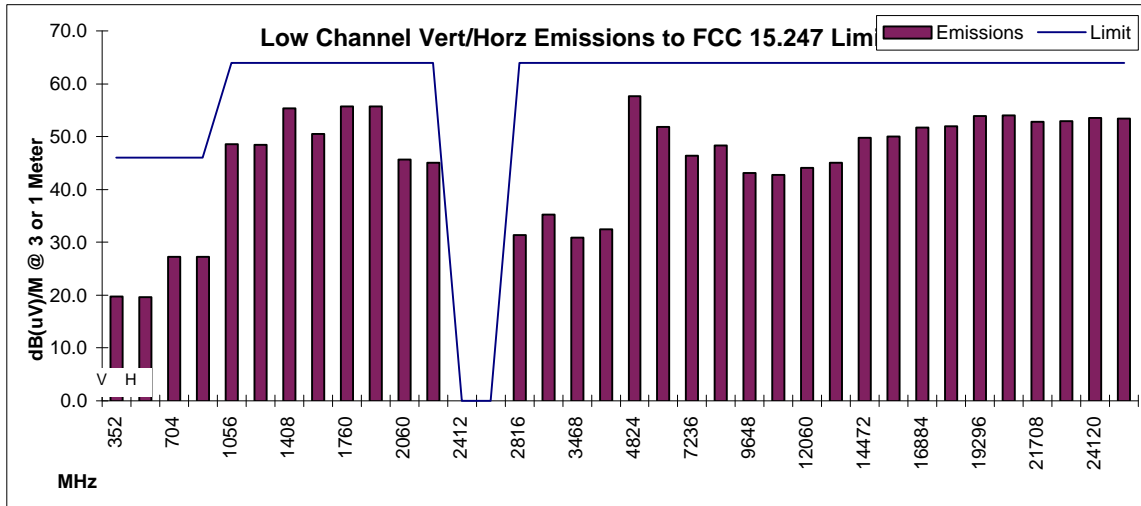
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Standard: FCC 15.247

Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz



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Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 1 MHz

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | H.P.filter + Cable Loss (dB) | Antenna Correction Factor dB/M | Amplifier Gain (dB) | Calculated Result dB(uV)/M | PEAK Limit @ 3 Meters < 1 GHz, 1 Meter > 1 GHz dB(uV)/Meter | Margin (dB) |
|-----------------------|------------------|--------------------------|------------------------------|--------------------------------|---------------------|----------------------------|---|-------------|
| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| Low Channel 01 | 2412.000 | MHz | | | | | | |
| 352 | Vert | 3.0 | 1.7 | 15.0 | | 19.7 | 46 | -26.3 |
| (IF) | Hor | 2.9 | 1.7 | 15.0 | | 19.6 | 46 | -26.4 |
| 704 | Vert | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| (IF * 2) | Hor | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| 1056 | Vert | 33.4 | 1.7 | 23.1 | | 58.2 | 84 | -25.8 |
| (IF * 3) | Hor | 34.9 | 1.7 | 23.1 | | 59.7 | 84 | -24.3 |
| 1408 | Vert | 36.4 | 1.9 | 24.3 | | 62.6 | 84 | -21.4 |
| (IF * 4) | Hor | 35.0 | 1.9 | 24.3 | | 61.2 | 84 | -22.8 |
| 1760 | Vert | 35.9 | 4.3 | 25.8 | | 66.0 | 84 | -18.0 |
| (IF * 5) | Hor | 36.4 | 4.3 | 25.8 | | 66.5 | 84 | -17.5 |
| 2060 | Vert | 50.4 | 4.2 | 27.1 | 33.7 | 48.0 | 84 | -36.0 |
| (Fc-IF) | Hor | 49.6 | 4.2 | 27.1 | 33.7 | 47.2 | 84 | -36.8 |
| 2412 | Vert | | 4.0 | 28.0 | | | | |
| (Fc) | Hor | | 4.0 | 28.0 | | | | |
| 2816 | Vert | 42.6 | 4.2 | 29.3 | 32.9 | 43.2 | 84 | -40.8 |
| (IF*8) | Hor | 45.0 | 4.2 | 29.3 | 32.9 | 45.6 | 84 | -38.4 |
| 3468 | Vert | 40.1 | 3.8 | 30.6 | 32.9 | 41.6 | 84 | -42.4 |
| (Fc+IF*3) | Hor | 41.9 | 3.8 | 30.6 | 32.9 | 43.4 | 84 | -40.6 |
| 4824 | Vert | 56.3 | 4.8 | 32.8 | 32.9 | 61.0 | 84 | -23.0 |
| (Fc * 2) | Hor | 51.2 | 4.8 | 32.8 | 32.9 | 55.9 | 84 | -28.1 |
| 7236 | Vert | 45.0 | 6.3 | 36.8 | 33.3 | 54.8 | 84 | -29.2 |
| (Fc * 3) | Hor | 45.9 | 6.3 | 36.8 | 33.3 | 55.7 | 84 | -28.3 |
| 9648 | Vert | 41.4 | 7.1 | 37.4 | 33.5 | 52.4 | 84 | -31.6 |
| (Fc * 4) | Hor | 43.3 | 7.1 | 37.4 | 33.5 | 54.3 | 84 | -29.7 |
| 12060 | Vert | 39.5 | 7.9 | 39.1 | 32.4 | 54.1 | 84 | -29.9 |
| (Fc * 5) | Hor | 41.5 | 7.9 | 39.1 | 32.4 | 56.1 | 84 | -27.9 |
| 14472 | Vert | 42.3 | 8.8 | 40.8 | 31.3 | 60.6 | 84 | -23.4 |
| (Fc * 6) | Hor | 42.5 | 8.8 | 40.8 | 31.3 | 60.8 | 84 | -23.2 |
| 16884 | Vert | 41.8 | 11.1 | 40.3 | 31.1 | 62.1 | 84 | -21.9 |
| (Fc * 7) | Hor | 42.3 | 11.1 | 40.3 | 31.1 | 62.6 | 84 | -21.4 |
| 19296 | Vert | 50.2 | 1.9 | 44.2 | 31.1 | 65.2 | 84 | -18.8 |
| (Fc * 8) | Hor | 50.2 | 1.9 | 44.2 | 31.1 | 65.2 | 84 | -18.8 |
| 21708 | Vert | 48.9 | 1.4 | 44.3 | 30.5 | 64.1 | 84 | -19.9 |
| (Fc * 9) | Hor | 48.9 | 1.4 | 44.3 | 30.5 | 64.1 | 84 | -19.9 |
| 24120 | Vert | 49.5 | 1.1 | 45.1 | 30.8 | 64.9 | 84 | -19.1 |
| (Fc * 10) | Hor | 49.7 | 1.1 | 45.1 | 30.8 | 65.1 | 84 | -18.9 |

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| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| Middle Channel 7 | 2442.000 | MHz | | | | | | |
| 352 | Vert | 3.0 | 1.7 | 15.0 | | 19.7 | 46 | -26.3 |
| (IF) | Hor | 2.7 | 1.7 | 15.0 | | 19.4 | 46 | -26.6 |
| 704 | Vert | 3.5 | 2.8 | 20.9 | | 27.2 | 46 | -18.8 |
| (IF * 2) | Hor | 3.5 | 2.8 | 20.9 | | 27.2 | 46 | -18.8 |
| 1056 | Vert | 33.4 | 1.7 | 23.1 | | 58.2 | 84 | -25.8 |
| (IF * 3) | Hor | 34.9 | 1.7 | 23.1 | | 59.7 | 84 | -24.3 |
| 1408 | Vert | 36.4 | 1.9 | 24.3 | | 62.6 | 84 | -21.4 |
| (IF * 4) | Hor | 35.0 | 1.9 | 24.3 | | 61.2 | 84 | -22.8 |
| 1760 | Vert | 35.9 | 4.3 | 25.8 | | 66.0 | 84 | -18.0 |
| (IF * 5) | Hor | 36.4 | 4.3 | 25.8 | | 66.5 | 84 | -17.5 |
| 2090 | Vert | 47.4 | 4.0 | 27.2 | 33.7 | 44.9 | 84 | -39.1 |
| (Fc-IF) | Hor | 45.4 | 4.0 | 27.2 | 33.7 | 42.9 | 84 | -41.1 |
| 2442 | Vert | | 3.9 | 28.1 | | | | |
| (Fc) | Hor | | 3.9 | 28.1 | | | | |
| 2816 | Vert | 45.2 | 4.3 | 29.5 | 32.9 | 46.1 | 84 | -37.9 |
| (IF*8) | Hor | 45.5 | 4.3 | 29.5 | 32.9 | 46.4 | 84 | -37.6 |
| 3498 | Vert | 41.7 | 3.7 | 30.7 | 32.9 | 43.2 | 84 | -40.8 |
| (Fc+IF*3) | Hor | 40.1 | 3.7 | 30.7 | 32.9 | 41.6 | 84 | -42.4 |
| 4884 | Vert | 63.9 | 4.7 | 32.9 | 32.9 | 68.6 | 84 | -15.4 |
| (Fc * 2) | Hor | 57.8 | 4.7 | 32.9 | 32.9 | 62.5 | 84 | -21.5 |
| 7326 | Vert | 45.5 | 6.0 | 37.2 | 33.3 | 55.4 | 84 | -28.6 |
| (Fc * 3) | Hor | 42.9 | 6.0 | 37.2 | 33.3 | 52.8 | 84 | -31.2 |
| 9768 | Vert | 43.4 | 6.7 | 37.6 | 33.4 | 54.3 | 84 | -29.7 |
| (Fc * 4) | Hor | 42.9 | 6.7 | 37.6 | 33.4 | 53.8 | 84 | -30.2 |
| 12210 | Vert | 42.1 | 7.8 | 39.2 | 32.4 | 56.7 | 84 | -27.3 |
| (Fc * 5) | Hor | 28.8 | 7.8 | 39.2 | 32.4 | 43.4 | 84 | -40.6 |
| 14652 | Vert | 43.6 | 9.0 | 40.5 | 31.4 | 61.7 | 84 | -22.3 |
| (Fc * 6) | Hor | 43.3 | 9.0 | 40.5 | 31.4 | 61.4 | 84 | -22.6 |
| 17094 | Vert | 42.8 | 11.4 | 41.5 | 31.1 | 64.6 | 84 | -19.4 |
| (Fc * 7) | Hor | 41.3 | 11.4 | 41.5 | 31.1 | 63.1 | 84 | -20.9 |
| 19536 | Vert | 50.3 | 1.4 | 44.0 | 31.3 | 64.4 | 84 | -19.6 |
| (Fc * 8) | Hor | 50.3 | 1.4 | 44.0 | 31.3 | 64.4 | 84 | -19.6 |
| 21978 | Vert | 49.0 | 2.0 | 44.7 | 30.4 | 65.3 | 84 | -18.7 |
| (Fc * 9) | Hor | 49.0 | 2.0 | 44.7 | 30.4 | 65.3 | 84 | -18.7 |
| 24420 | Vert | 49.6 | 2.3 | 45.6 | 31.3 | 66.2 | 84 | -17.8 |
| (Fc * 10) | Hor | 49.8 | 2.3 | 45.6 | 31.3 | 66.4 | 84 | -17.6 |

