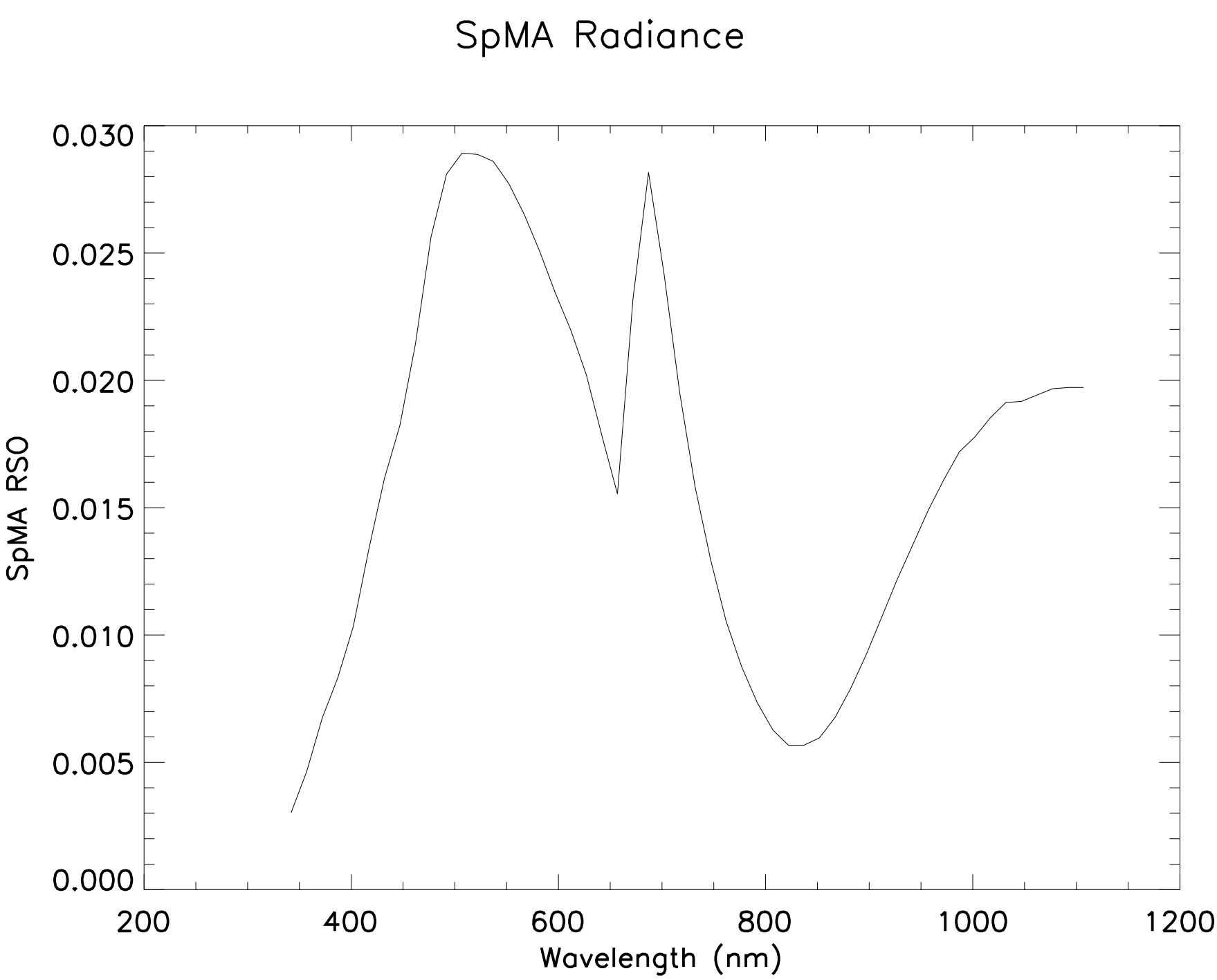
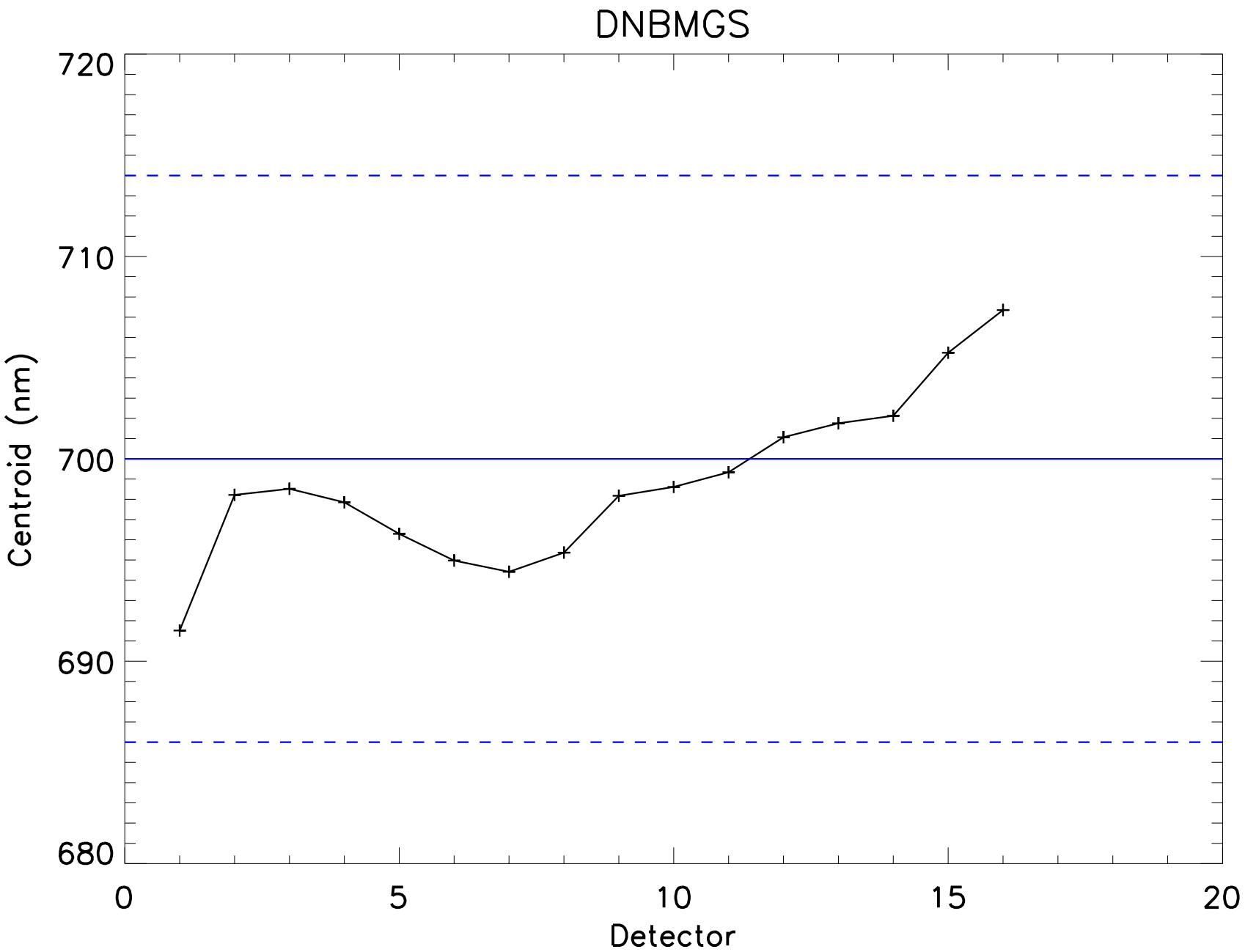

SpMA Radiance
SpMA RSO
0.030
0.025
0.020
0.015
0.010
0.005
0.000
200
400
600
800
1000
1200
Wavelength (nm)

