

# Known Bands of Potential Interest to the EESS above 71 GHz (Part 1 of 9).

| Low | High | Line    | ID     | Known Instruments                                                                                   | Allocation | Primary services in-band                           | Notes/References                                                                                             | Comments/Priorities                                                                              |
|-----|------|---------|--------|-----------------------------------------------------------------------------------------------------|------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 86  | 92   | ---     | Window | <b>AMSR, AMSR-E, AMSR2, AMSU-A, -B, CMHS, CMIU, CMSU, MHS, MIMR, MTZA, MVZA, MZOAS, SSM/IS, TMI</b> | PRIMARY    | Radio Ast., Space Res. (pass.)                     | Exclusive Passive. Clouds, oil spills, ice, snow. Somewhat counterpart to 18 GHz?                            | Dutch: Crucial                                                                                   |
| 100 | 102  | 100.49  | NO     | <b>IKAR</b>                                                                                         | PRIMARY    | Fixed, Mobile, Space Res. (pass.)                  | Exclusive Passive                                                                                            | Dutch: Noted IKAR                                                                                |
| 105 | 116  | 110.8   | O3     | <b>ODIN</b>                                                                                         | PRIMARY    | Radio Ast., Space Res. (pass.)                     | Exclusive Passive                                                                                            | PS: Impt-gnd based O3 @ 110.8 GHz<br>Dutch: EESS does NOT need 105-109.8 GHz, 111.8-114.2 GHz    |
| 105 | 116  | 115.221 | CO     | <b>ODIN</b>                                                                                         | PRIMARY    | Radio Ast., Space Res. (pass.)                     | Exclusive Passive                                                                                            |                                                                                                  |
| 105 | 116  | 115.27  | CO     | <b>ODIN</b>                                                                                         | PRIMARY    | Radio Ast., Space Res. (pass.)                     | Exclusive Passive                                                                                            |                                                                                                  |
| 116 | 126  | 118.75  | O2     | AMAS, <b>AMSR2</b> , ATMS, <i>GEM</i> , <i>MILES</i> , <b>MLS</b> , <b>ODIN</b> , <b>SMILES?</b>    | PRIMARY    | Fixed, ISS, Mobile, Space Res. (pass.)             | IMPORTANT O line for temperature - Want/Need 115.25-122.25. (MLS[EOS]: +/- 650 MHz)                          | JW: Impt!<br>DS: Add <i>GEM</i><br>Dutch: 114.25-122.25 crucial for EESS, but NOT 122.25-126 GHz |
| 116 | 126  | 125.61  | NO     |                                                                                                     | PRIMARY    | Fixed, ISS, Mobile, Space Res. (pass.)             | Limb                                                                                                         | JW: Impt!<br>Dutch: 114.25-122.25 crucial for EESS, but NOT 122.25-126 GHz                       |
| 149 | 150  | ---     | Window | <b>AMSU-B, MHS</b>                                                                                  | None       | Fixed, Fixed-Sat (S-E), Mobile, Space Res. (pass.) | Want 2 GHz, prefer between 142-150 GHz; surface, water vapor, and cloud parameters for water vapor sounding. | Dutch: 148.5-151.5 GHz crucial, also 164-167 GHz band, phase out 156-158Hz                       |

