

2.3. Model : N9029AV06, S/N : SAX789



Measurement Report

74, Seolcheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea 17383
Tel :82-31-645-6900, www.hct.co.kr

보고서번호(Report No) : IC-2024-000171
측정번호(Measurement No) : C-2024-000406

페이지(page) : 1 of 4

1. 의뢰자 (Client)

- 기관명 (Name) : 유엘코리아(주)
- 주소 (Address) : 경기도 수원시 영통구 매영로 218

2. 대상품목 (Measurement Item) ◇ HCT 등록번호 : 409608

- 기기명 (Description) : SA EXTENSION MODULE
- 제작회사 및 형식(Manufacturer and Model Name) : VDI / SAX WR6.5
- 기기번호 (Serial Number) : SAX789

3. 측정일자 (Measurement date) : 2024.01.10

4. 측정환경 (Environment)

- 온도(Temperature) : (23.0 ± 0.4) °C
- 습도(Humidity) : (47 ± 2) % R.H.

5. 측정방법 (Measurement method used)

상기기기는 고객의 요구사항에 따라 아래의 표준장비를 이용하여 점검되었음.

측정에 사용한 표준장비 명세 (List of used standards/specifications)

| 기기명 (Description) | 제작회사 / 형식 (Manufacturer and Model Name) | 기기번호 (Serial Number) | 차기교정예정일자 (The due date of next Calibration) | 교정기관 (Calibration laboratory) |
|--------------------------------|--|-------------------------|--|----------------------------------|
| PSG ANALOG SIGNAL GENERATOR | AGILENT/E8257D | MY46130629 | 2024/10/25 | (주)에이치시티 |
| PXA SIGNAL ANALYZER | AGILENT/N9030A | US51350310 | 2024/03/13 | (주)에이치시티 |
| ERICKSON POWER METER | VDI/PM5 | 394V | Not calibrated | (주)에이치시티 |
| WR-05 MULTIPLIER SOURCE MODULE | OML/S05MS-A | 160419-1 | Not calibrated | (주)에이치시티 |
| WR-08 MULTIPLIER SOURCE MODULE | OML/S08MS-A | 160419-1 | Not calibrated | (주)에이치시티 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

6. 측정결과 (Measurement result) : 측정결과 참조 (Refer to attachment)

이 측정결과는 의뢰자가 제시한 시료 및 시료명에만 한정됩니다.
The measurement results shown in this report refer only to the sample(s) measured unless otherwise stated.

| | | |
|---------------------|-----------------|--|
| 확인 (Affirmation) | 작성자 (Tested by) | 승인자 (Approved by) |
| | 성명 (Name) : 강석훈 | 직위 (Title) : 기술책임자(Technical Manager) 성명 (Name) : 김광철 |

이 성적서는 ILAC MRA 서명 기관인 KOLAS(Korea Laboratory Accreditation Scheme)와 A2LA (American Laboratory for Laboratory Accreditation)의 인정과 무관합니다. This calibration certificate is Not an accredited report by KOLAS(Korea Laboratory Accreditation Scheme) and A2LA(American Association for Laboratory Accreditation), a ILAC MRA signatory.

2024. 01. 16



(주)에이치시티 대표이사
President, HCT Co., Ltd.



이 측정결과는 측정기의 정밀정확도에 영향을 미치는 요소(과부하, 온도, 습도 등)의 급격한 변화가 발생한 경우에는 무효가 됩니다. If any significant instability or other adverse factor(overload, temperature, humidity etc.) manifests itself before, during or after calibration, and is likely to affect the validity of the calibration.

■고객사 관리번호 : SUW-E0253

F-02P-02-010 (Rev.01)