DNBMGS
720
710
700
690
680
Center (nm)
0
5
10
15
20
Detector

DNBMGS
1000
900
800
700
600
500
400
1% limits (nm)
0
5
10
15
20
Detector

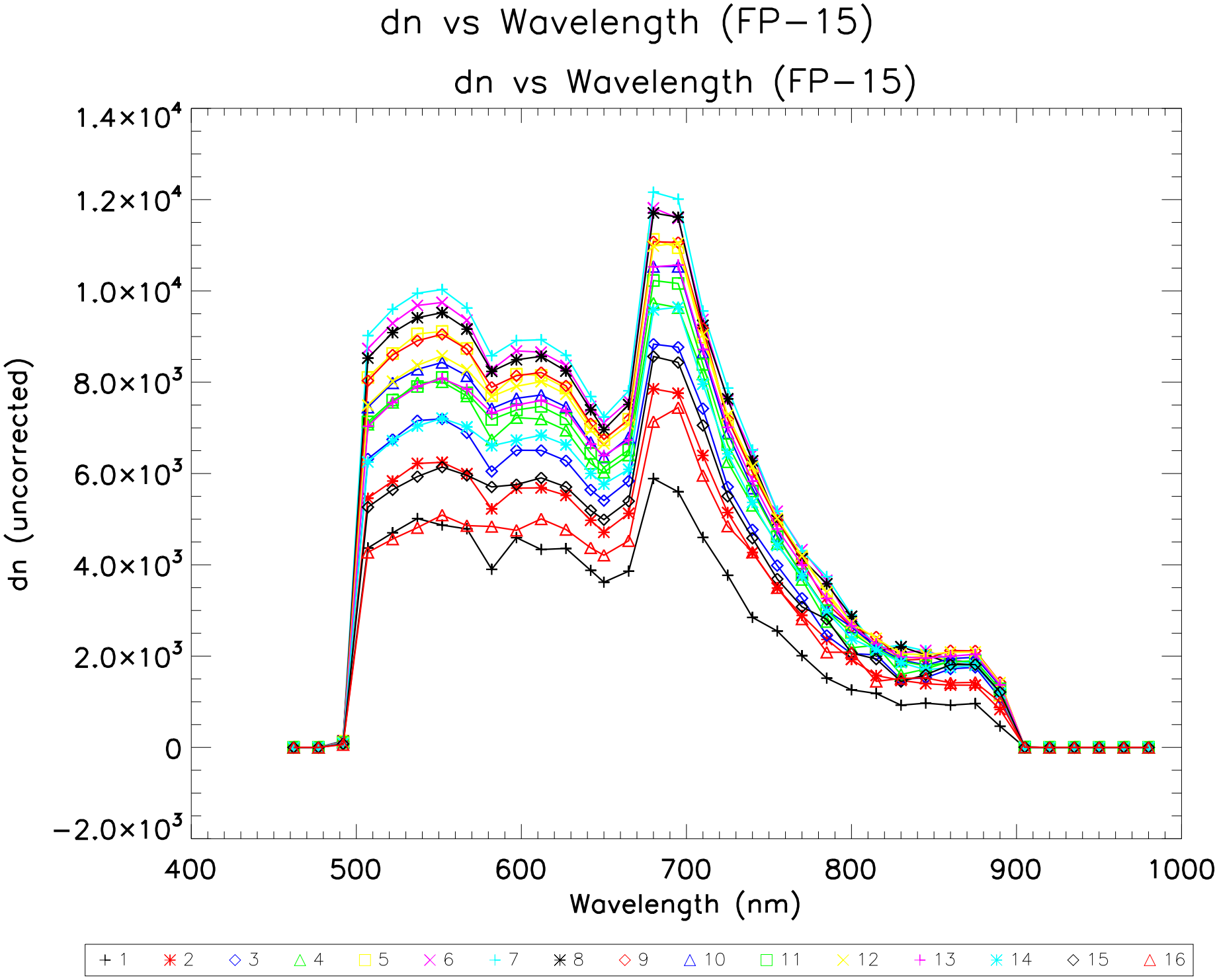
DNBMGS
440
420
400
380
360
Bandwith (nm)
0
5
10
15
20
Detector

DNBMGS
0.3
0.2
0.1
0.0
IOOB (%)
0
5
10
15
20
Detector

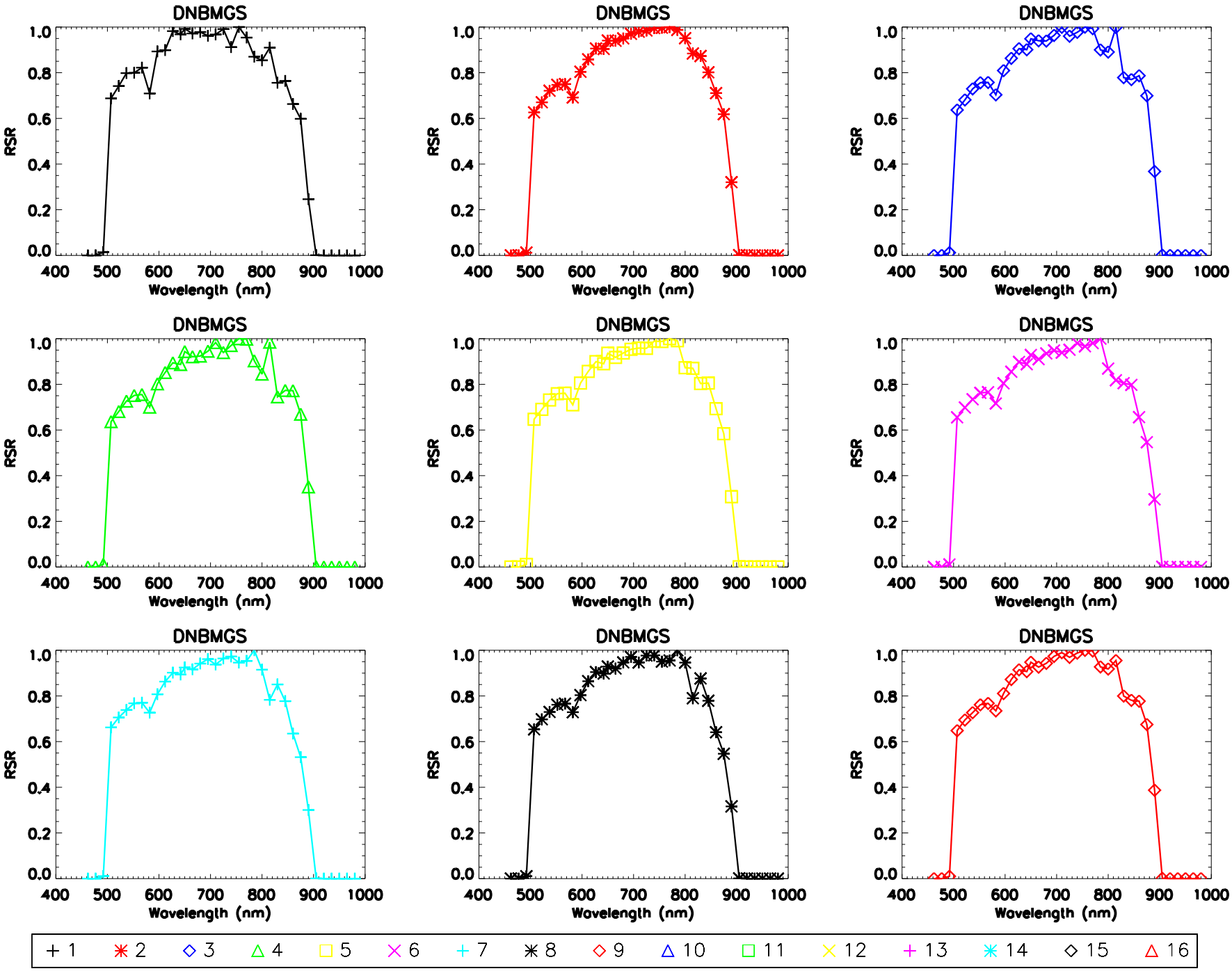

DNBMGS
720
710
700
690
680
Centroid (nm)
0
5
10
15
20
Detector

DNBMGS Bandwidth
Characterization Uncertainty (nm)
Detector
0
5
10
15
20
0
2
4
6
8
10
12