# Known Bands of Potential Interest to the EESS above 71 GHz (Part 2 of 9).

| Low   | High  | Line   | ID        | Known Instruments                                                                             | Allocation | Primary services in-band                           | Notes/References                                                                                                                 | Comments/Priorities                                                            |
|-------|-------|--------|-----------|-----------------------------------------------------------------------------------------------|------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 150   | 151   | 150.74 | NO        | <b>AMSR2, AMSU-B, HSB, CMIU, SSM/IS</b>                                                       | PRIMARY    | Fixed, Fixed-Sat (S-E), Mobile, Space Res. (pass.) | Want 2 GHz, prefer between 142-150 GHz; surface, water vapor, and cloud parameters for water vapor sounding; line use secondary? | Dutch: 148.5-151.5 GHz crucial, also 164-167 GHz band, but phase out 156-158Hz |
| 156   | 158   | ---    | Window    | <b>AMSR2, MHS, MVZA</b>                                                                       | PRIMARY    | Fixed, Fixed-Satellite (S-E), Mobile               | Want 155.5-158.5 GHz; Surface, water vapor, cloud parameters for water vapor sounding                                            | Dutch: Phase out                                                               |
| 164   | 168   | 164.38 | CIO       | <b>AMSR2, CMHS</b>                                                                            | PRIMARY    | Radio Ast., Space Res. (pass.)                     | Cloud water, rain, ice+CIO. Exclusive Passive.                                                                                   | Dutch: 148.5-151.5 GHz crucial, also 164-167 GHz band, but phase out 156-158Hz |
| 164   | 168   | 167.2  | CIO       | <b>AMSR2, CMHS</b>                                                                            | PRIMARY    | Radio Ast., Space Res. (pass.)                     | Cloud water, rain, ice+CIO. Exclusive Passive.                                                                                   | Dutch: 148.5-151.5 GHz crucial also 164-167 GHz band, but phase out 156-158Hz  |
| 174.5 | 176.5 | 175.86 | NO        | <b>AMAS, AMSR2, AMSU-B, CMHS, HSB, MHS, MILES, MVZA, SMILES, SSM/IS</b>                       | PRIMARY    | Fixed, ISS, Mobile, Space Res. (pass.)             | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO. NO secondary?                                    | Dutch: Crucial 174.5-191.8                                                     |
| 174.5 | 176.5 | 183.31 | H2O vapor | <b>AMAS, AMSR2, AMSU-B, ATMS, CMHS, GEM, HSB, MILES, MLS, MLS[EOS], MVZA, SMILES?, SSM/IS</b> | PRIMARY    | Fixed, ISS, Mobile, Space Res. (pass.)             | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO. (MLS[EOS]: +/- 650 MHz)                          | Crucial 174.5-191.8 GHz-Dutch                                                  |
| 176.5 | 182   | 177.3  | HCN       | <b>MLS[EOS]</b>                                                                               | None       | Fixed, ISS, Mobile, Space Res. (pass.)             | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO.                                                  | JW: Impt<br>Dutch: Crucial 174.5-191.8 GHz                                     |
| 176.5 | 182   | 181.59 | HNO3      | <b>MLS[EOS]</b>                                                                               | None       | Fixed, ISS, Mobile, Space Res. (pass.)             | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO. (MLS[EOS]: +/- 650 MHz)                          | JW: Impt<br>Dutch: Crucial 174.5-191.8 GHz                                     |
| 176.5 | 182   | 183.31 | H2O vapor | <b>MLS[EOS], ATMS, GEM</b>                                                                    | None       | Fixed, ISS, Mobile, Space Res. (pass.)             | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO.                                                  | JW: Impt<br>Dutch: Crucial 174.5-191.8 GHz                                     |

Known Bands of Potential Interest to the EESS above 71 GHz (Part 3 of 9).