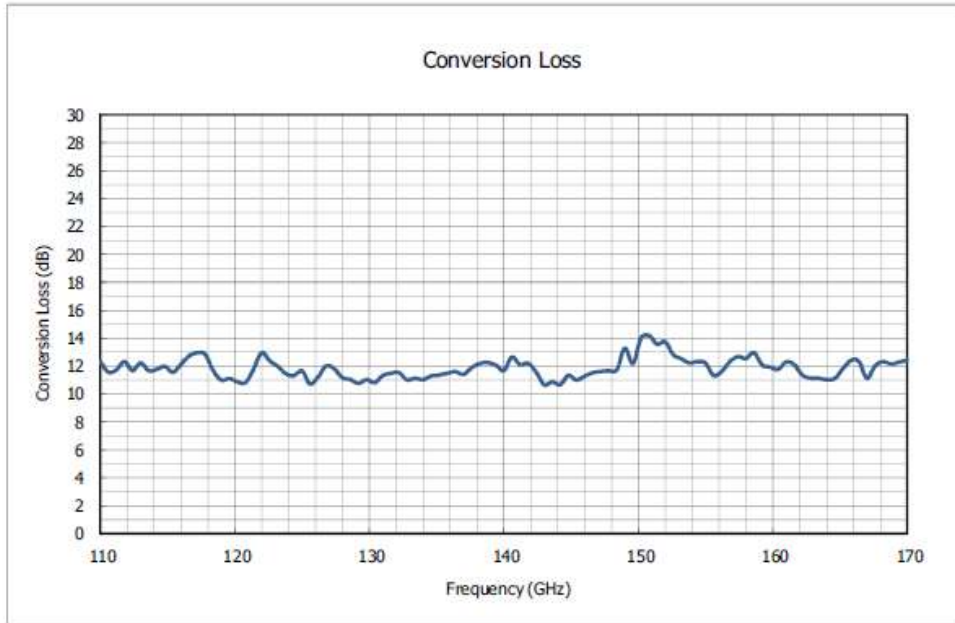
Measurement Result

보고서번호(Report No) : IC-2024-000171

페이지(page) : 2 of 4

측정번호(Measurement No) : C-2024-000406

1. Conversion Loss Graph



[Note]

1. Measurement Condition : RF = -30 dBm, Harmonic Order = 24, L.O. Level = 10 dBm, IF = 322.5 MHz, Bias Value = 0.00 mA
2. The above results were measured at the request of the customer.

F-02P-02-010 (Rev.01)

Measurement Result

보고서번호(Report No) : IC-2024-000171

페이지(page) : 3 of 4

측정번호(Measurement No) : C-2024-000406

2. Conversion Loss Data

| Frequency (GHz) | Conversion Loss (dB) | Frequency (GHz) | Conversion Loss (dB) |
|-----------------|----------------------|-----------------|----------------------|
| 110.0 | 12.33 | 132.2 | 11.53 |
| 110.6 | 11.57 | 132.8 | 11.02 |
| 111.2 | 11.72 | 133.4 | 11.12 |
| 111.8 | 12.33 | 134.0 | 11.03 |
| 112.4 | 11.68 | 134.6 | 11.29 |
| 113.0 | 12.23 | 135.2 | 11.36 |
| 113.6 | 11.67 | 135.8 | 11.48 |
| 114.2 | 11.77 | 136.4 | 11.62 |
| 114.8 | 11.98 | 137.0 | 11.40 |
| 115.4 | 11.55 | 137.6 | 11.88 |
| 116.0 | 12.14 | 138.2 | 12.18 |
| 116.6 | 12.72 | 138.8 | 12.25 |
| 117.2 | 12.95 | 139.4 | 12.07 |
| 117.8 | 12.84 | 140.0 | 11.68 |
| 118.4 | 11.66 | 140.6 | 12.65 |
| 119.0 | 10.99 | 141.2 | 12.11 |
| 119.6 | 11.11 | 141.8 | 12.19 |
| 120.2 | 10.87 | 142.4 | 11.58 |
| 120.8 | 10.82 | 143.0 | 10.66 |
| 121.4 | 11.79 | 143.6 | 10.87 |
| 122.0 | 12.95 | 144.2 | 10.68 |
| 122.6 | 12.38 | 144.8 | 11.34 |
| 123.2 | 11.98 | 145.4 | 11.01 |
| 123.8 | 11.46 | 146.0 | 11.27 |
| 124.4 | 11.32 | 146.6 | 11.52 |
| 125.0 | 11.65 | 147.2 | 11.62 |
| 125.6 | 10.72 | 147.8 | 11.67 |
| 126.2 | 11.23 | 148.4 | 11.73 |
| 126.8 | 12.01 | 149.0 | 13.28 |
| 127.4 | 11.81 | 149.6 | 12.19 |
| 128.0 | 11.18 | 150.2 | 14.02 |
| 128.6 | 11.03 | 150.8 | 14.19 |
| 129.2 | 10.76 | 151.4 | 13.57 |
| 129.8 | 11.03 | 152.0 | 13.75 |
| 130.4 | 10.82 | 152.6 | 12.81 |
| 131.0 | 11.32 | 153.2 | 12.53 |
| 131.6 | 11.50 | 153.8 | 12.23 |

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Measurement Result

보고서번호(Report No) : IC-2024-000171

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측정번호(Measurement No) : C-2024-000406