PEAK TRANSMITTER RADIATED SPURIOUS EMISSIONS

FCC ID: EHA2126

Intermec Technologies Corporation

Product: Intermec DSSS Type II Radio, Approval

Norand Mobile Systems Division

Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL

EMC Test Laboratory

Test Date (mm/dd/yy): 11/06/98

Standard: FCC 15.247

Measurement System Calibration Date: 3/2/98

Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 1 MHz

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | H.P.filter + Cable Loss (dB) | Antenna Correction Factor dB/M | Amplifier Gain (dB) | Calculated Result dB(uV)/M | PEAK Limit @ 3 Meters < 1 GHz, 1 Meter > 1 GHz dB(uV)/Meter | Margin (dB) |
|------------------------|------------------|--------------------------|------------------------------|--------------------------------|---------------------|----------------------------|---|-------------|
| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| High Channel 11 | 2462.000 | MHz | | | | | | |
| 352 | Vert | 3.0 | 1.7 | 15.0 | | 19.7 | 46 | -26.3 |
| (IF) | Hor | 2.9 | 1.7 | 15.0 | | 19.6 | 46 | -26.4 |
| 704 | Vert | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| (IF * 2) | Hor | 3.6 | 2.8 | 20.9 | | 27.3 | 46 | -18.7 |
| 1056 | Vert | 33.5 | 1.7 | 23.1 | | 58.3 | 84 | -25.7 |
| (IF * 3) | Hor | 35.0 | 1.7 | 23.1 | | 59.8 | 84 | -24.2 |
| 1408 | Vert | 36.2 | 1.9 | 24.3 | | 62.4 | 84 | -21.6 |
| (IF * 4) | Hor | 24.8 | 1.9 | 24.3 | | 51.0 | 84 | -33.0 |
| 1760 | Vert | 35.8 | 4.3 | 25.8 | | 65.9 | 84 | -18.1 |
| (IF * 5) | Hor | 36.0 | 4.3 | 25.8 | | 66.1 | 84 | -17.9 |
| 2110 | Vert | 56.4 | 4.0 | 27.3 | 33.8 | 53.9 | 84 | -30.1 |
| (Fc-IF) | Hor | 48.6 | 4.0 | 27.3 | 33.8 | 46.1 | 84 | -37.9 |
| 2462 | Vert | | 3.8 | 28.2 | | | | |
| (Fc) | Hor | | 3.8 | 28.2 | | | | |
| 2816 | Vert | 41.8 | 4.4 | 29.6 | 32.7 | 43.1 | 84 | -40.9 |
| (Fc+IF) | Hor | 45.1 | 4.4 | 29.6 | 32.7 | 46.4 | 84 | -37.6 |
| 3518 | Vert | 40.2 | 3.6 | 30.8 | 32.7 | 41.9 | 84 | -42.1 |
| (Fc+IF*3) | Hor | 42.3 | 3.6 | 30.8 | 32.7 | 44.0 | 84 | -40.0 |
| 4924 | Vert | 58.6 | 4.4 | 32.9 | 32.7 | 63.2 | 84 | -20.8 |
| (Fc * 2) | Hor | 54.7 | 4.4 | 32.9 | 32.7 | 59.3 | 84 | -24.7 |
| 7386 | Vert | 44.4 | 5.9 | 37.4 | 33.3 | 54.4 | 84 | -29.6 |
| (Fc * 3) | Hor | 43.3 | 5.9 | 37.4 | 33.3 | 53.3 | 84 | -30.7 |
| 9848 | Vert | 42.8 | 6.0 | 37.8 | 33.3 | 53.3 | 84 | -30.7 |
| (Fc * 4) | Hor | 43.1 | 6.0 | 37.8 | 33.3 | 53.6 | 84 | -30.4 |
| 12310 | Vert | 41.2 | 7.2 | 39.3 | 32.2 | 55.5 | 84 | -28.5 |
| (Fc * 5) | Hor | 41.4 | 7.2 | 39.3 | 32.2 | 55.7 | 84 | -28.3 |
| 14772 | Vert | 42.6 | 9.2 | 40.2 | 31.6 | 60.4 | 84 | -23.6 |
| (Fc * 6) | Hor | 41.8 | 9.2 | 40.2 | 31.6 | 59.6 | 84 | -24.4 |
| 17234 | Vert | 42.3 | 10.9 | 43.4 | 31.0 | 65.6 | 84 | -18.4 |
| (Fc * 7) | Hor | 42.1 | 10.9 | 43.4 | 31.0 | 65.4 | 84 | -18.6 |
| 19696 | Vert | 50.4 | 1.8 | 44.0 | 31.4 | 64.8 | 84 | -19.2 |
| (Fc * 8) | Hor | 50.4 | 1.8 | 44.0 | 31.4 | 64.8 | 84 | -19.2 |
| 22158 | Vert | 49.1 | 1.2 | 45.0 | 30.4 | 64.9 | 84 | -19.1 |
| (Fc * 9) | Hor | 49.2 | 1.2 | 45.0 | 30.4 | 65.0 | 84 | -19.0 |
| 24620 | Vert | 49.7 | 1.7 | 45.9 | 31.5 | 65.8 | 84 | -18.2 |
| (Fc * 10) | Hor | 49.9 | 1.7 | 45.9 | 31.5 | 66.0 | 84 | -18.0 |