| Low | High  | Line   | ID                 | Known Instruments                                                                                                                                                             | Allocation | Primary services in-band                                             | Notes/References                                                                                                                                                                | Comments/Priorities                                               |
|-----|-------|--------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 182 | 185   | 183.31 | H2O vapor          | AMAS, <b>AMSR2</b> , <b>AMSU-B</b> , ATMS, <i>CMHS</i> , <i>GEM</i> , <b>HSB</b> , <i>MILES</i> , <b>MLS</b> , <b>MLS[EOS]</b> , <i>MVZA</i> , <b>SMILES?</b> , <b>SSM/IS</b> | PRIMARY    | Radio Ast., Space Res. (pass.)                                       | IMPORTANT for 3-D sounding for water vapor. Want 174.5-191.6 GHz to improve sounding, both LEO and GEO. (MLS[EOS]: +/- 650 MHz)                                                 | JW: Impt!<br>DS: Add <i>GEM</i><br>Dutch: Crucial 174.5-191.8 GHz |
| 182 | 185   | 184.37 | O3 meso.           | <b>AMSU-B</b> , <b>MHS</b> , <b>MLS</b>                                                                                                                                       | PRIMARY    | Radio Ast., Space Res. (pass.)                                       | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO. Exclusive Passive.                                                                              | JW: Impt!<br>Dutch: Crucial 174.5-191.8 GHz                       |
| 182 | 185   | 184.75 | O3                 | <b>AMSU-B</b> , <b>MHS</b> , <b>MLS</b>                                                                                                                                       | PRIMARY    | Radio Ast., Space Res. (pass.)                                       | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO. Exclusive Passive.                                                                              | JW: Impt!<br>Dutch: Crucial 174.5-191.8 GHz                       |
| 185 | 190   | 183.31 | H2O vapor          | AMAS, <b>AMSR2</b> , <b>AMSU-B</b> , ATMS, <i>CMHS</i> , <i>GEM</i> , <b>HSB</b> , <i>MILES</i> , <b>MLS</b> , <b>MLS[EOS]</b> , <i>MVZA</i> , <b>SMILES?</b> , <b>SSM/IS</b> | None       | Fixed, ISS, Mobile, Space Res. (pass.)                               | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO.                                                                                                 | Dutch: Crucial 174.5-191.8 GHz                                    |
| 190 | 191.6 | 183.31 | H2O vapor          | AMAS, <b>AMSR2</b> , <b>AMSU-B</b> , ATMS, <i>CMHS</i> , <i>GEM</i> , <b>HSB</b> , <i>MILES</i> , <b>MLS</b> , <b>MLS[EOS]</b> , <i>MVZA</i> , <b>SMILES?</b> , <b>SSM/IS</b> | None       | Mobile, Mobile Satellite, Radionavigation, Radionavigation-Satellite | Want 174.5-191.6 GHz to improve 3-d sounding for water vapor, both LEO and GEO. S5.554 also allocates a form of FSS service in conjunction with MSS and RDNSS from 190-200 GHz. | Dutch: Crucial 174.5-191.8 GHz                                    |
| 199 | 200   | ---    | Window /line wings | AMAS, <b>MLS</b> , <i>MASTER</i>                                                                                                                                              | N one      | Mobile, Mobile Satellite, Radionavigation, Radionavigation-Satellite | Want 199-207 GHz. S5.554 also allocates a form of FSS service in conjunction with MSS and RDNSS from 190-200 GHz.                                                               |                                                                   |
| 200 | 202   | 200.98 | N2O                | AMAS, <b>MLS[EOS]</b> , <i>MASTER</i>                                                                                                                                         | PRIMARY    | Fixed, Mobile, Space Res. (pass.)                                    | Want 199-207 GHz ( <b>MLS[EOS]</b> : +/- 650 MHz)                                                                                                                               | JW: Impt!<br>ESA: 200.5-209 GHz.;<br>Dutch: 200-209 GHz.          |
| 202 | 207   | 203.4  | H2O                | AMAS, <b>MLS[EOS]</b> , <i>MASTER</i>                                                                                                                                         |            |                                                                      | Good < 6 Km. Must use wings, need a few GHz, especially                                                                                                                         | ESA: 200.5-209 GHz;<br>Dutch: 200-209 GHz.                        |

|  |  |  |  |  |  |  |             |  |
|--|--|--|--|--|--|--|-------------|--|
|  |  |  |  |  |  |  | upper wing. |  |
|--|--|--|--|--|--|--|-------------|--|