2. Conversion Loss Data (cont.)

| Frequency (GHz) | Conversion Loss (dB) | Frequency (GHz) | Conversion Loss (dB) |
|-----------------|----------------------|-----------------|----------------------|
| 154.4 | 12.33 | 162.8 | 11.13 |
| 155.0 | 12.22 | 163.4 | 11.12 |
| 155.6 | 11.32 | 164.0 | 11.04 |
| 156.2 | 11.63 | 164.6 | 11.12 |
| 156.8 | 12.31 | 165.2 | 11.80 |
| 157.4 | 12.68 | 165.8 | 12.41 |
| 158.0 | 12.54 | 166.4 | 12.33 |
| 158.6 | 12.96 | 167.0 | 11.12 |
| 159.2 | 12.09 | 167.6 | 12.02 |
| 159.8 | 11.94 | 168.2 | 12.31 |
| 160.4 | 11.76 | 168.8 | 12.15 |
| 161.0 | 12.31 | 169.4 | 12.29 |
| 161.6 | 12.10 | 170.0 | 12.41 |
| 162.2 | 11.35 | - | - |

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F-02P-02-010 (Rev.01)

2.4. Model : N9029AV04, S/N : SAX791



Measurement Report

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea 17383
Tel :82-31-645-6900, www.hct.co.kr

보고서번호(Report No) : IC-2024-000169
측정번호(Measurement No) : C-2024-000404

페이지(page) : 1 of 4

1. 의뢰자 (Client)

- 기관명 (Name) : 유엘코리아(주)
- 주소 (Address) : 경기도 수원시 영통구 매영로 218

2. 대상품목 (Measurement Item)

◇ HCT 등록번호 : 409612

- 기기명 (Description) : SA EXTENSION MODULE
- 제작회사 및 형식(Manufacturer and Model Name) : VDI / SAX WR4.3
- 기기번호 (Serial Number) : SAX791

3. 측정일자 (Measurement date) : 2024.01.10

4. 측정환경 (Environment)

- 온도(Temperature) : (22.4 ± 0.2) °C
- 습도(Humidity) : (45 ± 3) % R.H.

5. 측정방법 (Measurement method used)

상기기기는 고객의 요구사항에 따라 아래의 표준장비를 이용하여 점검되었습니다.

측정에 사용한 표준장비 명세 (List of used standards/specifications)

| 기기명 (Description) | 제작회사 / 형식 (Manufacturer and Model Name) | 기기번호 (Serial Number) | 차기교정예정일자 (The due date of next Calibration) | 교정기관 (Calibration laboratory) |
|--------------------------------|--|-------------------------|--|----------------------------------|
| PSG ANALOG SIGNAL GENERATOR | AGILENT/E8257D | MY46130629 | 2024/10/25 | (주)에이치시티 |
| PXA SIGNAL ANALYZER | AGILENT/N9030A | US51350310 | 2024/03/13 | (주)에이치시티 |
| ERICKSON POWER METER | VDI/PM5 | 394V | Not calibrated | (주)에이치시티 |
| WR-03 MULTIPLIER SOURCE MODULE | OML/S03MS-A | 160419-1 | Not calibrated | (주)에이치시티 |
| WR-05 MULTIPLIER SOURCE MODULE | OML/S05MS-A | 160419-1 | Not calibrated | (주)에이치시티 |
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6. 측정결과 (Measurement result)

: 측정결과 참조 (Refer to attachment)

※ 이 측정결과는 의뢰자가 제시한 시료 및 시료명에만 한정됩니다.

The measurement results shown in this report refer only to the sample(s) measured unless otherwise stated.

| | | |
|---------------------|-----------------|--|
| 확인 (Affirmation) | 작성자 (Tested by) | 승인자 (Approved by) |
| | 성명 (Name) : 강석훈 | 직위 (Title) : 기술책임자(Technical Manager) 성명 (Name) : 김광철 |

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2024. 01. 16



(주)에이치시티 대표이사
President, HCT Co., Ltd.



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■고객사 관리번호 : SUJW-E0254

F-02P-02-010 (Rev.01)