PEAK TRANSMITTER RADIATED SPURIOUS EMISSIONS

FCC ID: EHA2126

Intermec Technologies Corporation

Product: Intermec DSSS Type II Radio, Approval

Norand Mobile Systems Division

Set Up: Cushcraft 15 dBi Yagi, radio tested as module HORIZONTAL

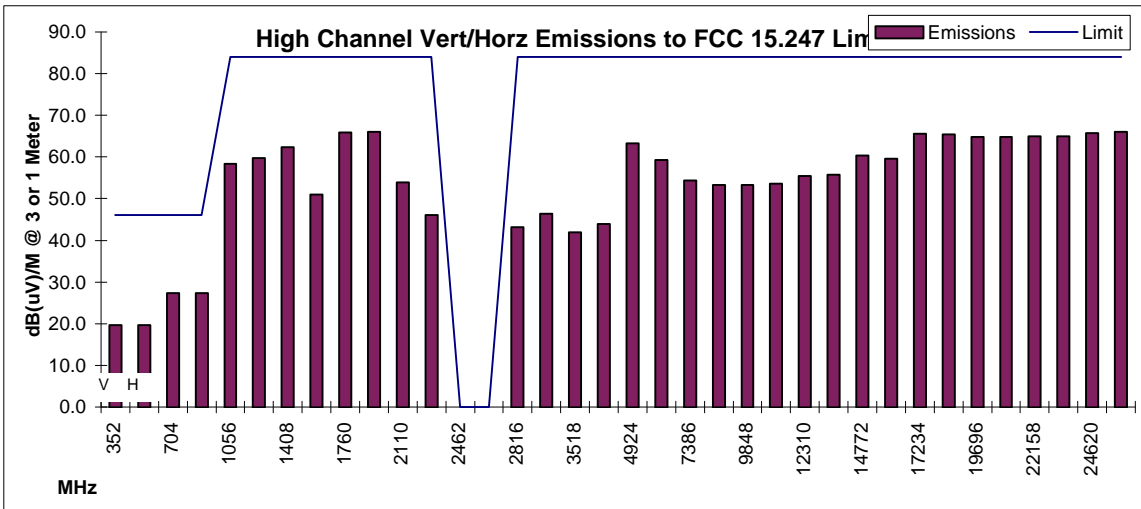
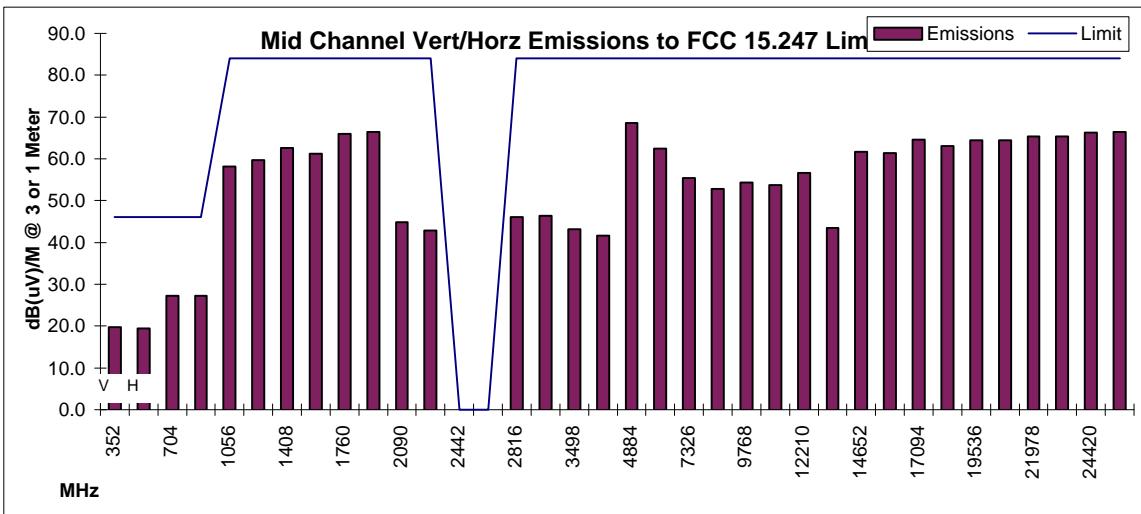
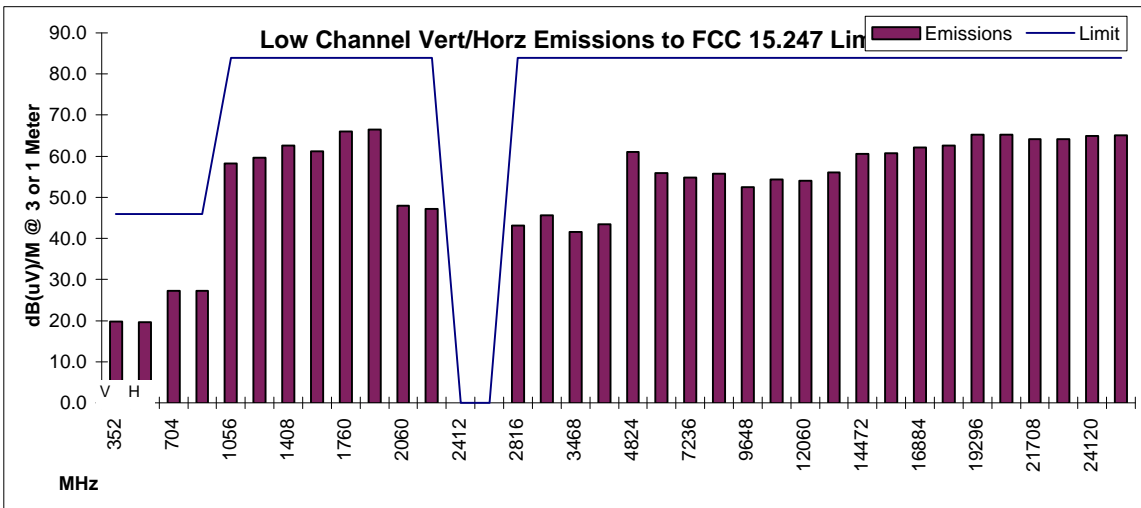
EMC Test Laboratory

Test Date (mm/dd/yy): 11/06/98

Standard: FCC 15.247

Measurement System Calibration Date: 3/2/98

Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 1 MHz



RECEIVER RADIATED SPURIOUS EMISSIONS

Average Emissions Data Compared to Average Emissions Limit

FCC ID: EHA2126

Product: Intermec DSSS Type II Radio, Approval

Set Up: Cushcraft 15 dBi Yagi, radio tested as module HORIZONTAL

Test Date (mm/dd/yy): 11/06/98

Measurement System Calibration Date: 3/2/98

Intermec Technologies Corporation

Norand Mobile Systems Division

EMC Test Laboratory

Standard: Canada RSS-210/GL-36

Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | H.P.filter + Cable Loss (dB) | Antenna Correction Factor dB/M | Amplifier Gain (dB) | Calculated Result dB(uV)/M | AVERAGE Limit @ 1 Meter dB(uV)/Meter | Margin (dB) |
|-----------------------|------------------|--------------------------|------------------------------|--------------------------------|---------------------|----------------------------|--------------------------------------|-------------|
| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| Low Channel 01 | | 2412 | MHz | | | | | |
| 2060 | Vert | 43.4 | 3.1 | 27.1 | 33.6 | 40.0 | 64 | -24.0 |
| (Lo) | Hor | 41.7 | 3.1 | 27.1 | 33.6 | 38.3 | 64 | -25.7 |
| 4120 | Vert | 36.9 | 3.9 | 32.6 | 33.2 | 40.2 | 64 | -23.8 |
| (Lo * 2) | Hor | 35.6 | 3.9 | 32.6 | 33.2 | 38.9 | 64 | -25.1 |
| 6180 | Vert | 31.3 | 5.6 | 34.5 | 33.0 | 38.4 | 64 | -25.6 |
| (Lo * 3) | Hor | 31.2 | 5.6 | 34.5 | 33.0 | 38.3 | 64 | -25.7 |
| 8240 | Vert | 33.0 | 6.2 | 37.3 | 33.3 | 43.2 | 64 | -20.8 |
| (Lo * 4) | Hor | 33.0 | 6.2 | 37.3 | 33.3 | 43.2 | 64 | -20.8 |
| 10300 | Vert | 30.8 | 6.8 | 38.3 | 32.9 | 43.0 | 64 | -21.0 |
| (Lo * 5) | Hor | 30.6 | 6.8 | 38.3 | 32.9 | 42.8 | 64 | -21.2 |
| 12360 | Vert | 30.2 | 7.9 | 39.2 | 32.3 | 45.0 | 64 | -19.0 |
| (Lo * 6) | Hor | 30.4 | 7.9 | 39.2 | 32.3 | 45.2 | 64 | -18.8 |

| | | | | | | | | |
|-------------------------|------|-------------|------------|------|------|------|----|-------|
| Middle Channel 7 | | 2442 | MHz | | | | | |
| 2090 | Vert | 44.6 | 3.0 | 27.2 | 33.6 | 41.2 | 64 | -22.8 |
| (Lo) | Hor | 42.3 | 3.0 | 27.2 | 33.6 | 38.9 | 64 | -25.1 |
| 4180 | Vert | 45.2 | 4.2 | 32.5 | 33.2 | 48.7 | 64 | -15.3 |
| (Lo * 2) | Hor | 41.0 | 4.2 | 32.5 | 33.2 | 44.5 | 64 | -19.5 |
| 6270 | Vert | 31.4 | 5.9 | 34.4 | 33.0 | 38.7 | 64 | -25.3 |
| (Lo * 3) | Hor | 30.3 | 5.9 | 34.4 | 33.0 | 37.6 | 64 | -26.4 |
| 8360 | Vert | 32.0 | 6.4 | 37.4 | 33.4 | 42.4 | 64 | -21.6 |
| (Lo * 4) | Hor | 32.0 | 6.4 | 37.4 | 33.4 | 42.4 | 64 | -21.6 |
| 10450 | Vert | 30.1 | 6.9 | 38.5 | 32.9 | 42.6 | 64 | -21.4 |
| (Lo * 5) | Hor | 30.3 | 6.9 | 38.5 | 32.9 | 42.8 | 64 | -21.2 |
| 12540 | Vert | 31.9 | 8.1 | 39.4 | 32.1 | 47.3 | 64 | -16.7 |
| (Lo * 6) | Hor | 31.8 | 8.1 | 39.4 | 32.1 | 47.2 | 64 | -16.8 |

| | | | | | | | | |
|------------------------|------|-------------|------------|------|------|------|----|-------|
| High Channel 11 | | 2462 | MHz | | | | | |
| 2110 | Vert | 50.9 | 3.0 | 27.3 | 33.6 | 47.6 | 64 | -16.4 |
| (Lo) | Hor | 39.0 | 3.0 | 27.3 | 33.6 | 35.7 | 64 | -28.3 |
| 4220 | Vert | 38.4 | 4.2 | 32.5 | 33.2 | 41.9 | 64 | -22.1 |
| (Lo * 2) | Hor | 35.4 | 4.2 | 32.5 | 33.2 | 38.9 | 64 | -25.1 |
| 6330 | Vert | 31.3 | 6.0 | 34.3 | 33.1 | 38.5 | 64 | -25.5 |
| (Lo * 3) | Hor | 31.2 | 6.0 | 34.3 | 33.1 | 38.4 | 64 | -25.6 |
| 8440 | Vert | 36.6 | 6.7 | 37.5 | 33.5 | 47.3 | 64 | -16.7 |
| (Lo * 4) | Hor | 35.0 | 6.7 | 37.5 | 33.5 | 45.7 | 64 | -18.3 |
| 10550 | Vert | 29.9 | 7.2 | 38.5 | 32.8 | 42.8 | 64 | -21.2 |
| (Lo * 5) | Hor | 30.2 | 7.2 | 38.5 | 32.8 | 43.1 | 64 | -20.9 |
| 12660 | Vert | 32.1 | 8.1 | 39.7 | 31.5 | 48.4 | 64 | -15.6 |
| (Lo * 6) | Hor | 31.9 | 8.1 | 39.7 | 31.5 | 48.2 | 64 | -15.8 |