# Known Bands of Potential Interest to the EESS above 71 GHz (Part 4 of 9).

| Low   | High  | Line    | ID                  | Known Instruments                         | Allocation | Primary services in-band                     | Notes/References                                                                                            | Comments/Priorities                                        |
|-------|-------|---------|---------------------|-------------------------------------------|------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 202   | 207   | 204.342 | CIO                 | AMAS, <b>MLS[EOS]</b> ,<br><i>MASTER</i>  |            |                                              | Multiple lines ( <b>MLS[EOS]</b> : +/- 650 MHz)                                                             | JW: Impt!<br>ESA: 200.5-209 GHz.;<br>Dutch: 200-209 GHz.   |
| 202   | 207   | 206.132 | O3                  | AMAS, <b>MLS[EOS]</b> ,<br><i>MASTER</i>  |            |                                              | Multiple lines, stratospheric O3 (MLS[EOS]: +/- 650 MHz)                                                    | JW: Impt! ,<br>ESA: 200.5-209 GHz.;<br>Dutch: 200-209 GHz. |
| 202   | 207   | ?       | N2O                 | AMAS, MLS,<br>MSTR                        |            |                                              | Multiple lines                                                                                              | JW: Delete                                                 |
| 202   | 207   | ?       | H2O vapor           | AMAS, MLS,<br>MSTR                        |            |                                              | Multiple lines                                                                                              | JW: Delete                                                 |
| 202   | 207   | ?       | H2O2                | AMAS, MLS, <i>MSTR</i>                    |            |                                              | Multiple lines, H2?                                                                                         | JW: Delete                                                 |
| 202   | 207   | 208.5   | O3                  | AMAS, <b>MLS[EOS]</b> ,<br><i>MASTER?</i> |            |                                              | Multiple lines, stratospheric O3 (MLS[EOS]: +/- 650 MHz)                                                    | ESA: 200.5-209 GHz.;<br>Dutch: 200-209 GHz.                |
| 217   | 231   | ---     | Window / line wings | <b>MLS</b> , <i>MASTER</i>                | PRIMARY    | Radio Ast., Space Res. (pass.)               | Exclusive Passive, need 4 GHz , prefer 216.5-220.5. Best window between 200-300 GHz                         | Dutch: delete EESS 209-22 GHz., add 226-231.5 GHz.         |
| 217   | 231   | 216.29  | O3                  | <i>MASTER</i>                             | PRIMARY    | Radio Ast., Space Res. (pass.)               | Exclusive Passive, but need 4 GHz , best 216.5-220.5 GHz. O3 + upper troposphere H2O vapor, press., & temp. | Dutch: delete EESS 209-22 GHz., add 226-231.5 GHz.         |
| 217   | 231   | 226.09  | NO                  | <i>MASTER</i>                             | PRIMARY    | Radio Ast., Space Res. (pass.)               | Exclusive Passive, but need 4 GHz , best 216.5-220.5 GHz                                                    | Dutch: delete EESS 209-22 GHz., add 226-231.5 GHz.         |
| 217   | 231   | 231.28  | O3                  | <b>MLS</b> , <i>MASTER</i>                | PRIMARY    | Radio Ast., Space Res. (pass.)               | Exclusive Passive, but need 4 GHz , best 216.5-220.5 GHz                                                    | Dutch: delete EESS 209-22 GHz., add 226-231.5 GHz.         |
| 217   | 231   | 230.54  | CO                  | <b>MLS[EOS]</b> ,<br><i>MASTER</i>        | PRIMARY    | Radio Ast., Space Res. (pass.)               | Exclusive Passive, but need 229.5-231.5 GHz for CO line. (MLS[EOS]: +/- 650 MHz)                            | Dutch: delete EESS 209-22 GHz., add 226-231.5 GHz.         |
| 233.3 | 234.6 | 233.95  | O18O                | <b>MLS[EOS]</b>                           | None       | Fixed, Fixed-Sat(S-E), Mobile                | Temperature (MLS[EOS]: +/- 650 MHz)                                                                         |                                                            |
| 235   | 238   | 235.71  | O3                  | <b>MLS[EOS]</b>                           | PRIMARY    | Fixed, FSS (S-E), Mobile, Space Res. (pass.) | Upper Tropo. Line.(MLS[EOS]: +/- 650 MHz)                                                                   | JW: Impt!                                                  |
| 235   | 238   | 237.15  | O3                  | <b>MLS[EOS]</b>                           | PRIMARY    | Fixed, FSS (S-E), Mobile, Space Res. (pass.) |                                                                                                             | JW: Impt                                                   |