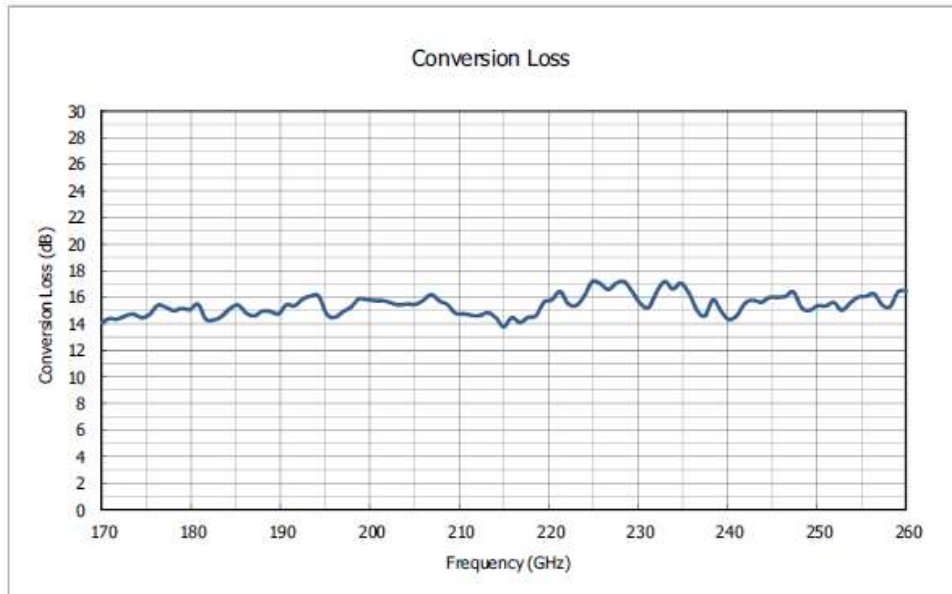
Measurement Result

보고서번호(Report No) : IC-2024-000169

페이지(page) : 2 of 4

측정 번호(Measurement No) : C-2024-000404

1. Conversion Loss Graph



[Note]

1. Measurement Condition : RF = -30 dBm, Harmonic Order = 36, L.O. Level = 10 dBm, IF = 322.5 MHz, Bias Value = 0.00 mA
2. The above results were measured at the request of the customer.

F-02P-02-010 (Rev.01)

Measurement Result

보고서번호(Report No) : IC-2024-000169

페이지(page) : 3 of 4

측정번호(Measurement No) : C-2024-000404

2. Conversion Loss Data

| Frequency (GHz) | Conversion Loss (dB) | Frequency (GHz) | Conversion Loss (dB) |
|-----------------|----------------------|-----------------|----------------------|
| 170.0 | 14.08 | 203.3 | 15.42 |
| 170.9 | 14.38 | 204.2 | 15.50 |
| 171.8 | 14.35 | 205.1 | 15.46 |
| 172.7 | 14.60 | 206.0 | 15.76 |
| 173.6 | 14.72 | 206.9 | 16.19 |
| 174.5 | 14.46 | 207.8 | 15.72 |
| 175.4 | 14.70 | 208.7 | 15.44 |
| 176.3 | 15.40 | 209.6 | 14.78 |
| 177.2 | 15.25 | 210.5 | 14.75 |
| 178.1 | 14.98 | 211.4 | 14.63 |
| 179.0 | 15.16 | 212.3 | 14.62 |
| 179.9 | 15.06 | 213.2 | 14.84 |
| 180.8 | 15.47 | 214.1 | 14.47 |
| 181.7 | 14.34 | 215.0 | 13.78 |
| 182.6 | 14.28 | 215.9 | 14.47 |
| 183.5 | 14.58 | 216.8 | 14.09 |
| 184.4 | 15.16 | 217.7 | 14.48 |
| 185.3 | 15.40 | 218.6 | 14.61 |
| 186.2 | 14.80 | 219.5 | 15.62 |
| 187.1 | 14.59 | 220.4 | 15.81 |
| 188.0 | 14.94 | 221.3 | 16.42 |
| 188.9 | 14.92 | 222.2 | 15.51 |
| 189.8 | 14.75 | 223.1 | 15.38 |
| 190.7 | 15.42 | 224.0 | 16.09 |
| 191.6 | 15.36 | 224.9 | 17.18 |
| 192.5 | 15.85 | 225.8 | 17.02 |
| 193.4 | 16.08 | 226.7 | 16.58 |
| 194.3 | 16.08 | 227.6 | 17.07 |
| 195.2 | 14.72 | 228.5 | 17.15 |
| 196.1 | 14.48 | 229.4 | 16.37 |
| 197.0 | 14.89 | 230.3 | 15.52 |
| 197.9 | 15.23 | 231.2 | 15.22 |
| 198.8 | 15.88 | 232.1 | 16.38 |
| 199.7 | 15.80 | 233.0 | 17.19 |
| 200.6 | 15.75 | 233.9 | 16.61 |
| 201.5 | 15.73 | 234.8 | 17.05 |
| 202.4 | 15.56 | 235.7 | 16.33 |

F-02P-02-010 (Rev.01)

Measurement Result

보고서번호(Report No) : IC-2024-000169

페이지(page) : 4 of 4

측정번호(Measurement No) : C-2024-000404

2. Conversion Loss Data (cont.)

| Frequency (GHz) | Conversion Loss (dB) | Frequency (GHz) | Conversion Loss (dB) |
|-----------------|----------------------|-----------------|----------------------|
| 236.6 | 15.03 | 249.2 | 15.01 |
| 237.5 | 14.59 | 250.1 | 15.35 |
| 238.4 | 15.80 | 251.0 | 15.33 |
| 239.3 | 14.95 | 251.9 | 15.60 |
| 240.2 | 14.31 | 252.8 | 15.02 |
| 241.1 | 14.66 | 253.7 | 15.52 |
| 242.0 | 15.56 | 254.6 | 15.99 |
| 242.9 | 15.78 | 255.5 | 16.06 |
| 243.8 | 15.61 | 256.4 | 16.25 |
| 244.7 | 15.98 | 257.3 | 15.44 |
| 245.6 | 15.99 | 258.2 | 15.27 |
| 246.5 | 16.06 | 259.1 | 16.39 |
| 247.4 | 16.39 | 260.0 | 16.51 |
| 248.3 | 15.22 | - | - |

