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<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> (21) International Application Number: PCT/US99/24299 (22) International Filing Date: 20 October 1999 (20.10.99) (30) Priority Data: <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">09/176,022</td> <td style="width: 33%;">21 October 1998 (21.10.98)</td> <td style="width: 33%;">US</td> </tr> <tr> <td>09/293,095</td> <td>16 April 1999 (16.04.99)</td> <td>US</td> </tr> <tr> <td>09/293,342</td> <td>16 April 1999 (16.04.99)</td> <td>US</td> </tr> </table> (71) Applicant: PARKER VISION, INC. [US/US]; 8493 Baymeadows Way, Jacksonville, FL 32256 (US). (72) Inventors: SORRELLS, David, F.; 5250 Siesta Rio Drive South, Jacksonville, FL 32258 (US). BULTMAN, Michael, J.; 2244 Aztec Drive West, Jacksonville, FL 32246 (US). COOK, Robert, W.; 1432 Roberts Road, Switzerland, FL 32259 (US). LOOKE, Richard, C.; 3170 Ricky Drive, Jacksonville, FL 32223 (US). MOSES, Charley, D., Jr.; 4314 Naranja Drive, Jacksonville, FL 32217 (US). RAWLINS, Gregory, S.; 299 Leslie Lane, Lake Mary, FL 32746 (US). RAWLINS, Michael, W.; 665 Brightview Drive, Lake Mary, FL 32746 (US). (74) Agents: LEE, Michael, Q. et al.; Sterne, Kessler, Goldstein, & Fox P.L.L.C., Suite 600, 1100 New York Avenue, N.W., Washington, DC 20005-3934 (US). </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> </td> </tr> </table>			(21) International Application Number: PCT/US99/24299 (22) International Filing Date: 20 October 1999 (20.10.99) (30) Priority Data: <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">09/176,022</td> <td style="width: 33%;">21 October 1998 (21.10.98)</td> <td style="width: 33%;">US</td> </tr> <tr> <td>09/293,095</td> <td>16 April 1999 (16.04.99)</td> <td>US</td> </tr> <tr> <td>09/293,342</td> <td>16 April 1999 (16.04.99)</td> <td>US</td> </tr> </table> (71) Applicant: PARKER VISION, INC. [US/US]; 8493 Baymeadows Way, Jacksonville, FL 32256 (US). (72) Inventors: SORRELLS, David, F.; 5250 Siesta Rio Drive South, Jacksonville, FL 32258 (US). BULTMAN, Michael, J.; 2244 Aztec Drive West, Jacksonville, FL 32246 (US). COOK, Robert, W.; 1432 Roberts Road, Switzerland, FL 32259 (US). LOOKE, Richard, C.; 3170 Ricky Drive, Jacksonville, FL 32223 (US). MOSES, Charley, D., Jr.; 4314 Naranja Drive, Jacksonville, FL 32217 (US). RAWLINS, Gregory, S.; 299 Leslie Lane, Lake Mary, FL 32746 (US). RAWLINS, Michael, W.; 665 Brightview Drive, Lake Mary, FL 32746 (US). (74) Agents: LEE, Michael, Q. et al.; Sterne, Kessler, Goldstein, & Fox P.L.L.C., Suite 600, 1100 New York Avenue, N.W., Washington, DC 20005-3934 (US).	09/176,022	21 October 1998 (21.10.98)	US	09/293,095	16 April 1999 (16.04.99)	US	09/293,342	16 April 1999 (16.04.99)	US	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
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(54) Title: METHOD AND SYSTEM FOR DOWN-CONVERTING AN ELECTROMAGNETIC SIGNAL													
(57) Abstract Methods, systems, and apparatuses for down-converting an electromagnetic (EM) signal by aliasing the EM signal are described herein. Briefly stated, such methods, systems, and apparatuses operate by receiving an EM signal and an aliasing signal having an aliasing rate. The EM signal is aliased according to the aliasing signal to down-convert the EM signal. The term aliasing, as used herein, refers to both down converting an EM signal by under-sampling the EM signal at an aliasing rate, and down-converting an EM signal by transferring energy from the EM signal at the aliasing rate. In an embodiment, the EM signal is down-converted to an intermediate frequency (IF) signal. In another embodiment, the EM signal is down-converted to a demodulated baseband information signal. In another embodiment, the EM signal is a frequency modulated (FM) signal, which is down-converted to a non-FM signal, such as a phase modulated (PM) signal or an amplitude modulated (AM) signal.													

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graph TD
    4602 --- B1[Receiving an EM Signal]
    B1 --> B2[Receiving an Energy Transfer Signal Having an Aliasing Rate]
    B2 --> B3[Transferring Energy From the EM Signal at the Aliasing Rate to Down-Convert the EM Signal]
    4604 --- B2
    4606 --- B3
  
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