### Known Bands of Potential Interest to the EESS above 71 GHz (Part 5 of 9).

| Low | High | Line   | ID                  | Known Instruments | Allocation | Primary services in-band | Notes/References                                                                                                      | Comments/Priorities |
|-----|------|--------|---------------------|-------------------|------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------|
| 250 | 252  | 251.21 | NO                  |                   | PRIMARY    | Space Res. (pass.)       | Exclusive Passive.                                                                                                    |                     |
| 275 | 277  | 276.33 | NO                  | MASTER?           | (PASSIVE)  | Footnote 927/S5.565      | Footnote 927/S5.565                                                                                                   |                     |
| 296 | 300  | 294.4  | HNO3                | MASTER, SMILES,   | None       | Undefined                | Optimal for < 12 Km. Want 296-306 GHz                                                                                 | ESA: 294-305 GHz    |
| 296 | 300  | ---    | Window / line wings | MASTER, SMILES,   | None       | Undefined                | Want 296-306 GHz                                                                                                      | ESA: 294-305 GHz    |
| 296 | 300  | 298.5  | O                   | MASTER, SMILES,   | None       | Undefined                | Temperature measurements. Want 296-306 GHz                                                                            | ESA: 294-305 GHz    |
| 300 | 302  | 301.44 | NO, N2O?            | MLS, MASTER       | (PASSIVE)  | Footnote 927/S5.565      | Want 296-306 GHz                                                                                                      | ESA: 294-305 GHz    |
| 300 | 302  | 300    | O3                  | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Ozone band, low edge. Optimal < 14 Km. Want 296-306 GHz                                                               | ESA: 294-305 GHz    |
| 300 | 302  | ?      | N2O                 | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Want 296-306 GHz                                                                                                      | ESA: 294-305 GHz    |
| 300 | 302  | ?      | O2                  | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Want 296-306 GHz                                                                                                      | ESA: 294-305 GHz    |
| 302 | 306  | 304    | O3                  | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Ozone band, high edge. Optimal < 14 Km. Want 296-306 GHz                                                              | ESA: 294-305 GHz    |
| 302 | 306  | 305.2  | HOCl                | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Want 296-306 GHz                                                                                                      | ESA: 294-305 GHz    |
| 302 | 306  | ---    | Window / line wings | MASTER            | None       | Undefined                | Want 296-306 GHz                                                                                                      | ESA: 294-305 GHz    |
| 316 | 324  | 321    | H2O vapor           | MASTER            | None       | undefined                | Want +/- 9.0 or 9.5 GHz, Nadir water vapor from GEO, limb from LEO, Good above 6 Km. Complement 2005.-209 GHz.        | ESA: 316-325 GHz    |
| 316 | 324  | 322.8  | HOCl                | MASTER            | None       | undefined                | .                                                                                                                     | ESA: 316-325 GHz    |
| 316 | 324  | 325.1  | H2O vapor           | MASTER            | None       | undefined                | Want +/- 9.0 or 9.5 GHz, Nadir water vapor from GEO, limb from LEO Good above 6 Km. Complement 2005.-209 GHz.         | ESA: 316-325 GHz    |
| 324 | 326  | 325.1  | H2O vapor           | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | IMPORTANT Nadir water vapor from GEO, limb from LEO (need +/- 9 - 9.5 GHz) Good above 6 Km. Complement 2005.-209 GHz. | ESA: 316-325 GHz    |

|     |     |       |              |               |      |           |                                                           |  |
|-----|-----|-------|--------------|---------------|------|-----------|-----------------------------------------------------------|--|
| 326 | 334 | 325.1 | H2O<br>vapor | <i>MASTER</i> | None | Undefined | Want +/- 9.0 or 9.5 GHz, Nadir<br>from GEO, limb from LEO |  |
|-----|-----|-------|--------------|---------------|------|-----------|-----------------------------------------------------------|--|