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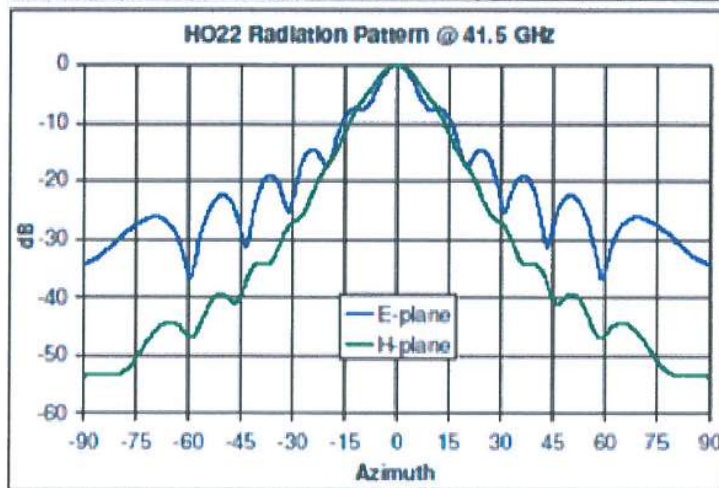
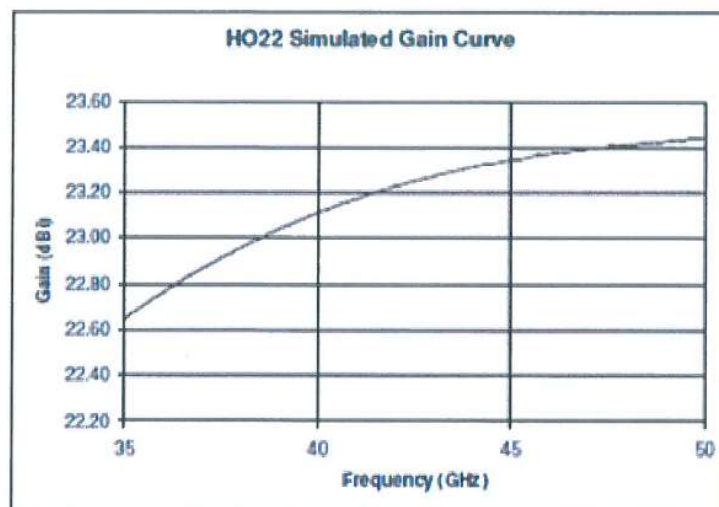
F-02P-02-010 (Rev.01)

3. CMI Horn Antenna gain

3.1. HO22R (33 GHz – 50 GHz)



24 Houston Court
Longmont, CO 80501
303.651.0707 (P)
303.651.0617 (F)
www.custommicrowaves.com





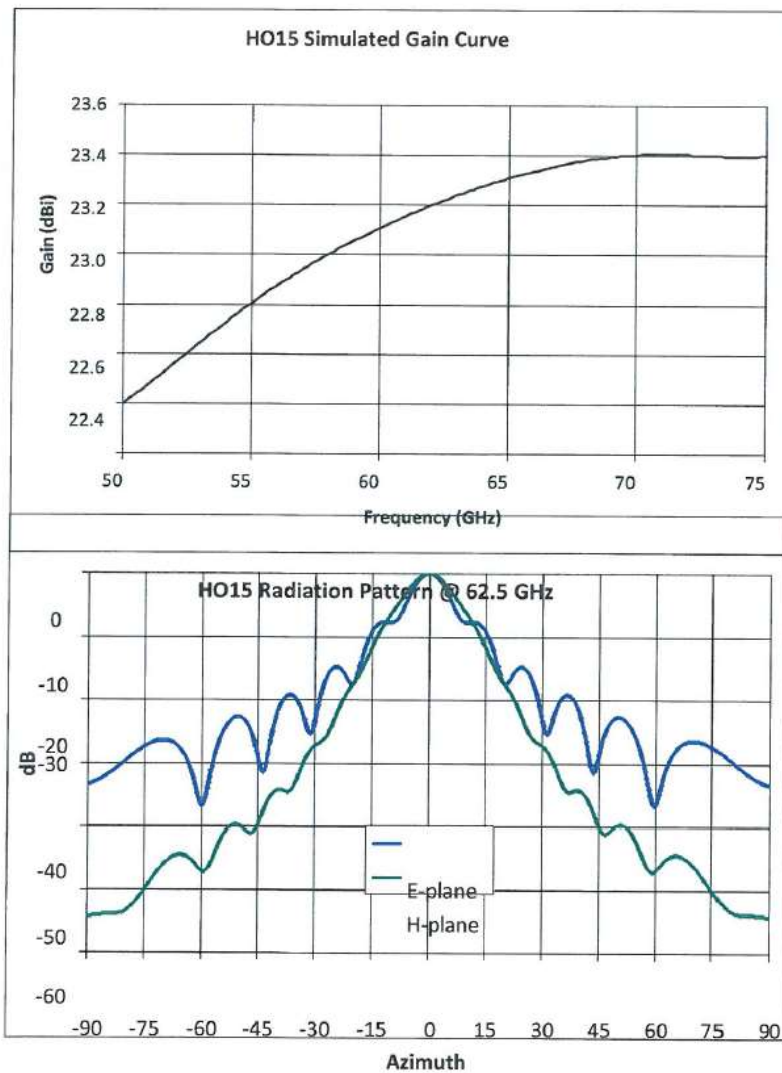
24 Boston Court
Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com