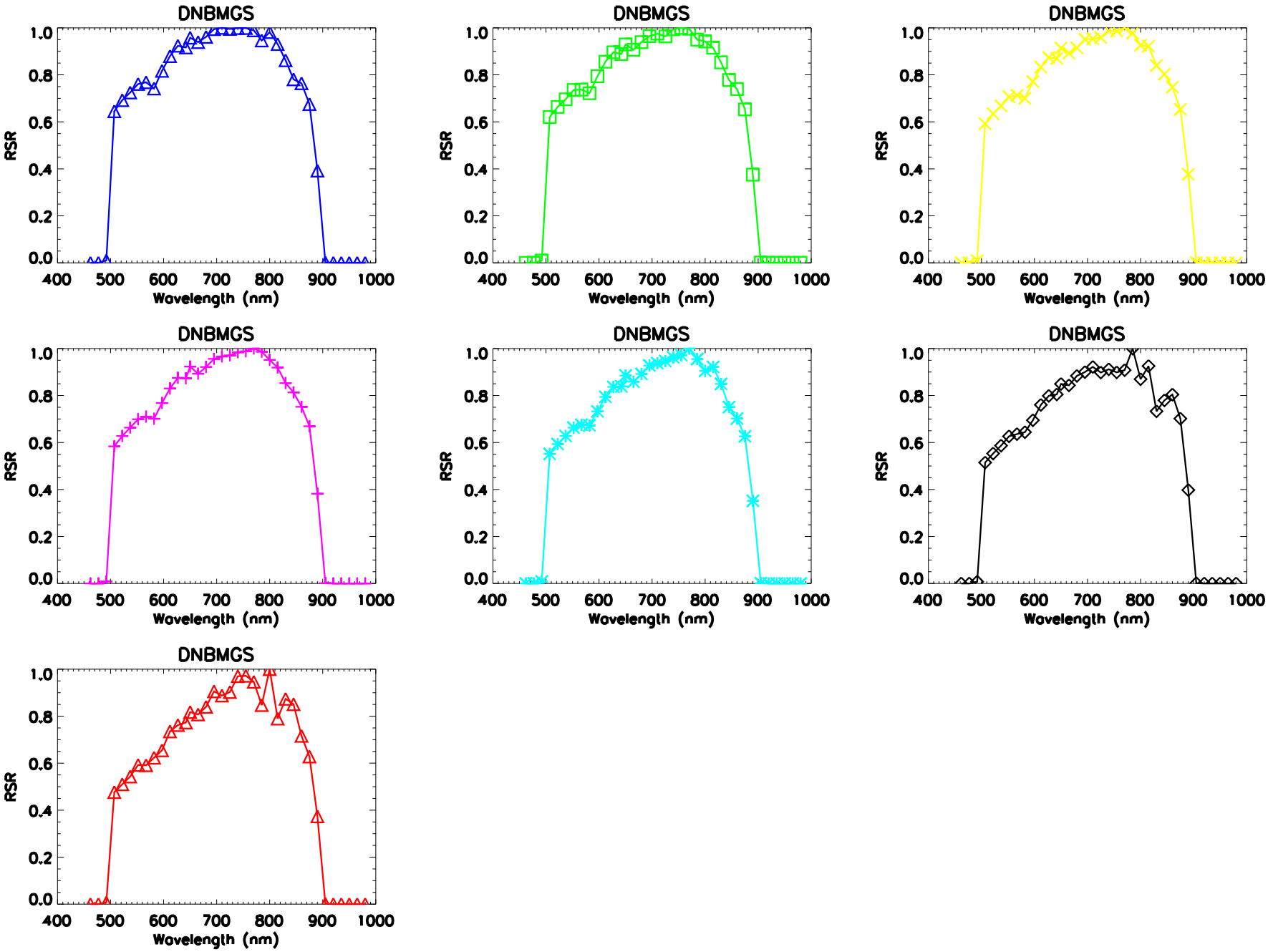
DNBMGS Center
Characterization Uncertainty (nm)
Detector
0
5
10
15
20
0
2
4
6
8

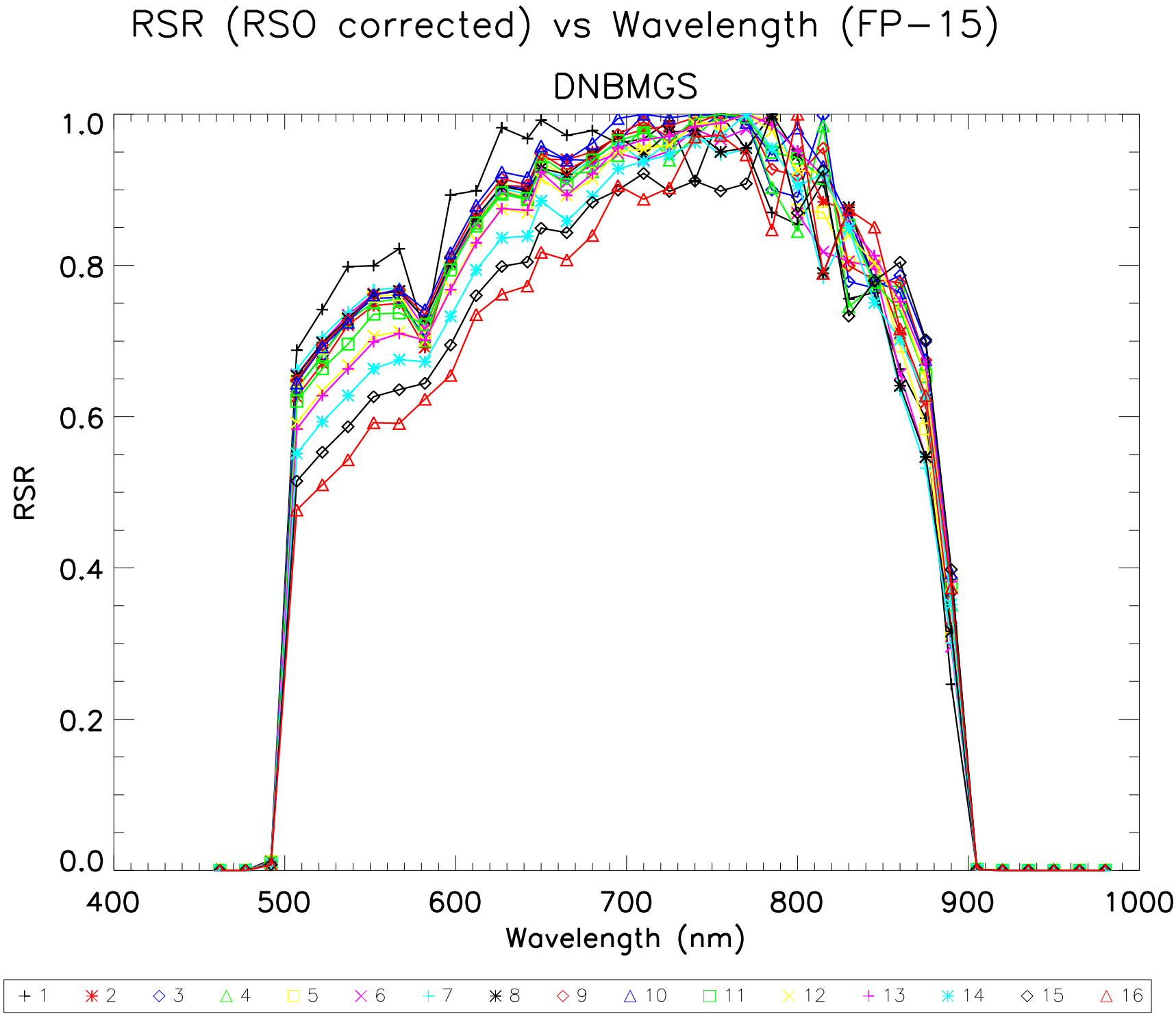

dn vs Wavelength (FP−15)
dn vs Wavelength (FP−15)
1.4×10^4
1.2×10^4
1.0×10^4
8.0×10^3
6.0×10^3
4.0×10^3
2.0×10^3
0
−2.0×10^3
dn (uncorrected)
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