### Known Bands of Potential Interest to the EESS above 71 GHz (Part 6 of 9).

| Low   | High  | Line   | ID        | Known Instruments | Allocation | Primary services in-band | Notes/References                                                                          | Comments/Priorities |
|-------|-------|--------|-----------|-------------------|------------|--------------------------|-------------------------------------------------------------------------------------------|---------------------|
| 339   | 345   | 380    | H2O vapor |                   | None       | Undefined                | Want 339-348 GHz; Window needed around 340 GHz for water vapor sounding via 380 GHz band. |                     |
| 339   | 345   | 343.3  | O3        |                   | None       | Undefined                | Strong Ozone lines.                                                                       | ESA: 342-349 GHz    |
| 345   | 347   | 344.4  | HNO3      | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Optimal > 12 Km.                                                                          | ESA: 342-349 GHz    |
| 345   | 347   | 380    | H2O vapor |                   | None       | Undefined                | Want 339-348 GHz; Window needed around 340 GHz for water vapor sounding via 380 GHz band. | ESA: 342-349 GHz    |
| 345   | 347   | 345.8  | CO        | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | CO strong enough for low alt., few mm lines.                                              | ESA: 342-349        |
| 345   | 347   | 345    | O         | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | For temperature profiles                                                                  | ESA: 342-349 GHz    |
| 345   | 347   | 345.?  | CH3CL     | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Optimal <10 Km.                                                                           | ESA: 342-349 GHz    |
| 345   | 347   | 345.?  | HNO3      | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Optimal > 12 Km.                                                                          | ESA: 342-349 GHz    |
| 345   | 347   | 346.?  | ClO       | MASTER            | (PASSIVE)  | Footnote 927/S5.565      | Complementary to 496-506 GHz.                                                             | ESA: 342-349 GHz    |
| 347   | 348   | 380    | H2O vapor |                   | None       | Undefined                | Want 339-348 GHz; Window needed around 340 GHz for water vapor sounding via 380 GHz band. | ESA: 342-349 GHz    |
| 363   | 365   | 364.32 | O3        |                   | (PASSIVE)  | Footnote 927/S5.565      |                                                                                           |                     |
| 366.5 | 370.5 | 368.5  | O2        |                   | None       | Undefined                |                                                                                           |                     |
| 371.5 | 379   | 380.2  | H2O vapor | GEM               | None       | Undefined                | Need 17 GHz for close to nadir water vapor sounding from GEO                              | DS: Add GEM         |
| 379   | 381   | 380.2  | H2O vapor | GEM               | (PASSIVE)  | Footnote 927/S5.565      | IMPORTANT nadir water vapor sounding from GEO(need 17 GHz)                                | DS: Add GEM         |
| 381   | 388.5 | 380.2  | H2O vapor | GEM               | None       | Undefined                | Need 17 GHz for close to nadir water vapor sounding from GEO                              | DS: Add GEM         |
| 409   | 411   | 410    | Temp.     |                   | None       | Undefined                | Temp sounding, centered 410                                                               |                     |
| 419   | 430   | 424.76 | Temp.     | GEM               | None       | Undefined                | Temp sounding, centered 424.7                                                             | DS: Add GEM         |

|     |     |        |     |                            |      |           |                                                                              |              |
|-----|-----|--------|-----|----------------------------|------|-----------|------------------------------------------------------------------------------|--------------|
| 443 | 444 | 442.99 | O3  |                            | None | Undefined | Lower strato. O3, tropopause water vapor, HNO3, N2O, CO, pressure, and temp. |              |
| 485 | 487 | 486.15 | O2  | <b>ODIN</b>                | None | Undefined | O2 line, limb                                                                |              |
| 498 | 505 | 497.5  | BrO | <i>SOPRANO,<br/>MASTER</i> | None | Undefined | Optimal for species (low edge)                                               | ESA: 496-506 |

Known Bands of Potential Interest to the EESS above 71 GHz (Part 7 of 9).