| Model | HO22R |
|----------------|-----------|
| Frequency(GHz) | Gain(dBi) |
| 33.00 | 22.40 |
| 33.85 | 22.50 |
| 34.70 | 22.60 |
| 35.55 | 22.70 |
| 36.40 | 22.80 |
| 37.25 | 22.90 |
| 38.10 | 23.00 |
| 38.95 | 23.05 |
| 39.80 | 23.10 |
| 40.65 | 23.15 |
| 41.50 | 23.20 |
| 42.35 | 23.25 |
| 43.20 | 23.27 |
| 44.05 | 23.30 |
| 44.90 | 23.35 |
| 45.75 | 23.37 |
| 46.60 | 23.39 |
| 47.45 | 23.41 |
| 48.30 | 23.42 |
| 49.15 | 23.43 |
| 50.00 | 23.44 |

3.1. HO15R (50 GHz – 75 GHz)



24 Boston Court
Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com





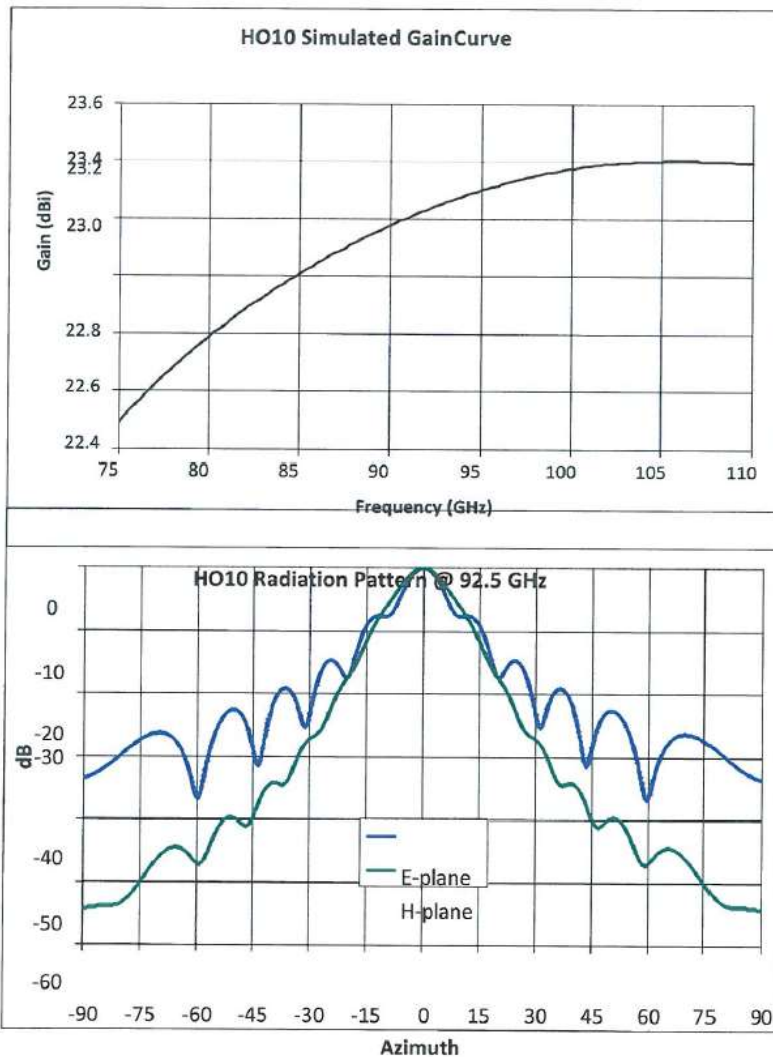
24 Boston Court
Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com