RECEIVER RADIATED SPURIOUS EMISSIONS

Average Emissions Data Compared to Average Emissions Limit

FCC ID: EHA2126

Product: Intermec DSSS Type II Radio, Approval

Set Up: Cushcraft 15 dBi Yagi, radio tested as module HORIZONTAL

Test Date (mm/dd/yy): 11/06/98

Measurement System Calibration Date: 3/2/98

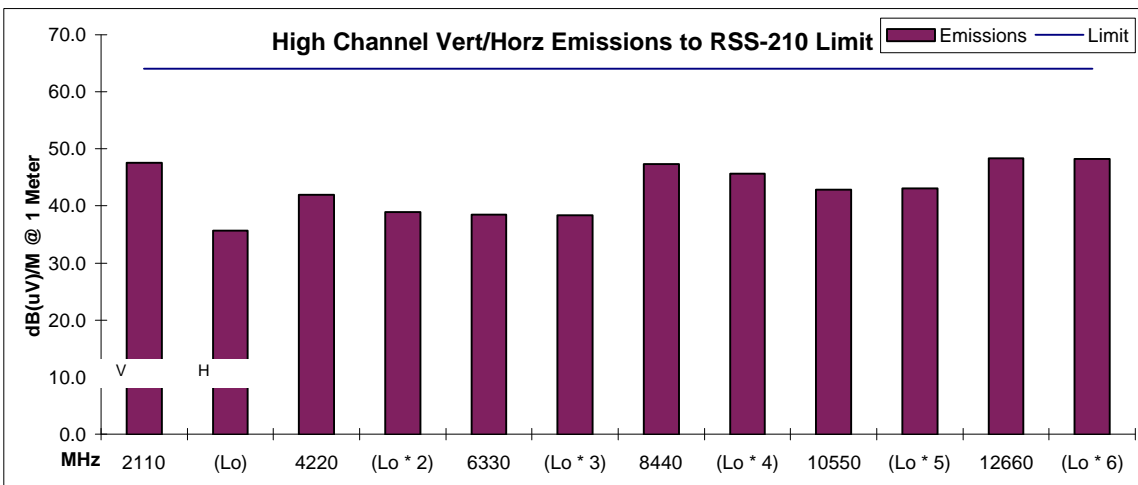
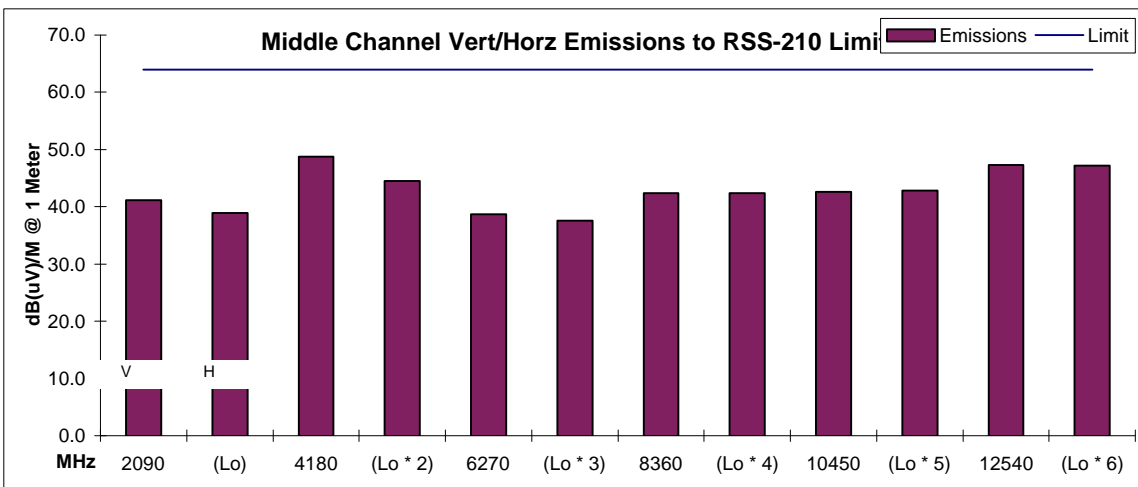
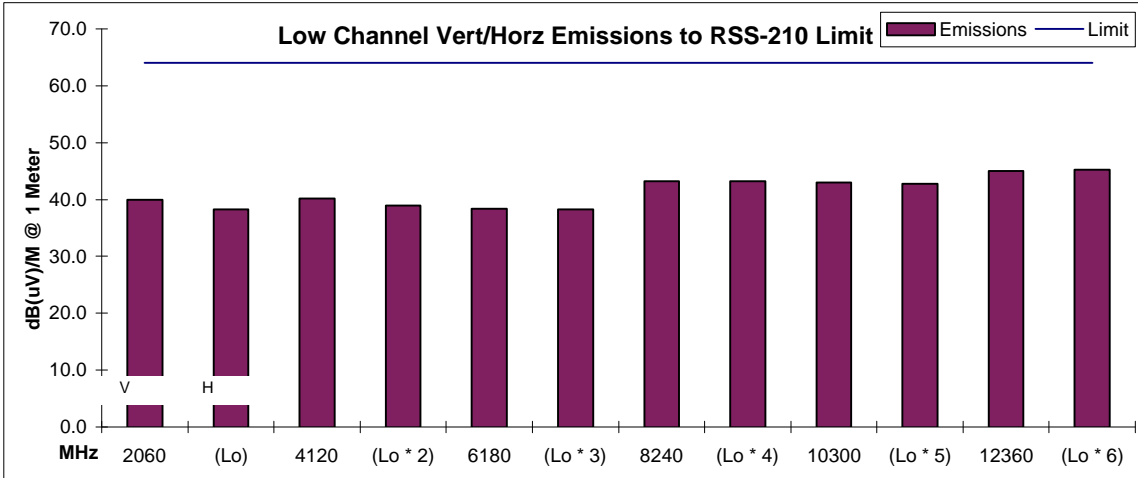
Intermec Technologies Corporation

Norand Mobile Systems Division

EMC Test Laboratory

Standard: Canada RSS-210/GL-36

Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz



TRANSMITTER RADIATED SPURIOUS EMISSIONS

Product: Intermec DSSS Type II Radio, Approval
 Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL
 Test Date (mm/dd/yy): 11/06/98
 Measurement System Calibration Date: 2/26/98
 Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

Intermec Technologies Corporation
 Norand Mobile Systems Division
 EMC Test Laboratory

Standard: ETS 300-328

Data recorded here is based upon FCC data sheets within this file

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | Spur Meas. (dBm) | Generator 0 dBm Ref. Level | Calculated Generator Substitution (dBm) | Antenna Comp (dB) | Cable Comp (dB) | Generator Reference at Antenna (dBm) | Spec Limit (dBm) | Margin (dB) |
|-----------------------|------------------|--------------------------|------------------|----------------------------|---|-------------------|-----------------|--------------------------------------|------------------|-------------|
| a | b | c | d | e | f | g | h | i | j | k |
| (formula) | | | (=c-107) | | (=d-e) | | | (=f-g+h) | | (=i-j) |
| Low Channel 01 | 2412 | MHz | | | | | | | | |
| 352 | Vert | 3.0 | -104.0 | -27.4 | -76.6 | | 0.6 | -77.2 | -36 | -41.2 |
| (IF) | Hor | 2.9 | -104.1 | -24.0 | -80.1 | | 0.6 | -80.7 | -36 | -44.7 |
| 704 | Vert | 3.6 | -103.4 | -35.8 | -67.6 | | 1.0 | -68.6 | -36 | -32.6 |
| (IF * 2) | Hor | 3.6 | -103.4 | -31.4 | -72.0 | | 1.0 | -73.0 | -36 | -37.0 |
| 1056 | Vert | 23.8 | -83.2 | -26.3 | -56.9 | 4.1 | 1.4 | -54.2 | -30 | -24.2 |
| (IF * 3) | Hor | 23.7 | -83.3 | -26.1 | -57.2 | 4.1 | 1.4 | -54.5 | -30 | -24.5 |
| 1408 | Vert | 29.1 | -77.9 | -26.2 | -51.7 | 6.3 | 1.7 | -47.1 | -30 | -17.1 |
| (IF * 4) | Hor | 24.3 | -82.7 | -26.9 | -55.8 | 6.3 | 1.7 | -51.2 | -30 | -21.2 |
| 1760 | Vert | 25.6 | -81.4 | -30.9 | -50.5 | 6.5 | 2.0 | -46.0 | -30 | -16.0 |
| (IF * 5) | Hor | 25.6 | -81.4 | -30.9 | -50.5 | 6.5 | 2.0 | -46.0 | -30 | -16.0 |
| 2060 | Vert | 47.9 | -107.0 | 2.8 | -109.8 | 6.3 | 2.2 | -105.7 | -30 | -75.7 |
| (Fc-IF) | Hor | 47.3 | -59.7 | 2.8 | -62.5 | 6.3 | 2.2 | -58.4 | -30 | -28.4 |
| 2412 | Vert | | -107.0 | -31.2 | -75.8 | 7.4 | 3.5 | | | |
| (Fc) | Hor | | -107.0 | -31.1 | -75.9 | 7.4 | 3.5 | | | |
| 2816 | Vert | 31.7 | -75.3 | 0.8 | -76.1 | 6.5 | 2.6 | -72.2 | -30 | -42.2 |
| (IF*8) | Hor | 35.5 | -71.5 | 0.7 | -72.2 | 6.5 | 2.6 | -68.3 | -30 | -38.3 |
| 3468 | Vert | 30.3 | -76.7 | -1.2 | -75.5 | 6.9 | 2.9 | -71.5 | -30 | -41.5 |
| (Fc+IF*3) | Hor | 31.9 | -75.1 | -1.6 | -73.5 | 6.9 | 2.9 | -69.5 | -30 | -39.5 |
| 4824 | Vert | 52.9 | -54.1 | -4.9 | -49.2 | 7.3 | 3.7 | -45.6 | -30 | -15.6 |
| (Fc * 2) | Hor | 47.1 | -59.9 | -5.1 | -54.8 | 7.3 | 3.7 | -51.2 | -30 | -21.2 |
| 7236 | Vert | 36.6 | -70.4 | -12.1 | -58.3 | 6.0 | 3.8 | -56.1 | -30 | -26.1 |
| (Fc * 3) | Hor | 38.5 | -68.5 | -12.1 | -56.4 | 6.0 | 3.8 | -54.2 | -30 | -24.2 |
| 9648 | Vert | 32.1 | -81.4 | -15.5 | -65.9 | 7.9 | 6.2 | -64.2 | -30 | -34.2 |
| (Fc * 4) | Hor | 31.8 | -75.2 | -15.1 | -60.1 | 7.9 | 6.2 | -58.4 | -30 | -28.4 |
| 12060 | Vert | 29.5 | -63.1 | -21.4 | -41.7 | 6.5 | 6.5 | -41.7 | -30 | -11.7 |
| (Fc * 5) | Hor | 30.4 | -76.6 | -21.4 | -55.2 | 6.5 | 6.5 | -55.2 | -30 | -25.2 |