RSR (RSO corrected) vs Wavelength (FP-15)

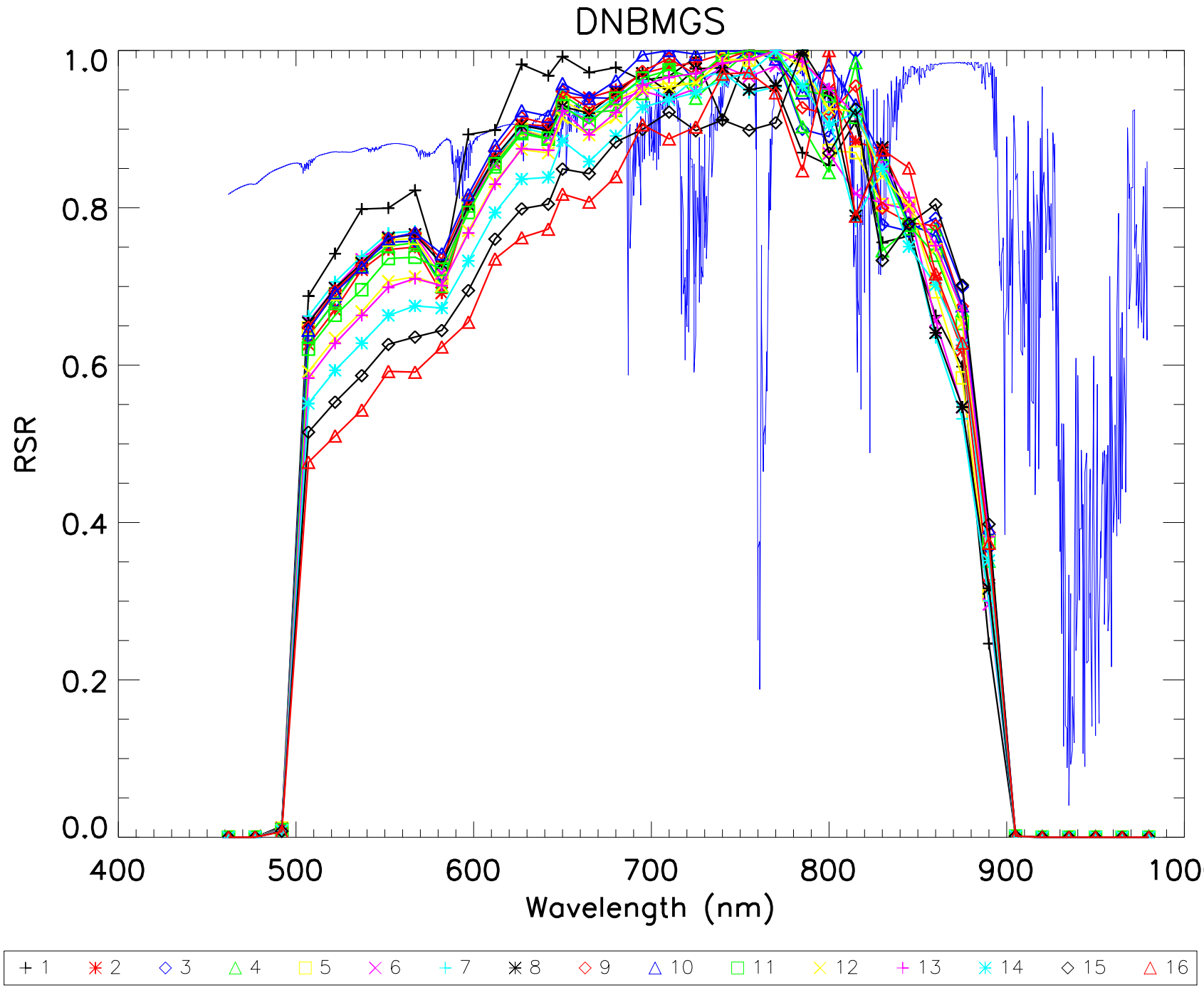


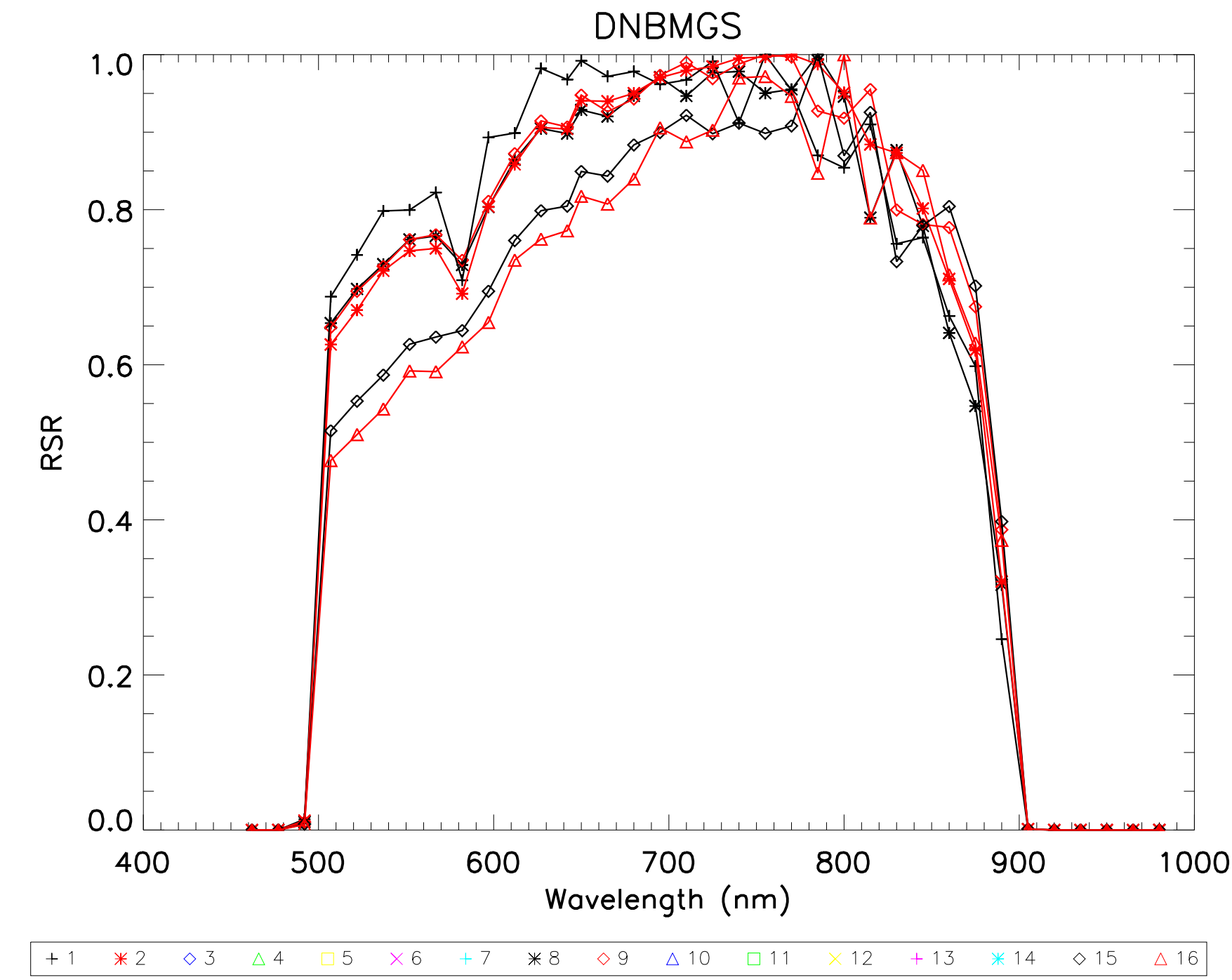
RSR (RSO corrected) vs Wavelength (FP-15)