| Model | HO15R |
|----------------|-----------|
| Frequency(GHz) | Gain(dBi) |
| 50.00 | 22.4 |
| 51.25 | 22.5 |
| 52.50 | 22.6 |
| 53.75 | 22.7 |
| 55.00 | 22.8 |
| 56.25 | 22.9 |
| 57.50 | 23.0 |
| 58.75 | 23.0 |
| 60.00 | 23.1 |
| 61.25 | 23.2 |
| 62.50 | 23.2 |
| 63.75 | 23.3 |
| 65.00 | 23.3 |
| 66.25 | 23.3 |
| 67.50 | 23.4 |
| 68.75 | 23.4 |
| 70.00 | 23.4 |
| 71.25 | 23.4 |
| 72.50 | 23.4 |
| 73.75 | 23.4 |
| 75.00 | 23.4 |

3.2. HO10R (75 GHz – 110 GHz)



24 Boston Court
Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com





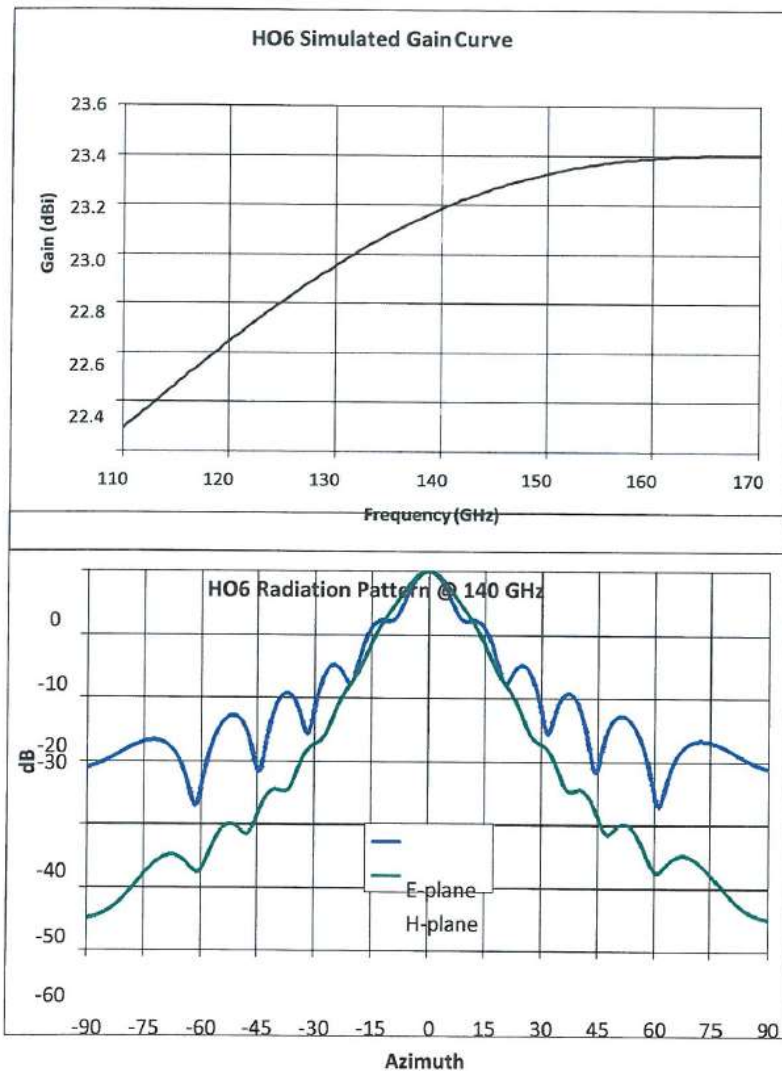
24 Boston Court
Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com

| Model | HO10R |
|----------------|-----------|
| Frequency(GHz) | Gain(dBi) |
| 75.00 | 22.5 |
| 76.75 | 22.6 |
| 78.50 | 22.7 |
| 80.25 | 22.8 |
| 82.00 | 22.9 |
| 83.75 | 23.0 |
| 85.50 | 23.0 |
| 87.25 | 23.1 |
| 89.00 | 23.1 |
| 90.75 | 23.2 |
| 92.50 | 23.3 |
| 94.25 | 23.3 |
| 96.00 | 23.3 |
| 97.75 | 23.3 |
| 99.50 | 23.4 |
| 101.25 | 23.4 |
| 103.00 | 23.4 |
| 104.75 | 23.4 |
| 106.50 | 23.4 |
| 108.25 | 23.4 |
| 110.00 | 23.4 |