TRANSMITTER RADIATED SPURIOUS EMISSIONS

Product: Intermec DSSS Type II Radio, Approval
 Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL
 Test Date (mm/dd/yy): 11/06/98
 Measurement System Calibration Date: 2/26/98
 Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

Intermec Technologies Corporation
 Norand Mobile Systems Division
 EMC Test Laboratory

Standard: ETS 300-328

Data recorded here is based upon FCC data sheets within this file

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | Spur Meas. (dBm) | Generator 0 dBm Ref. Level | Calculated Generator Substitution (dBm) | Antenna Comp (dB) | Cable Comp (dB) | Generator Reference at Antenna (dBm) | Spec Limit (dBm) | Margin (dB) |
|-------------------------|------------------|--------------------------|------------------|----------------------------|---|-------------------|-----------------|--------------------------------------|------------------|-------------|
| a | b | c | d | e | f | g | h | i | j | k |
| (formula) | | | (=c-107) | | (=d-e) | | | (=f-g+h) | | (=i-j) |
| Middle Channel 7 | 2442 | MHz | | | | | | | | |
| 352 | Vert | 3.0 | -104.0 | -27.4 | -76.6 | | 0.6 | -77.2 | -36 | -41.2 |
| (IF) | Hor | 2.7 | -104.3 | -24.0 | -80.3 | | 0.6 | -80.9 | -36 | -44.9 |
| 704 | Vert | 3.5 | -103.5 | -35.8 | -67.7 | | 1.0 | -68.7 | -36 | -32.7 |
| (IF * 2) | Hor | 3.5 | -103.5 | -31.4 | -72.1 | | 1.0 | -73.1 | -36 | -37.1 |
| 1056 | Vert | 23.8 | -83.2 | -26.3 | -56.9 | 4.1 | 1.4 | -54.2 | -30 | -24.2 |
| (IF * 3) | Hor | 23.7 | -83.3 | -26.1 | -57.2 | 4.1 | 1.4 | -54.5 | -30 | -24.5 |
| 1408 | Vert | 29.1 | -77.9 | -26.2 | -51.7 | 6.3 | 1.7 | -47.1 | -30 | -17.1 |
| (IF * 4) | Hor | 24.3 | -82.7 | -26.9 | -55.8 | 6.3 | 1.7 | -51.2 | -30 | -21.2 |
| 1760 | Vert | 25.6 | -81.4 | -30.9 | -50.5 | 6.5 | 2.0 | -46.0 | -30 | -16.0 |
| (IF * 5) | Hor | 25.6 | -81.4 | -30.9 | -50.5 | 6.5 | 2.0 | -46.0 | -30 | -16.0 |
| 2090 | Vert | 43.9 | -63.1 | 3.0 | -66.1 | 6.3 | 2.2 | -62.0 | -30 | -32.0 |
| (Fc-IF) | Hor | 40.7 | -66.3 | 3.0 | -69.3 | 6.3 | 2.2 | -65.2 | -30 | -35.2 |
| 2442 | Vert | | -107.0 | -32.2 | -74.8 | 7.6 | 3.3 | | | |
| (Fc) | Hor | | -107.0 | -32.1 | -74.9 | 7.6 | 3.3 | | | |
| 2816 | Vert | 38.6 | -68.4 | 0.7 | -69.1 | 6.5 | 2.6 | -65.2 | -30 | -35.2 |
| (IF*8) | Hor | 35.8 | -71.2 | 0.7 | -71.9 | 6.5 | 2.6 | -68.0 | -30 | -38.0 |
| 3498 | Vert | 32.5 | -74.5 | -1.4 | -73.1 | 7.1 | 2.9 | -68.9 | -30 | -38.9 |
| (Fc+IF*3) | Hor | 29.1 | -77.9 | -1.8 | -76.1 | 7.1 | 2.9 | -71.9 | -30 | -41.9 |
| 4884 | Vert | 60.9 | -46.1 | -5.4 | -40.7 | 7.0 | 5.7 | -39.4 | -30 | -9.4 |
| (Fc * 2) | Hor | 54.9 | -52.1 | -5.2 | -46.9 | 7.0 | 5.7 | -45.6 | -30 | -15.6 |
| 7326 | Vert | 38.0 | -69.0 | -11.5 | -57.5 | 7.3 | 6.8 | -57.0 | -30 | -27.0 |
| (Fc * 3) | Hor | 32.8 | -74.2 | -11.7 | -62.5 | 7.3 | 6.8 | -62.0 | -30 | -32.0 |
| 9768 | Vert | 32.8 | -74.2 | -16.4 | -57.8 | 6.0 | 8.7 | -60.5 | -30 | -30.5 |
| (Fc * 4) | Hor | 31.9 | -75.1 | -16.5 | -58.6 | 6.0 | 8.7 | -61.3 | -30 | -31.3 |
| 12210 | Vert | 30.6 | -76.4 | -21.7 | -54.7 | 5.3 | 9.7 | -59.1 | -30 | -29.1 |
| (Fc * 5) | Hor | 29.9 | -77.1 | -21.6 | -55.5 | 5.3 | 9.7 | -59.9 | -30 | -29.9 |

TRANSMITTER RADIATED SPURIOUS EMISSIONS

Product: Intermec DSSS Type II Radio, Approval
 Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL
 Test Date (mm/dd/yy): 11/06/98
 Measurement System Calibration Date: 2/26/98
 Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

Intermec Technologies Corporation
 Norand Mobile Systems Division
 EMC Test Laboratory