| Low | High  | Line    | ID        | Known Instruments      | Allocation | Primary services in-band | Notes/References                     | Comments/Priorities |
|-----|-------|---------|-----------|------------------------|------------|--------------------------|--------------------------------------|---------------------|
| 498 | 505   | 499.5   | BrO       | <i>SOPRANO, MASTER</i> | None       | Undefined                | Optimal for species (edge edge)      | ESA: 496-506        |
| 498 | 505   | 497     | O3        | <i>SOPRANO, MASTER</i> | None       | Undefined                | optimal > 10 Km (low edge)           | ESA: 496-506        |
| 498 | 505   | 506     | O3        | <i>SOPRANO, MASTER</i> | None       | Undefined                | optimal > 10 Km (high edge)          | ESA: 496-506        |
| 498 | 505   | 501     | N2O       | <i>SOPRANO, MASTER</i> | None       | Undefined                | Optimal > 8 Km                       | ESA: 496-506        |
| 498 | 505   | 501     | ClO       | <i>SOPRANO, MASTER</i> | None       | Undefined                | ClO (low edge)                       | ESA: 496-506        |
| 498 | 505   | 503     | ClO       | <i>SOPRANO, MASTER</i> | None       | Undefined                | ClO (high edge)                      | ESA: 496-506        |
| 498 | 505   | 504.6   | CH3Cl     | <i>SOPRANO, MASTER</i> | None       | Undefined                | Optimal > 10 Km                      | ESA: 496-506        |
| 498 | 502   | 557     | H2O vapor |                        | None       | Undefined                | Water vapor sounding, near nadir GEO |                     |
| 523 | 527   | 557     | H2O vapor |                        | None       | Undefined                | Water vapor sounding, near nadir GEO |                     |
| 538 | 584   | 557     | H2O vapor | <b>ODIN</b>            | None       | Undefined                | Water vapor sounding, near nadir GEO |                     |
| 552 | 562   | 557     | H2O vapor | <b>ODIN</b>            | None       | Undefined                | Water vapor sounding, near nadir GEO |                     |
| 541 | 558   | ?       | HNO3      | ?                      | None       | Undefined                | Lines                                |                     |
| 541 | 558   | ?       | O3        | ?                      | None       | Undefined                | Lines                                |                     |
| 547 | 584   | ?       | H2O       | <b>ODIN</b>            | None       | Undefined                | Mesospheric H2O                      |                     |
| 563 | 580.4 | ?       | ClO       | <b>ODIN</b>            | None       | Undefined                | Lines                                |                     |
| 563 | 580.4 | ?       | O3        | <b>ODIN</b>            | None       | Undefined                | Lines                                |                     |
| 624 | 629   | 624.271 | ClO2      | <i>SOPRANO</i>         | None       | Undefined                | O3 depletion                         |                     |
| 624 | 629   | 624.344 | SO2       | <b>SMILES, SOPRANO</b> | None       | Undefined                | Volcano, aerosols                    |                     |
| 624 | 629   | 624.77  | BrO       | <b>SMILES, SOPRANO</b> | None       | Undefined                | O3 depletion                         |                     |