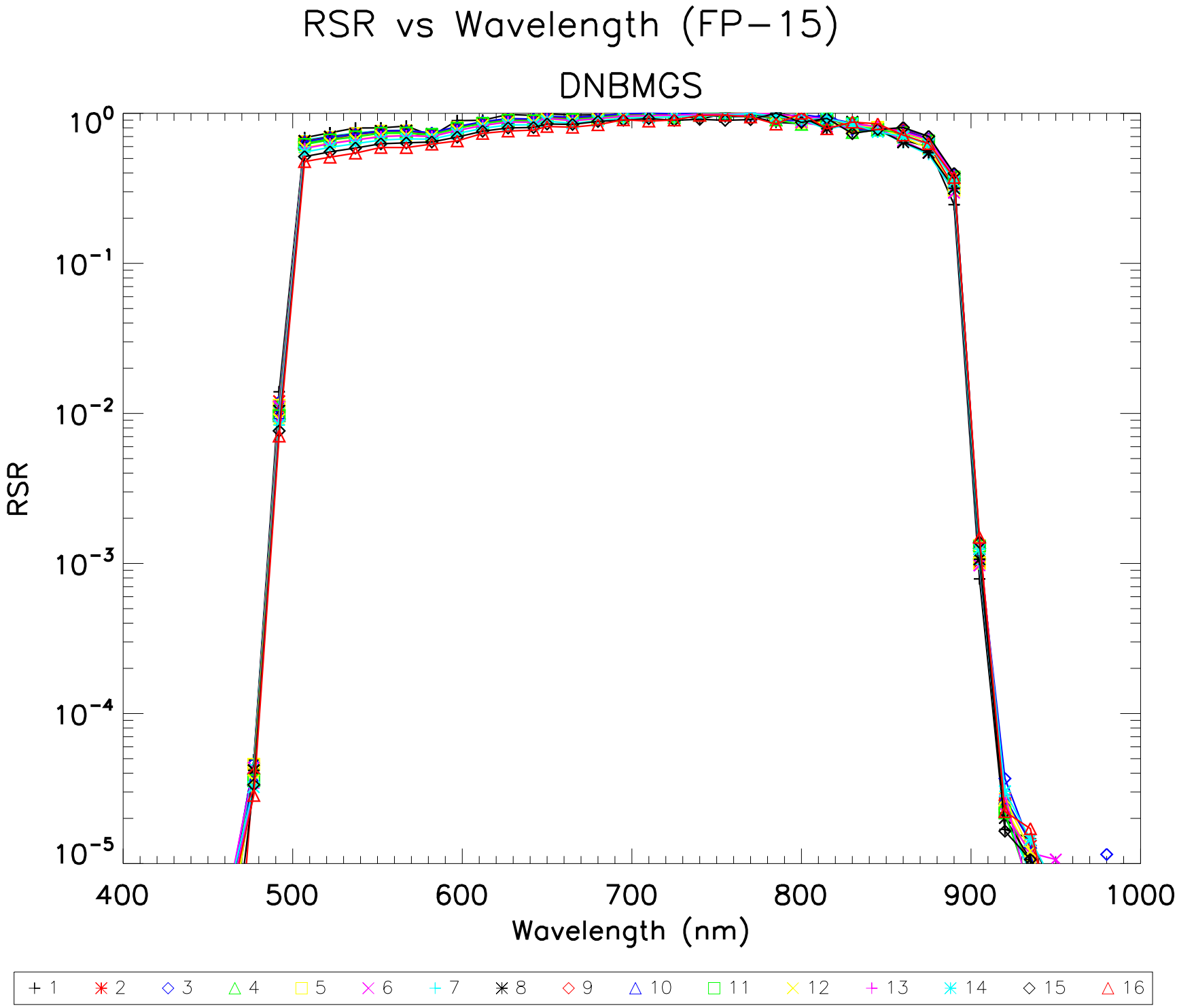


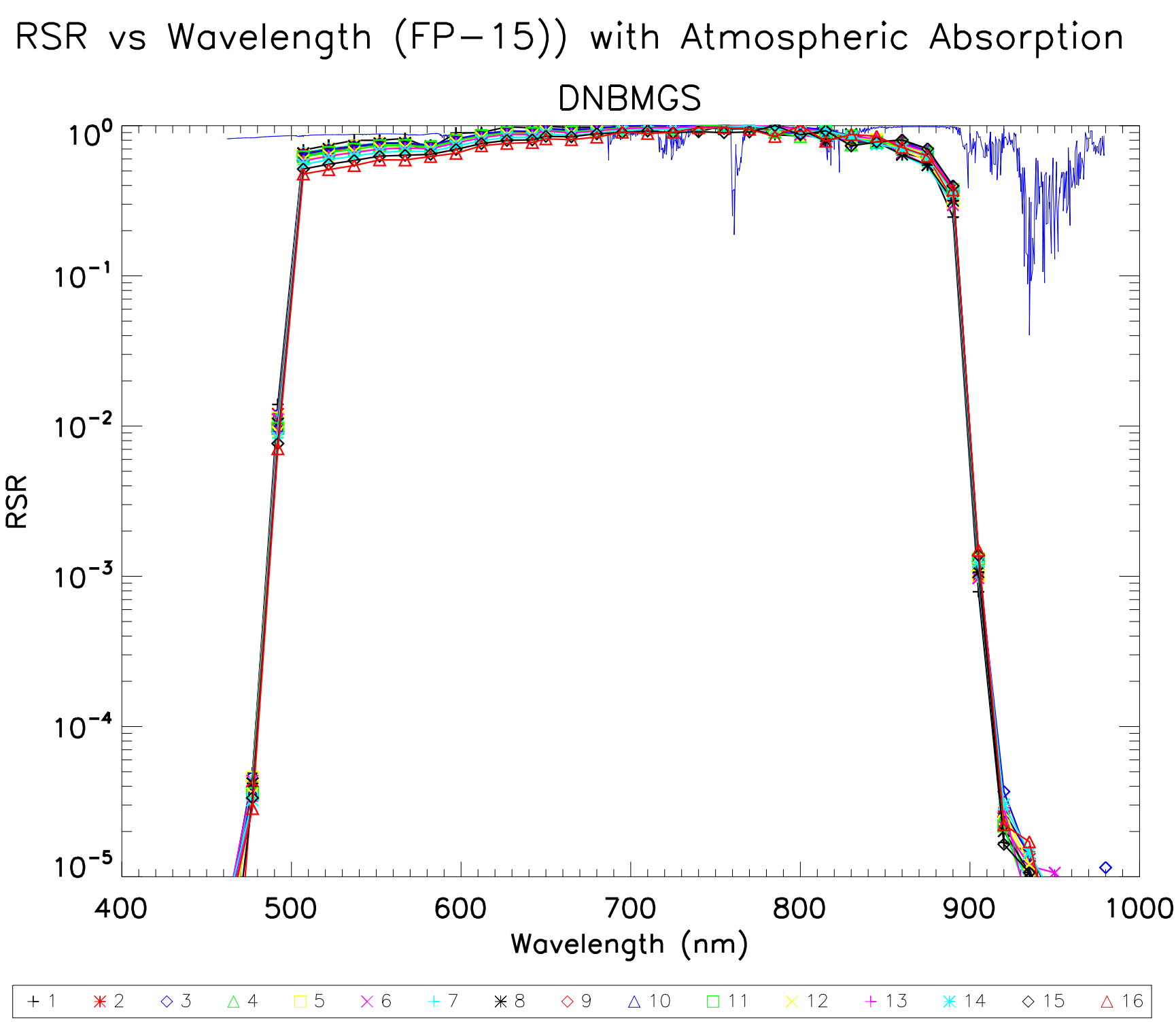

RSR (RSO corrected) vs Wavelength (FP-15)
DNBMGS
RSR
1.0
0.8
0.6
0.4
0.2
0.0
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