Standard: ETS 300-328

Data recorded here is based upon FCC data sheets within this file

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | Spur Meas. (dBm) | Generator 0 dBm Ref. Level | Calculated Generator Substitution (dBm) | Antenna Comp (dB) | Cable Comp (dB) | Generator Reference at Antenna (dBm) | Spec Limit (dBm) | Margin (dB) |
|------------------------|------------------|--------------------------|------------------|----------------------------|---|-------------------|-----------------|--------------------------------------|------------------|-------------|
| a | b | c | d | e | f | g | h | i | j | k |
| (formula) | | | (=c-107) | | (=d-e) | | | (=f-g+h) | | (=i-j) |
| High Channel 11 | 2462.0 | MHz | | | | | | | | |
| 352 | Vert | 3.0 | -104.0 | -27.4 | -76.6 | | 0.6 | -77.2 | -36 | -41.2 |
| (IF) | Hor | 2.9 | -104.1 | -24.0 | -80.1 | | 0.6 | -80.7 | -36 | -44.7 |
| 704 | Vert | 3.6 | -103.4 | -35.8 | -67.6 | | 1.0 | -68.6 | -36 | -32.6 |
| (IF * 2) | Hor | 3.6 | -103.4 | -31.4 | -72.0 | | 1.0 | -73.0 | -36 | -37.0 |
| 1056 | Vert | 23.8 | -83.2 | -26.3 | -56.9 | 4.1 | 1.4 | -54.2 | -30 | -24.2 |
| (IF * 3) | Hor | 23.7 | -83.3 | -26.1 | -57.2 | 4.1 | 1.4 | -54.5 | -30 | -24.5 |
| 1408 | Vert | 29.1 | -77.9 | -26.2 | -51.7 | 6.3 | 1.7 | -47.1 | -30 | -17.1 |
| (IF * 4) | Hor | 24.3 | -82.7 | -26.9 | -55.8 | 6.3 | 1.7 | -51.2 | -30 | -21.2 |
| 1760 | Vert | 25.6 | -81.4 | -30.9 | -50.5 | 6.5 | 2.0 | -46.0 | -30 | -16.0 |
| (IF * 5) | Hor | 25.6 | -81.4 | -30.9 | -50.5 | 6.5 | 2.0 | -46.0 | -30 | -16.0 |
| 2110 | Vert | 55.2 | -51.8 | 3.1 | -54.9 | 6.2 | 2.0 | -50.7 | -30 | -20.7 |
| (Fc-IF) | Hor | 45.5 | -61.5 | 3.3 | -64.8 | 6.2 | 2.0 | -60.6 | -30 | -30.6 |
| 2462 | Vert | | -107.0 | -31.7 | -75.3 | 7.7 | 3.6 | | | |
| (Fc) | Hor | | -107.0 | -31.6 | -75.4 | 7.7 | 3.6 | | | |
| 2816 | Vert | 34.7 | -72.3 | 0.4 | -72.7 | 6.5 | 2.7 | -68.9 | -30 | -38.9 |
| (Fc+IF) | Hor | 35.5 | -71.5 | 0.4 | -71.9 | 6.5 | 2.7 | -68.1 | -30 | -38.1 |
| 3518 | Vert | 29.7 | -77.3 | -1.5 | -75.8 | 7.3 | 2.9 | -71.4 | -30 | -41.4 |
| (Fc+IF*3) | Hor | 33.9 | -73.1 | -1.9 | -71.2 | 7.3 | 2.9 | -66.8 | -30 | -36.8 |
| 4924 | Vert | 57.7 | -49.3 | -6.1 | -43.2 | 7.1 | 5.2 | -41.3 | -30 | -11.3 |
| (Fc * 2) | Hor | 53.8 | -53.2 | -6.3 | -46.9 | 7.1 | 5.2 | -45.0 | -30 | -15.0 |
| 7386 | Vert | 38.3 | -68.7 | -11.3 | -57.4 | 7.7 | 6.7 | -56.4 | -30 | -26.4 |
| (Fc * 3) | Hor | 35.3 | -71.7 | -11.8 | -59.9 | 7.7 | 6.7 | -58.9 | -30 | -28.9 |
| 9848 | Vert | 33.9 | -73.1 | -17.2 | -55.9 | 6.2 | 8.6 | -58.3 | -30 | -28.3 |
| (Fc * 4) | Hor | 34.1 | -72.9 | -17.1 | -55.8 | 6.2 | 8.6 | -58.2 | -30 | -28.2 |
| 12310 | Vert | 30.1 | -76.9 | -23.3 | -53.6 | 5.6 | 9.3 | -57.3 | -30 | -27.3 |
| (Fc * 5) | Hor | 30.3 | -76.7 | -23.1 | -53.6 | 5.6 | 9.3 | -57.3 | -30 | -27.3 |

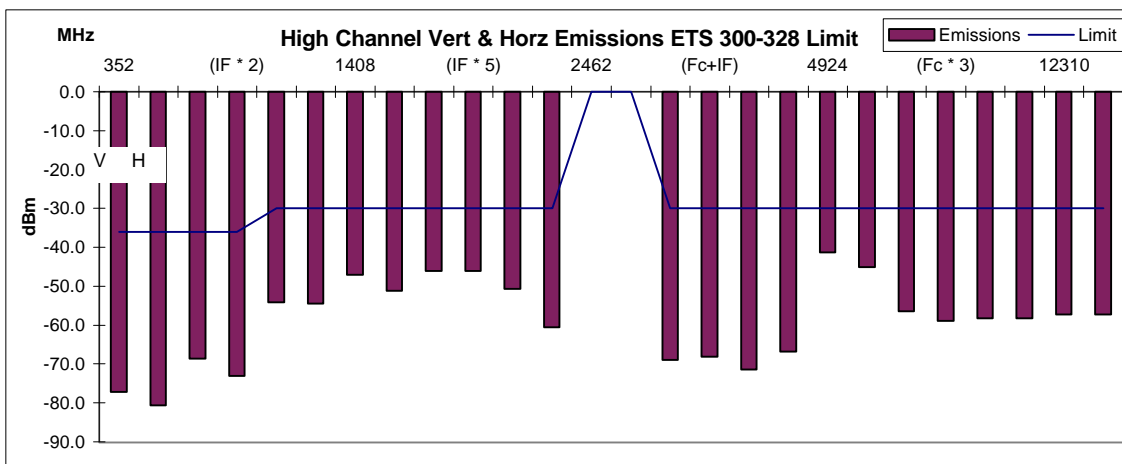
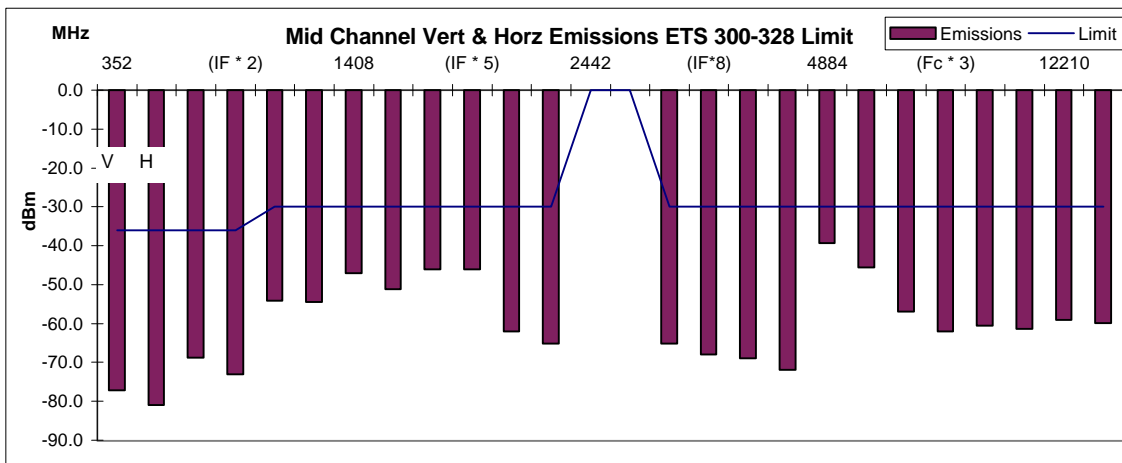
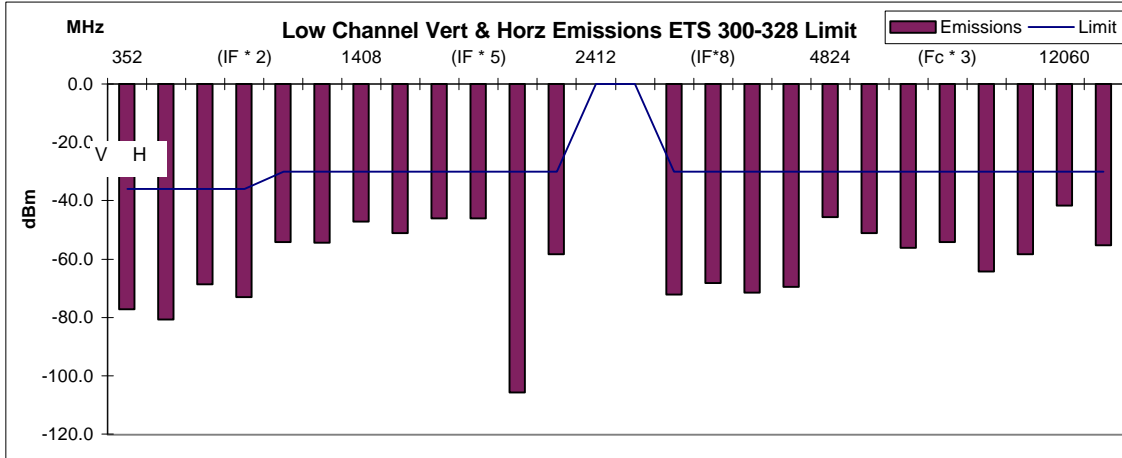
TRANSMITTER RADIATED SPURIOUS EMISSIONS

Product: Intermec DSSS Type II Radio, Approval
 Set Up: Cushcraft 15 dBi Yagi, radio tested as module HORIZONTAL
 Test Date (mm/dd/yy): 11/06/98
 Measurement System Calibration Date: 2/26/98
 Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

Intermec Technologies Corporation
 Norand Mobile Systems Division
 EMC Test Laboratory

Standard: ETS 300-328

Data recorded here is based upon FCC data sheets within this file



RECEIVER RADIATED SPURIOUS EMISSIONS

Product: Intermec DSSS Type II Radio, Approval
 Set Up: Cushcraft 15 dBi Yagi, radio tested as module HORIZONTAL
 Test Date (mm/dd/yy): 11/06/98
 Measurement System Calibration Date: 2/26/98
 Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

Intermec Technologies Corporation
 Norand Mobile Systems Division
 EMC Test Laboratory