3.3. HO06R (110 GHz – 170 GHz)



24 Boston Court
Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com





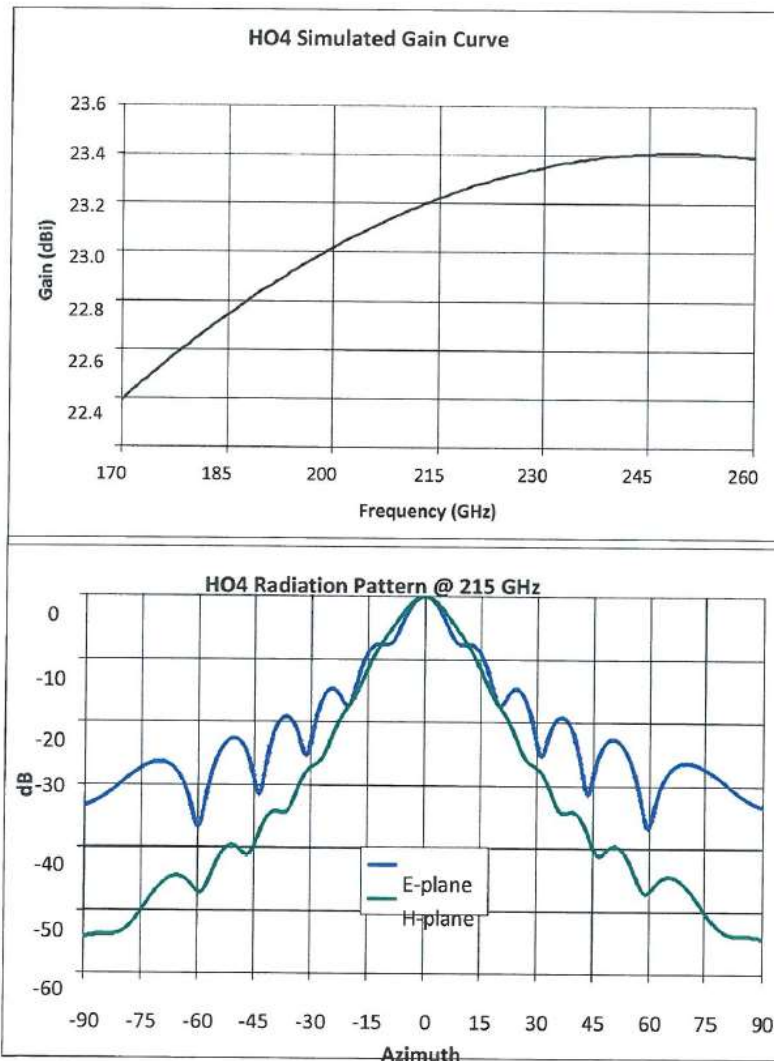
24 Boston Court
Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com

| Model | HQ6R |
|----------------|-----------|
| Frequency(GHz) | Gain(dBi) |
| 110.00 | 22.3 |
| 113.00 | 22.4 |
| 116.00 | 22.5 |
| 119.00 | 22.6 |
| 122.00 | 22.7 |
| 125.00 | 22.8 |
| 128.00 | 22.9 |
| 131.00 | 23.0 |
| 134.00 | 23.1 |
| 137.00 | 23.1 |
| 140.00 | 23.2 |
| 143.00 | 23.2 |
| 146.00 | 23.3 |
| 149.00 | 23.3 |
| 152.00 | 23.3 |
| 155.00 | 23.4 |
| 158.00 | 23.4 |
| 161.00 | 23.4 |
| 164.00 | 23.4 |
| 167.00 | 23.4 |
| 170.00 | 23.4 |

3.4. HO04R (170 GHz – 260 GHz)



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303 651-0706(F)
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Longmont, CO 80501
303 651-0707(P)
303 651-0706(F)
www.custommicrowave.com

| Model | HO4R |
|----------------|-----------|
| Frequency(GHz) | Gain(dBi) |
| 170.00 | 22.4 |
| 174.50 | 22.5 |
| 179.00 | 22.6 |
| 183.50 | 22.7 |
| 188.00 | 22.8 |
| 192.50 | 22.9 |
| 197.00 | 23.0 |
| 201.50 | 23.0 |
| 206.00 | 23.1 |
| 210.50 | 23.2 |
| 215.00 | 23.2 |
| 219.50 | 23.3 |
| 224.00 | 23.3 |
| 228.50 | 23.3 |
| 233.00 | 23.4 |
| 237.50 | 23.4 |
| 242.00 | 23.4 |
| 246.50 | 23.4 |
| 251.00 | 23.4 |
| 255.50 | 23.4 |
| 260.00 | 23.4 |

END OF TEST REPORT