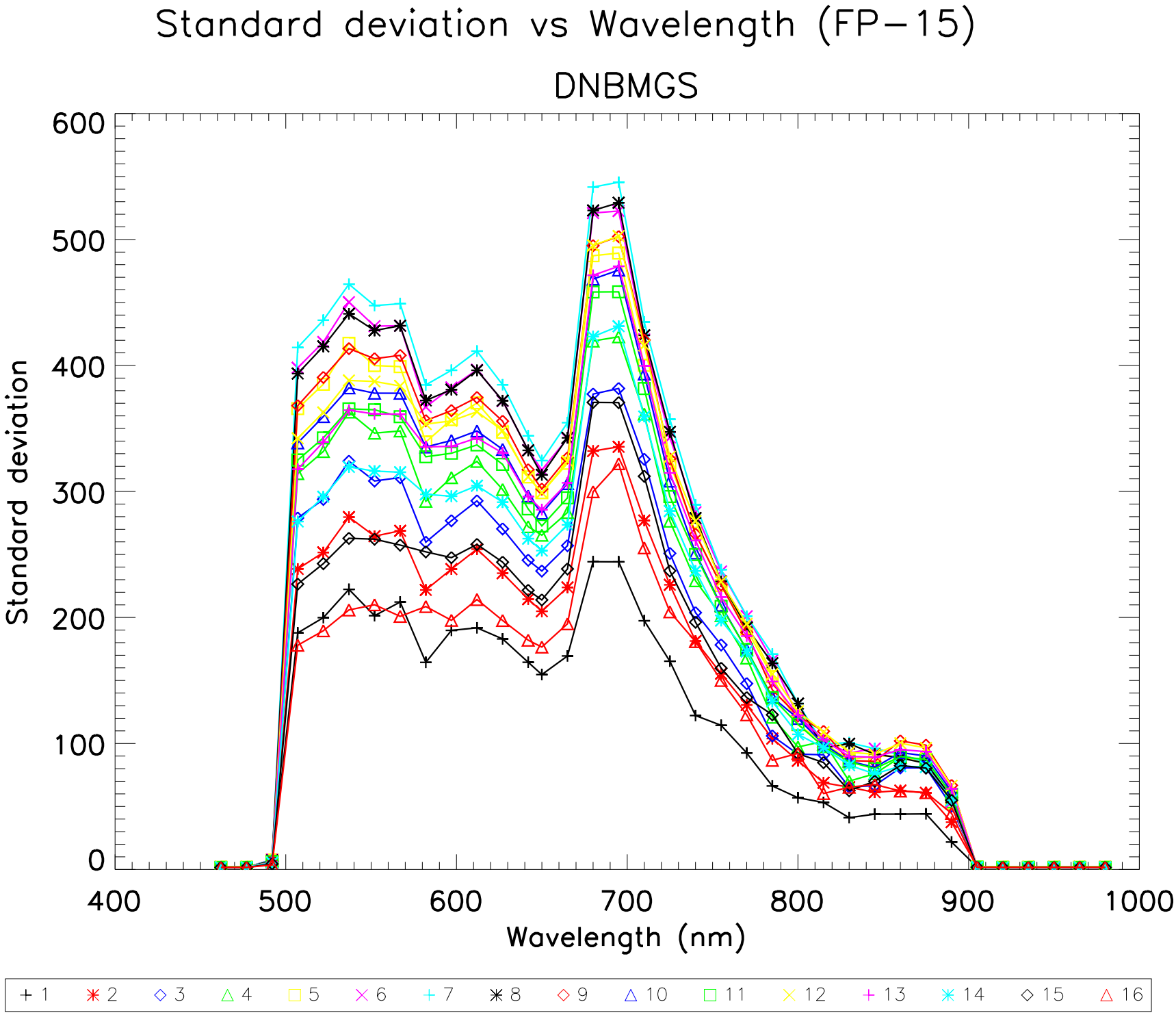
RSR (RSO corrected) vs Wavelength (FP−15) with Atmospheric Absorption