Standard: ETS 300-328

Data recorded here is based upon FCC data sheets within this file

| Frequency (MHz) | Antenna Polarity | Spurious Measure d dB(uV) | Spur Meas. (dBm) | Generator 0 dBm Ref. Level | Calculated Generator Substitution (dBm) | Antenna Comp (dB) | Cable Comp (dB) | Generator Reference at Antenna (dBm) | Spec Limit (dBm) | Margin (dB) |
|-------------------------|------------------|---------------------------|------------------|----------------------------|---|-------------------|-----------------|--------------------------------------|------------------|-------------|
| a | b | c | d | e | f | g | h | i | j | k |
| (formula) | | | (=c-107) | | (=d-e) | | | (=f-g+h) | | (=i-j) |
| Low Channel 01 | | 2412 | MHz | | | | | | | |
| 2060 | Vert | 43.4 | -63.6 | 2.8 | -66.4 | 6.3 | 2.2 | -62.3 | -47 | -15.3 |
| (Lo) | Hor | 41.7 | -65.3 | 2.8 | -68.1 | 6.3 | 2.2 | -64.0 | -47 | -17.0 |
| 4120 | Vert | 36.9 | -70.1 | -4.0 | -66.1 | 7.4 | 3.4 | -62.1 | -47 | -15.1 |
| (Lo * 2) | Hor | 35.6 | -71.4 | -4.3 | -67.1 | 7.4 | 3.4 | -63.1 | -47 | -16.1 |
| 6180 | Vert | 31.3 | -75.7 | -8.0 | -67.7 | 8.3 | 3.9 | -63.3 | -47 | -16.3 |
| (Lo * 3) | Hor | 31.2 | -75.8 | -8.3 | -67.5 | 8.3 | 3.9 | -63.1 | -47 | -16.1 |
| 8240 | Vert | 33.0 | -74.0 | -13.2 | -60.8 | 8.2 | 5.0 | -57.6 | -47 | -10.6 |
| (Lo * 4) | Hor | 33.0 | -74.0 | -13.0 | -61.0 | 8.2 | 5.0 | -57.8 | -47 | -10.8 |
| 10300 | Vert | 30.8 | -76.2 | -17.4 | -58.8 | 7.2 | 6.7 | -58.3 | -47 | -11.3 |
| (Lo * 5) | Hor | 30.6 | -76.4 | -16.6 | -59.8 | 7.2 | 6.7 | -59.3 | -47 | -12.3 |
| 12360 | Vert | 30.2 | -76.8 | -22.2 | -54.6 | 7.1 | 6.4 | -53.9 | -47 | -6.9 |
| (Lo * 6) | Hor | 30.4 | -76.6 | -22.5 | -54.1 | 7.1 | 6.4 | -53.4 | -47 | -6.4 |
| Middle Channel 7 | | 2442 | MHz | | | | | | | |
| 2090 | Vert | 44.6 | -62.4 | 3.0 | -65.4 | 6.3 | 2.2 | -61.3 | -47 | -14.3 |
| (Lo) | Hor | 42.3 | -64.7 | 3.0 | -67.7 | 6.3 | 2.2 | -63.6 | -47 | -16.6 |
| 4180 | Vert | 45.2 | -61.8 | -3.8 | -58.0 | 7.3 | 3.5 | -54.2 | -47 | -7.2 |
| (Lo * 2) | Hor | 41.0 | -66.0 | -4.2 | -61.8 | 7.3 | 3.5 | -58.0 | -47 | -11.0 |
| 6270 | Vert | 31.4 | -75.6 | -8.1 | -67.5 | 8.3 | 3.8 | -63.0 | -47 | -16.0 |
| (Lo * 3) | Hor | 30.3 | -76.7 | -8.3 | -68.4 | 8.3 | 3.8 | -63.9 | -47 | -16.9 |
| 8360 | Vert | 32.0 | -75.0 | -13.4 | -61.6 | 8.3 | 5.2 | -58.5 | -47 | -11.5 |
| (Lo * 4) | Hor | 32.0 | -75.0 | -13.3 | -61.7 | 8.3 | 5.2 | -58.6 | -47 | -11.6 |
| 10450 | Vert | 30.1 | -76.9 | -18.8 | -58.1 | 6.7 | 6.8 | -58.2 | -47 | -11.2 |
| (Lo * 5) | Hor | 30.3 | -76.7 | -18.4 | -58.3 | 6.7 | 6.8 | -58.4 | -47 | -11.4 |
| 12540 | Vert | 31.9 | -75.1 | -23.4 | -51.7 | 6.9 | 6.8 | -51.6 | -47 | -4.6 |
| (Lo * 6) | Hor | 31.8 | -75.2 | -23.8 | -51.4 | 6.9 | 6.8 | -51.3 | -47 | -4.3 |
| High Channel 11 | | 2462 | MHz | | | | | | | |
| 2110 | Vert | 50.9 | -56.1 | 3.1 | -59.2 | 6.3 | 2.2 | -55.1 | -47 | -8.1 |
| (Lo) | Hor | 39.0 | -68.0 | 3.3 | -71.3 | 6.3 | 2.2 | -67.2 | -47 | -20.2 |
| 4220 | Vert | 38.4 | -68.6 | -3.5 | -65.1 | 7.2 | 3.6 | -61.5 | -47 | -14.5 |
| (Lo * 2) | Hor | 35.4 | -71.6 | -3.8 | -67.8 | 7.2 | 3.6 | -64.2 | -47 | -17.2 |
| 6330 | Vert | 31.3 | -75.7 | -8.9 | -66.8 | 8.3 | 3.6 | -62.1 | -47 | -15.1 |
| (Lo * 3) | Hor | 31.2 | -75.8 | -9.0 | -66.8 | 8.3 | 3.6 | -62.1 | -47 | -15.1 |
| 8440 | Vert | 36.6 | -70.4 | -13.0 | -57.4 | 8.3 | 5.3 | -54.4 | -47 | -7.4 |
| (Lo * 4) | Hor | 35.0 | -72.0 | -13.0 | -59.0 | 8.3 | 5.3 | -56.0 | -47 | -9.0 |
| 10550 | Vert | 29.9 | -77.1 | -20.1 | -57.0 | 6.3 | 6.8 | -57.5 | -47 | -10.5 |
| (Lo * 5) | Hor | 30.2 | -76.8 | -20.6 | -56.2 | 6.3 | 6.8 | -56.7 | -47 | -9.7 |
| 12660 | Vert | 32.1 | -74.9 | -24.1 | -50.8 | 5.7 | 7.1 | -52.2 | -47 | -5.2 |
| (Lo * 6) | Hor | 31.9 | -75.1 | -24.8 | -50.3 | 5.7 | 7.1 | -51.7 | -47 | -4.7 |

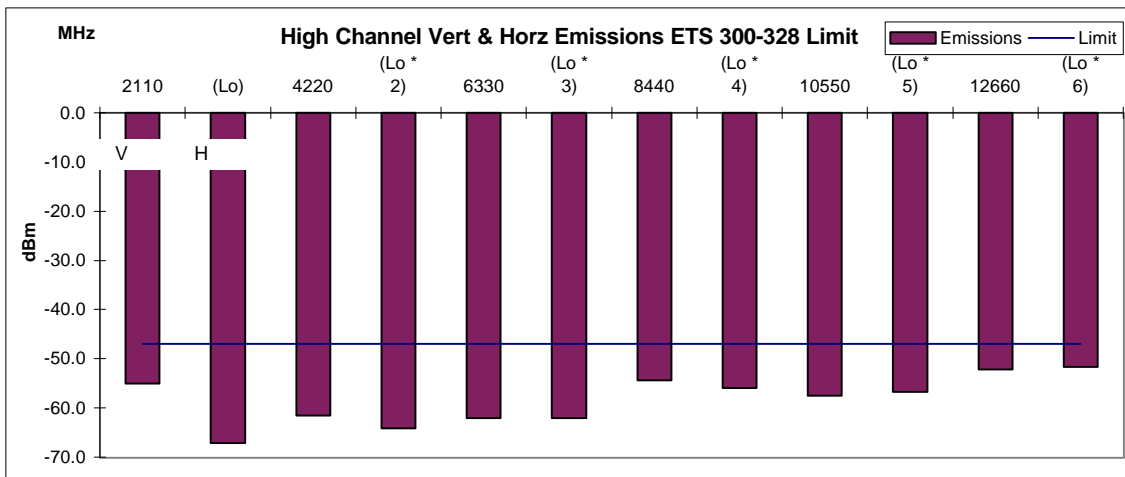
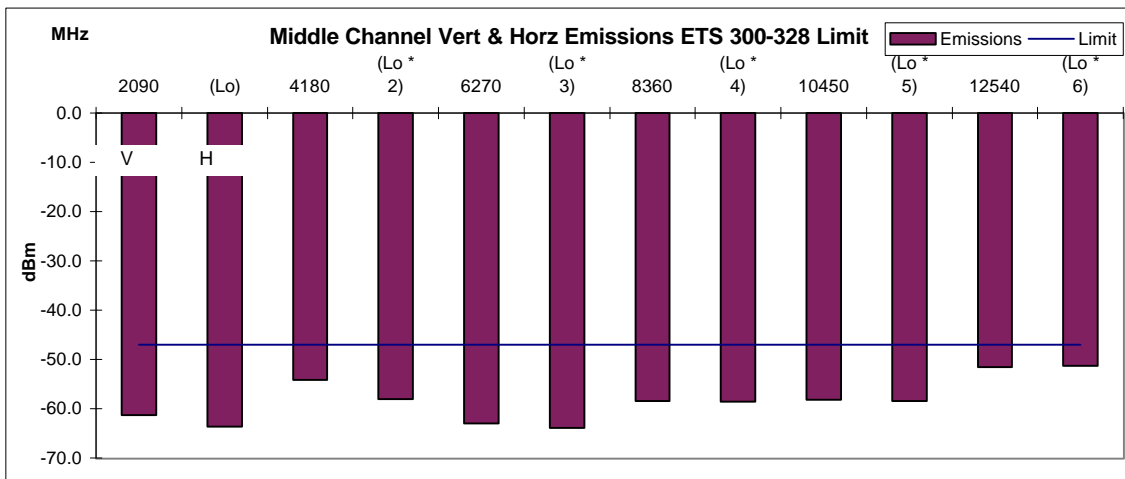
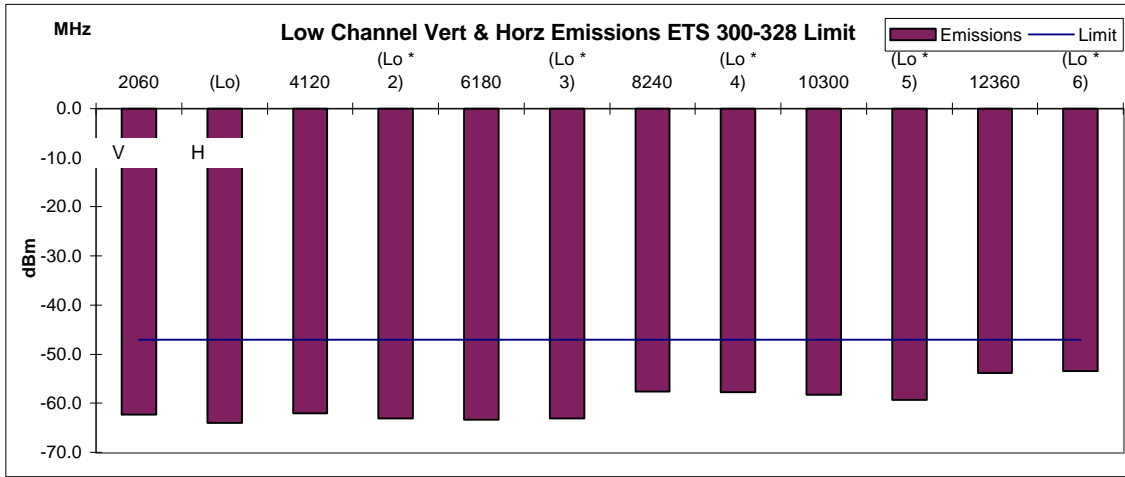
RECEIVER RADIATED SPURIOUS EMISSIONS