# Known Bands of Potential Interest to the EESS above 71 GHz (Part 8 of 9).

| Low   | High | Line    | ID    | Known Instruments                        | Allocation | Primary services in-band | Notes/References                                    | Comments/Priorities |
|-------|------|---------|-------|------------------------------------------|------------|--------------------------|-----------------------------------------------------|---------------------|
| 624   | 629  | 625.37  | O3    | <b>MLS[EOS],<br/>SOPRANO</b>             | None       | Undefined                | Many lines(MLS[EOS]: +/- 650 MHz)                   |                     |
| 624   | 629  | 625.92  | HCl   | <b>MLS[EOS],<br/>SMILES,<br/>SOPRANO</b> | None       | Undefined                | H[37]Cl, Chlorine reservoir (MLS[EOS]: +/- 650 MHz) |                     |
| 624   | 629  | 626.656 | O3    | <b>SMILES</b>                            | None       | Undefined                | O3 depletion                                        |                     |
| 624   | 629  | 627.087 | H2O2  | <b>SMILES</b>                            | None       | Undefined                |                                                     |                     |
| 624   | 629  | 627.177 | CH3CL | <b>SOPRANO</b>                           | None       | Undefined                | CH[37]3CL                                           |                     |
| 624   | 629  | 627.773 | O2    | <b>SMILES,<br/>SOPRANO</b>               | None       | Undefined                | O[18]O                                              |                     |
| 624   | 629  | 628.46  | HOCl  | <b>SMILES,<br/>SOPRANO</b>               | None       | Undefined                | Chlorine reservoir                                  |                     |
| 640   | 645  | ?       | CH2CL | <i>MLS[new]</i>                          | None       | Undefined                | Many lines                                          |                     |
| 640   | 645  | ?       | ClO   | <i>MLS[new]</i>                          | None       | Undefined                | Many lines                                          |                     |
| 640   | 645  | ?       | BrO   | <i>MLS[new]</i>                          | None       | Undefined                | Many lines                                          |                     |
| 640   | 645  | ?       | HCl   | <i>MLS[new]</i>                          | None       | Undefined                | Many lines                                          |                     |
| 640   | 645  | ?       | HOCL  | <i>MLS[new]</i>                          | None       | Undefined                | Many lines                                          |                     |
| 646.8 | 653  | 647.198 | H2O   |                                          | None       | Undefined                | H[18]2O, greenhouse gas                             |                     |
| 646.8 | 653  | 649.45  | ClO   | <b>MLS[EOS],<br/>SMILES</b>              | None       | Undefined                | O3 depletion, (MLS[EOS]: +/- 650 MHz)               |                     |
| 646.8 | 653  | 649.701 | HO2   | <b>SMILES</b>                            | None       | Undefined                | O3 depletion                                        |                     |
| 646.8 | 653  | 650.18  | BrO   | <b>MLS[EOS]</b>                          | None       | Undefined                | (MLS[EOS]: +/- 650 MHz)                             |                     |
| 646.8 | 653  | 650.279 | HNO3  | <b>SMILES</b>                            | None       | Undefined                | Nitrogen reservoir                                  |                     |
| 646.8 | 653  | 650.733 | O3    | <b>SMILES</b>                            | None       | Undefined                | Depletion & greenhouse gas                          |                     |
| 646.8 | 653  | 651.771 | NO    | <b>SMILES</b>                            | None       | Undefined                | O3 depletion                                        |                     |
| 646.8 | 653  | 652.834 | N2O   | <b>MLS[EOS],<br/>SMILES</b>              | None       | Undefined                | Nitrogen reservoir (MLS[EOS]: +/- 650 MHz)          |                     |
| 951   | 956  | ?       | O2    | <b>SOPRANO</b>                           | None       | Undefined                | Multiple lines                                      |                     |
| 951   | 956  | ?       | NO    | <b>SOPRANO</b>                           | None       | Undefined                | Multiple lines                                      |                     |

### Known Bands of Potential Interest to the EESS above 71 GHz (Part 9 of 9).

| Low  | High | Line    | ID | Known Instruments                              | Allocation | Primary services in-band | Notes/References                  | Comments/Priorities    |
|------|------|---------|----|------------------------------------------------|------------|--------------------------|-----------------------------------|------------------------|
| 1228 | 1230 | 1228.95 | HF | <i>MILES?</i> , <b>SMILES?</b>                 | None       | Undefined                | TBD                               |                        |
| 2500 | 2540 | 2502.32 | O2 | <i>MILES</i> , <b>MLS[EOS]</b> , <b>SMILES</b> | None       | Undefined                | Pressure? (MLS[EOS]: +/- 650 MHz) | JW: Expand to 2540 GHz |
| 2500 | 2540 | 2509.95 | OH | <i>MILES</i> , <b>MLS[EOS]</b> , <b>SMILES</b> | None       | Undefined                | Multiples (MLS[EOS]: +/- 650MHz)  | JW: Expand to 2540 GHz |
| 2500 | 2540 | 2514.32 | OH | <i>MILES</i> , <b>MLS[EOS]</b> , <b>SMILES</b> | None       | Undefined                | Multiples (MLS[EOS]: +/- 650MHz)  | JW: Expand to 2540 GHz |
| 2520 | 2525 | 2522.78 | OH | MLS[new]                                       | None       | Undefined                | TBD                               | JW: Delete             |

NOTES: Comments are derived from

Dutch - essentially the CEPT-33 paper.

PS - Paul Steffes/Georgia Tech

JW - Joe Waters/JPL

DS - David Staelin/M.I.T.

ESA - European Space Agency