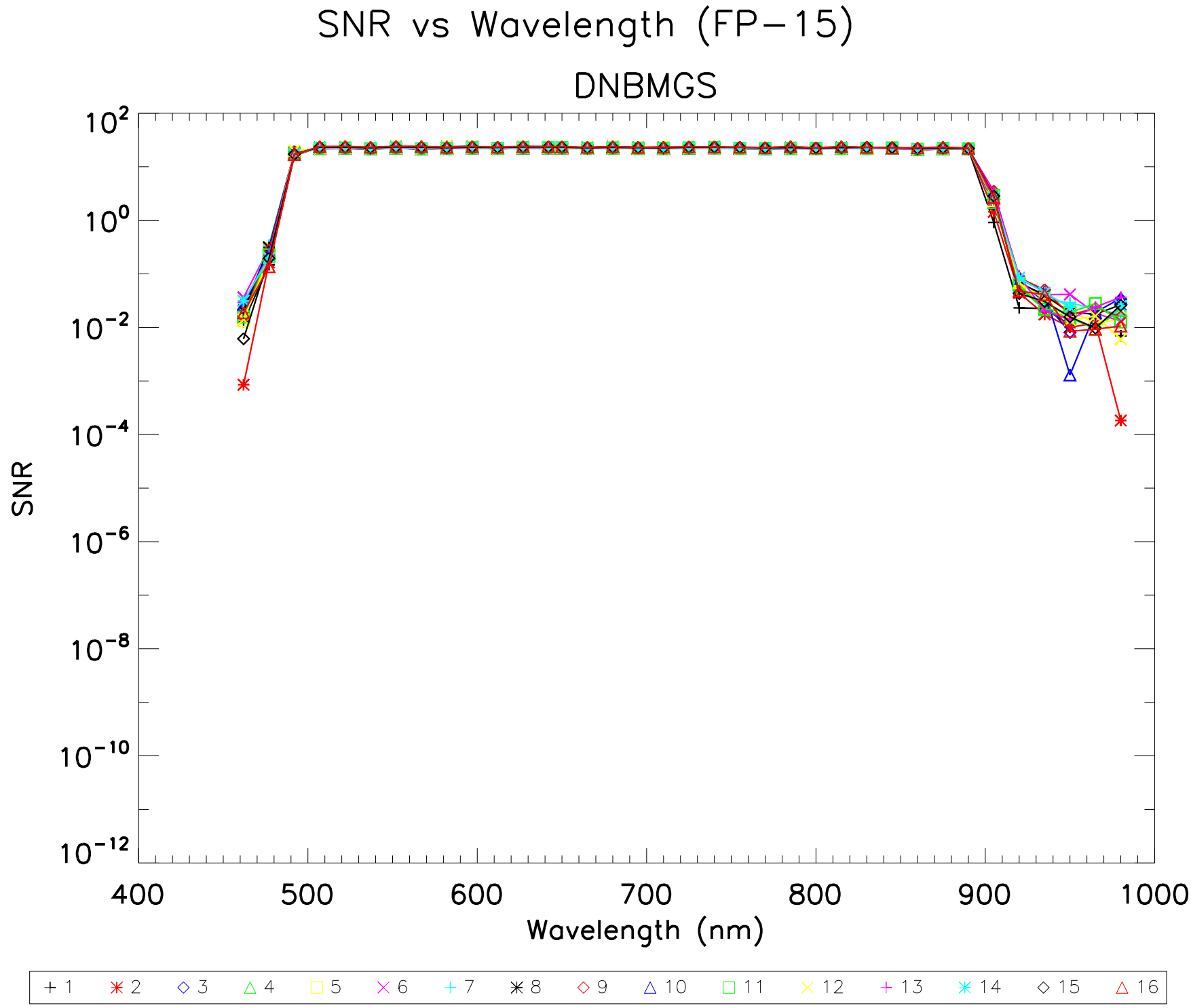


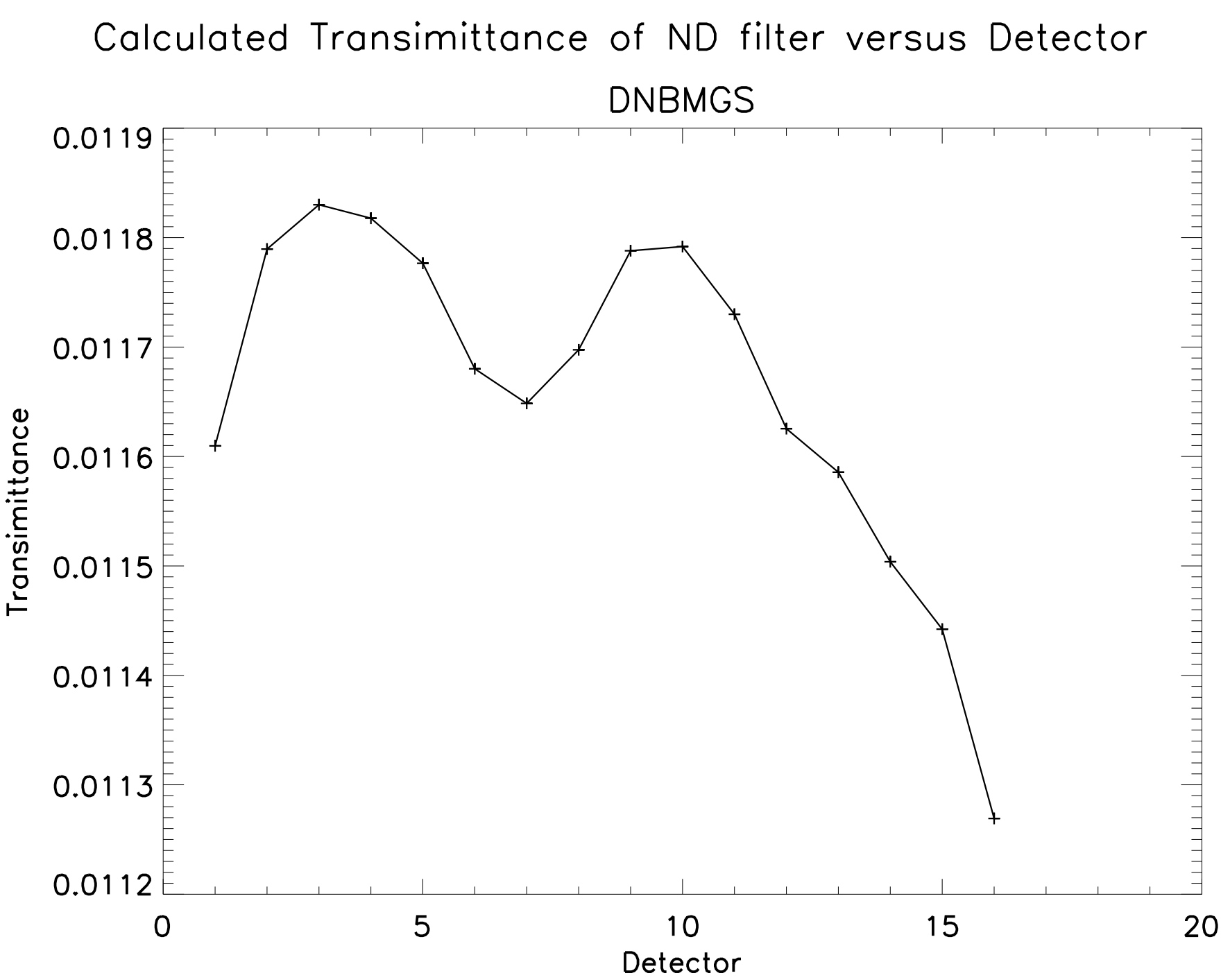

RSR (RSO corrected) vs Wavelength,edge vs center (FP-15)
DNBMGS
RSR
1.0
0.8
0.6
0.4
0.2
0.0
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

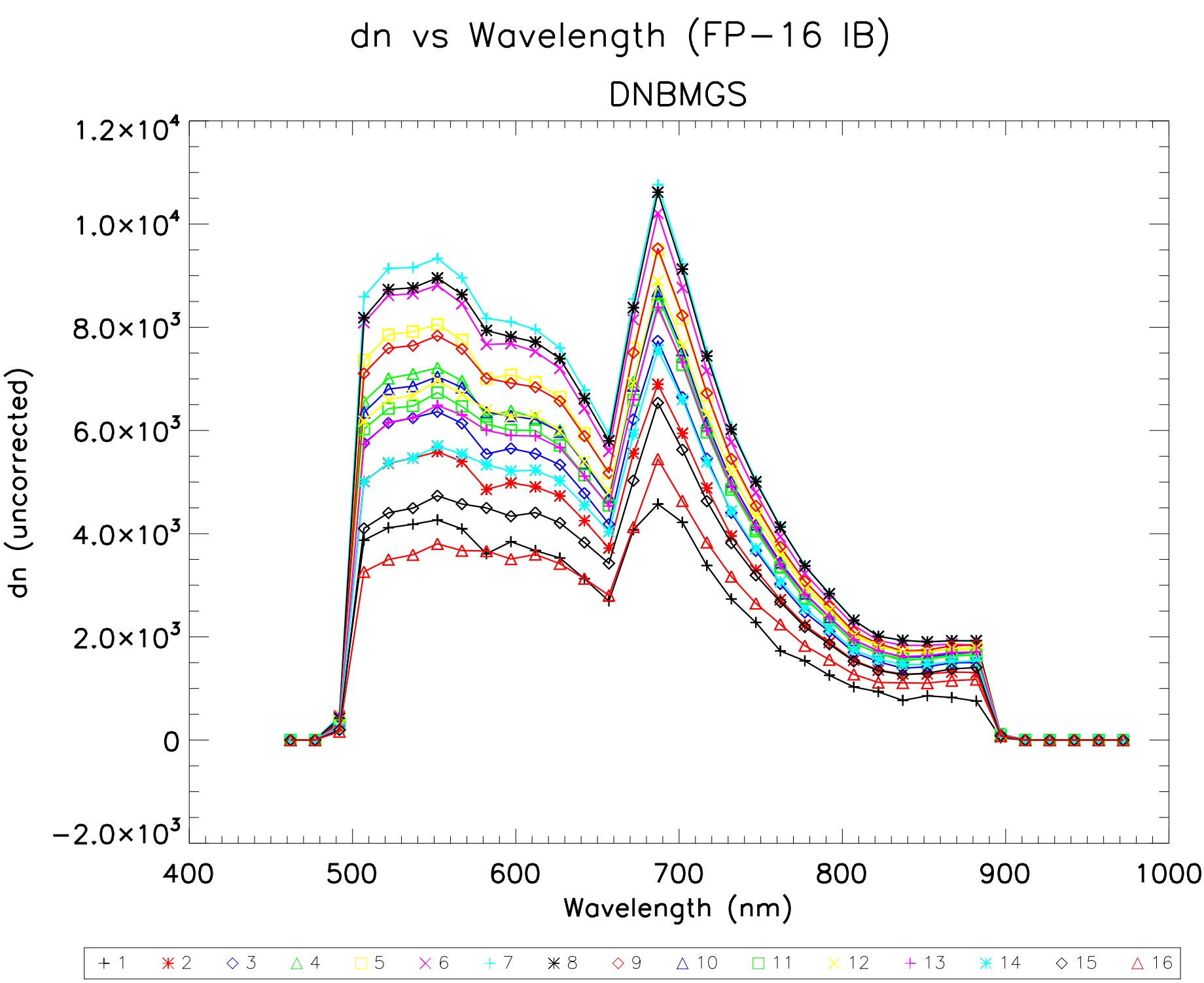

RSR vs Wavelength (FP-15)
DNBMGS
RSR
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