Product: Intermec DSSS Type II Radio, Approval
 Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL
 Test Date (mm/dd/yy): 11/06/98
 Measurement System Calibration Date: 2/26/98
 Span 100 MHz, Res. B.W. 1 MHz, Video B.W. 3 kHz

Intermec Technologies Corporation
 Norand Mobile Systems Division
 EMC Test Laboratory

Standard: ETS 300-328

Data recorded here is based upon FCC data sheets within this file



RECEIVER RADIATED SPURIOUS EMISSIONS

Quasi-Peak Emissions Data Compared to Emissions Limit

FCC ID: EHA2126

Intermec Technologies Corporation

Product: Intermec DSSS Type II Radio, Approval

Norand Mobile Systems Division

Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL

EMC Test Laboratory

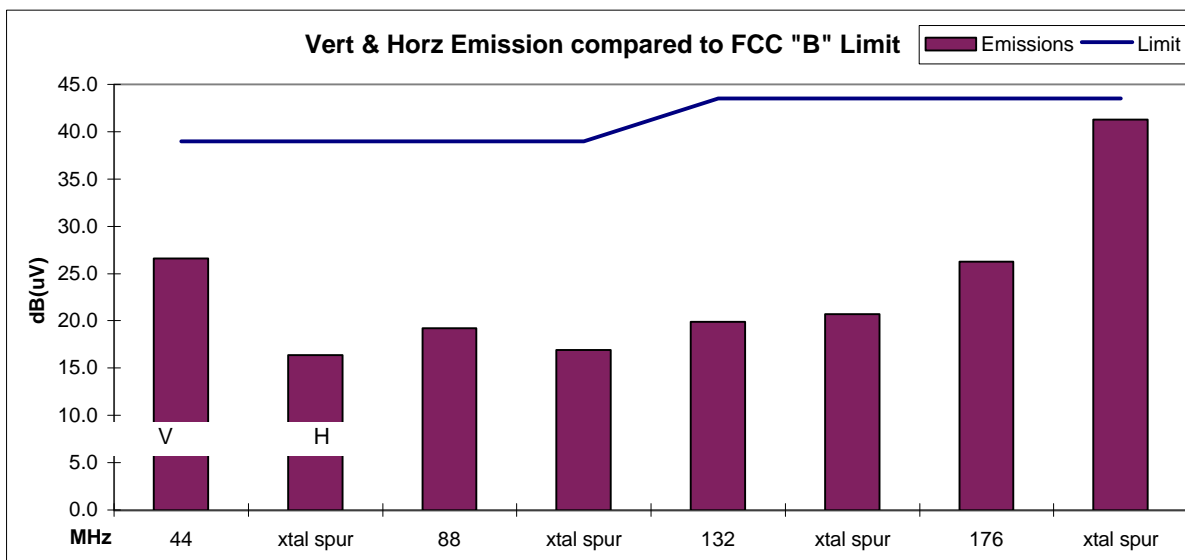
Test Date (mm/dd/yy): 11/06/98

Standard: Canada RSS-210/GL-36

Measurement System Calibration Date: 3/2/98

Quasi-Peak detector 120 kHz BW on ESVP Receiver

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | H.P.filter + Cable Loss (dB) | Antenna Correction Factor dB/M | Amplifier Gain (dB) | Calculated Result dB(uV)/M | Limit @ 3 Meter dB(uV)/Meter | Margin (dB) |
|-----------------|------------------|--------------------------|------------------------------|--------------------------------|---------------------|----------------------------|------------------------------|-------------|
| a | b | c | d | e | f | g | h | i |
| (formula) | | | | | | (=c+d+e-f) | | (=g-h) |
| 44 | Vert | 15.6 | 0.1 | 10.9 | | 26.6 | 39 | -12.4 |
| xtal spur | Hor | 5.4 | 0.1 | 10.9 | | 16.4 | 39 | -22.6 |
| 88 | Vert | 8.8 | 0.6 | 9.8 | | 19.2 | 39 | -19.8 |
| xtal spur | Hor | 6.5 | 0.6 | 9.8 | | 16.9 | 39 | -22.1 |
| 132 | Vert | 7.1 | 0.8 | 12.0 | | 19.9 | 43.5 | -23.6 |
| xtal spur | Hor | 7.9 | 0.8 | 12.0 | | 20.7 | 43.5 | -22.8 |
| 176 | Vert | 12.0 | 1.0 | 13.3 | | 26.3 | 43.5 | -17.3 |
| xtal spur | Hor | 27.0 | 1.0 | 13.3 | | 41.3 | 43.5 | -2.3 |



RECEIVER RADIATED SPURIOUS EMISSIONS

Quasi-Peak Emissions Data Compared to Emissions Limit

Product: Intermec DSSS Type II Radio, Approval
 Set Up: Cushcraft 15 dBi Yagi , radio tested as module HORIZONTAL
 Test Date (mm/dd/yy): 11/06/98
 Measurement System Calibration Date: 2/26/98
 Quasi-Peak detector 120 kHz BW on ESVP Receiver

Intermec Technologies Corporation
Norand Mobile Systems Division
EMC Test Laboratory

Standard: ETS 300-328

| Frequency (MHz) | Antenna Polarity | Spurious Measured dB(uV) | Spur Meas. (dBm) | Generator 0 dBm Ref. Level | Calculated Generator Substitution (dBm) | Antenna Comp (dB) | Cable Comp (dB) | Generator Reference at Antenna (dBm) | Spec Limit (dBm) | Margin (dB) |
|-----------------|------------------|--------------------------|------------------|----------------------------|---|-------------------|-----------------|--------------------------------------|------------------|-------------|
| a | b | c | d | e | f | g | h | i | j | k |
| (formula) | | | (=c-107) | | (=d-e) | | | (=f-g+h) | | (=i-j) |
| 44 | Vert | 15.6 | -91.4 | -22.1 | -69.3 | | 0.1 | -69.4 | -57 | -12.4 |
| xtal spur | Hor | 5.4 | -101.6 | -22.3 | -79.3 | | 0.1 | -79.4 | -57 | -22.4 |
| 88 | Vert | 8.8 | -98.2 | -22.0 | -76.2 | | 0.2 | -76.4 | -57 | -19.4 |
| xtal spur | Hor | 6.5 | -100.5 | -19.3 | -81.2 | | 0.2 | -81.4 | -57 | -24.4 |
| 132 | Vert | 7.1 | -99.9 | -26.1 | -73.8 | | 0.3 | -74.1 | -57 | -17.1 |
| xtal spur | Hor | 7.9 | -99.1 | -20.2 | -78.9 | | 0.3 | -79.2 | -57 | -22.2 |
| 176 | Vert | 12.0 | -95.0 | -26.6 | -68.4 | | 0.4 | -68.8 | -57 | -11.8 |
| xtal spur | Hor | 27.0 | -80.0 | -21.6 | -58.4 | | 0.4 | -58.8 | -57 | -1.8 |