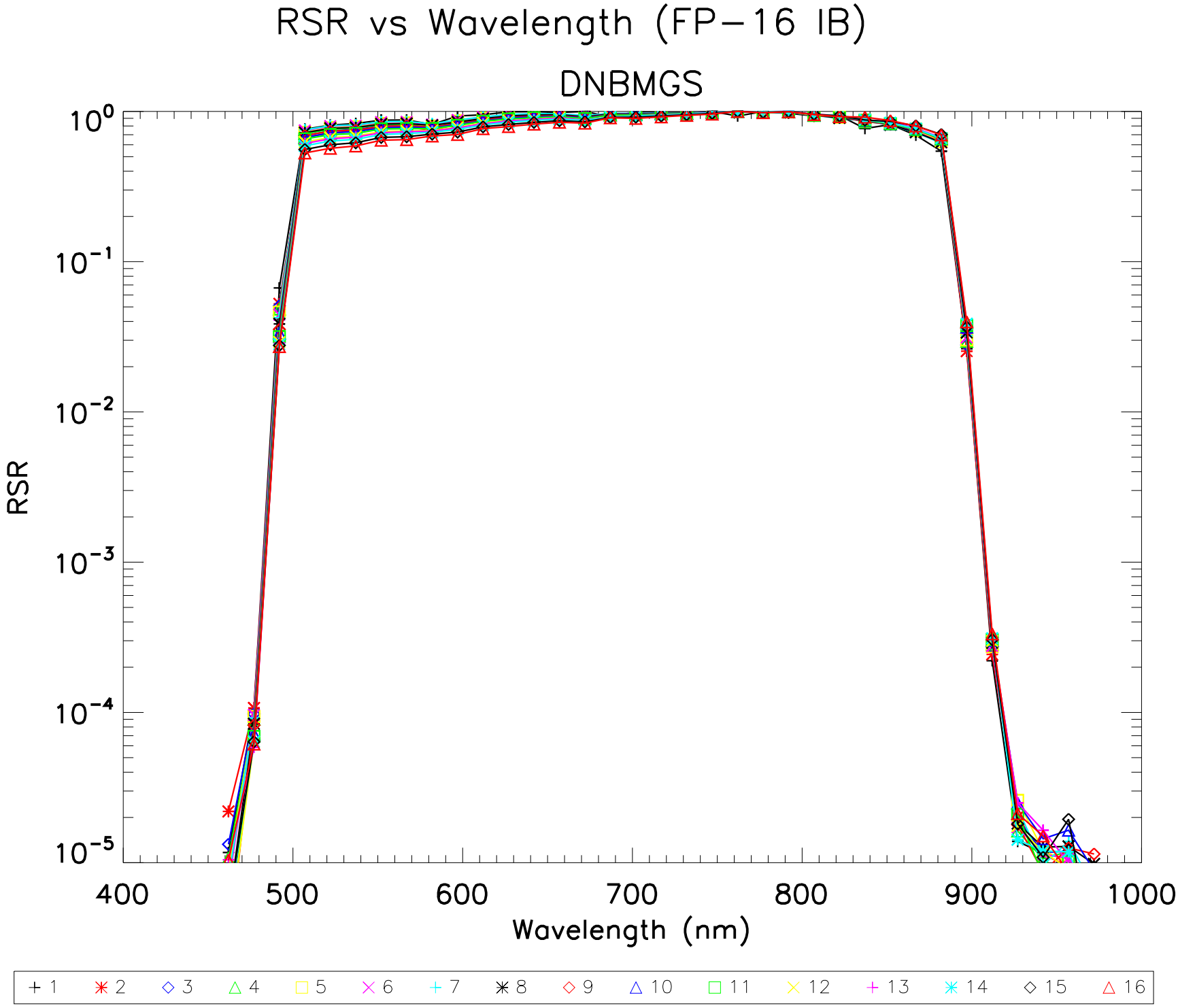

RSR vs Wavelength (FP−15)) with Atmospheric Absorption
DNBMGS
RSR
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

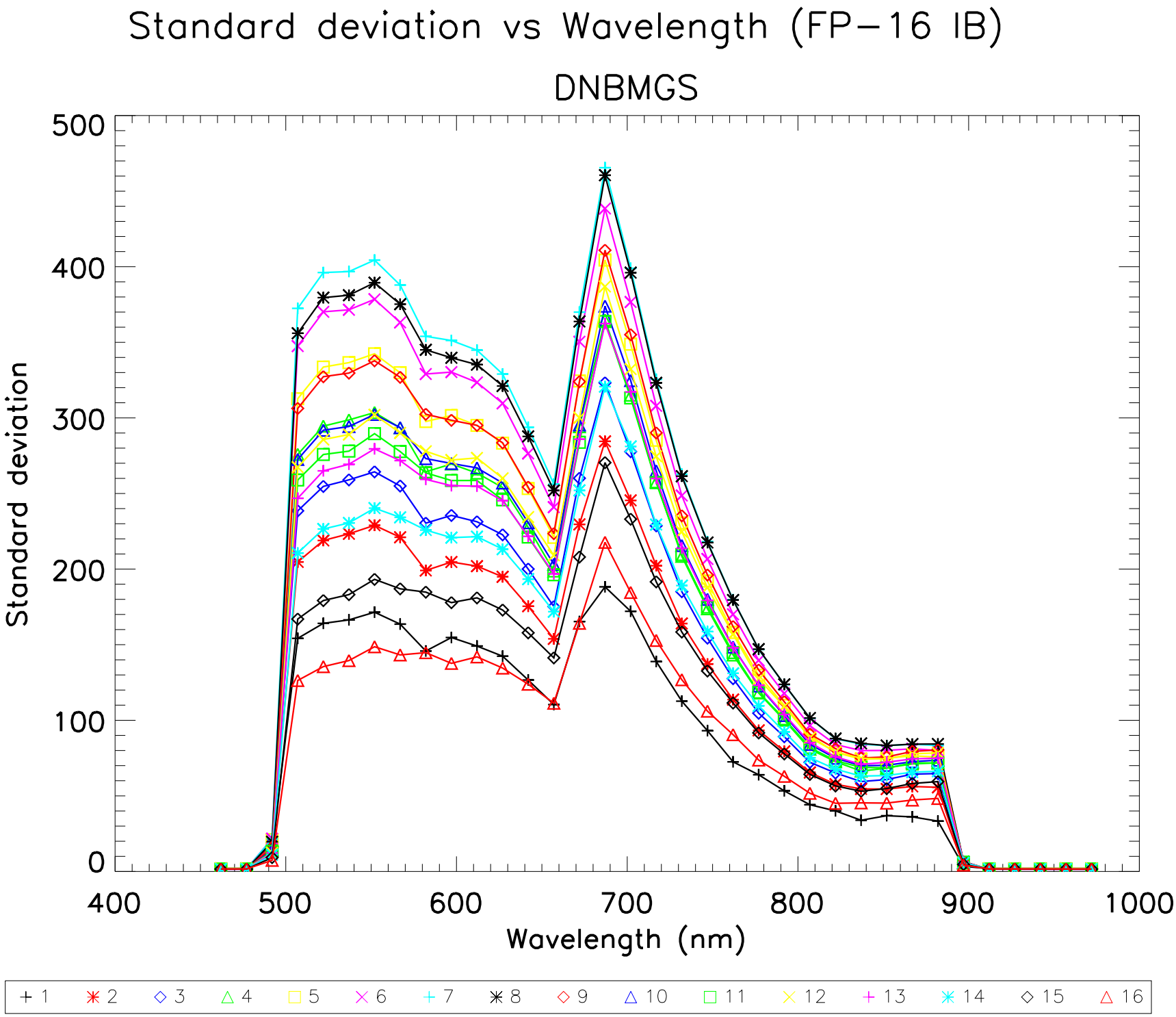

Standard deviation vs Wavelength (FP−15)
DNBMGS
Standard deviation
Wavelength (nm)
0
100
200
300
400
500
600
400
500
600
700
800
900
1000
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

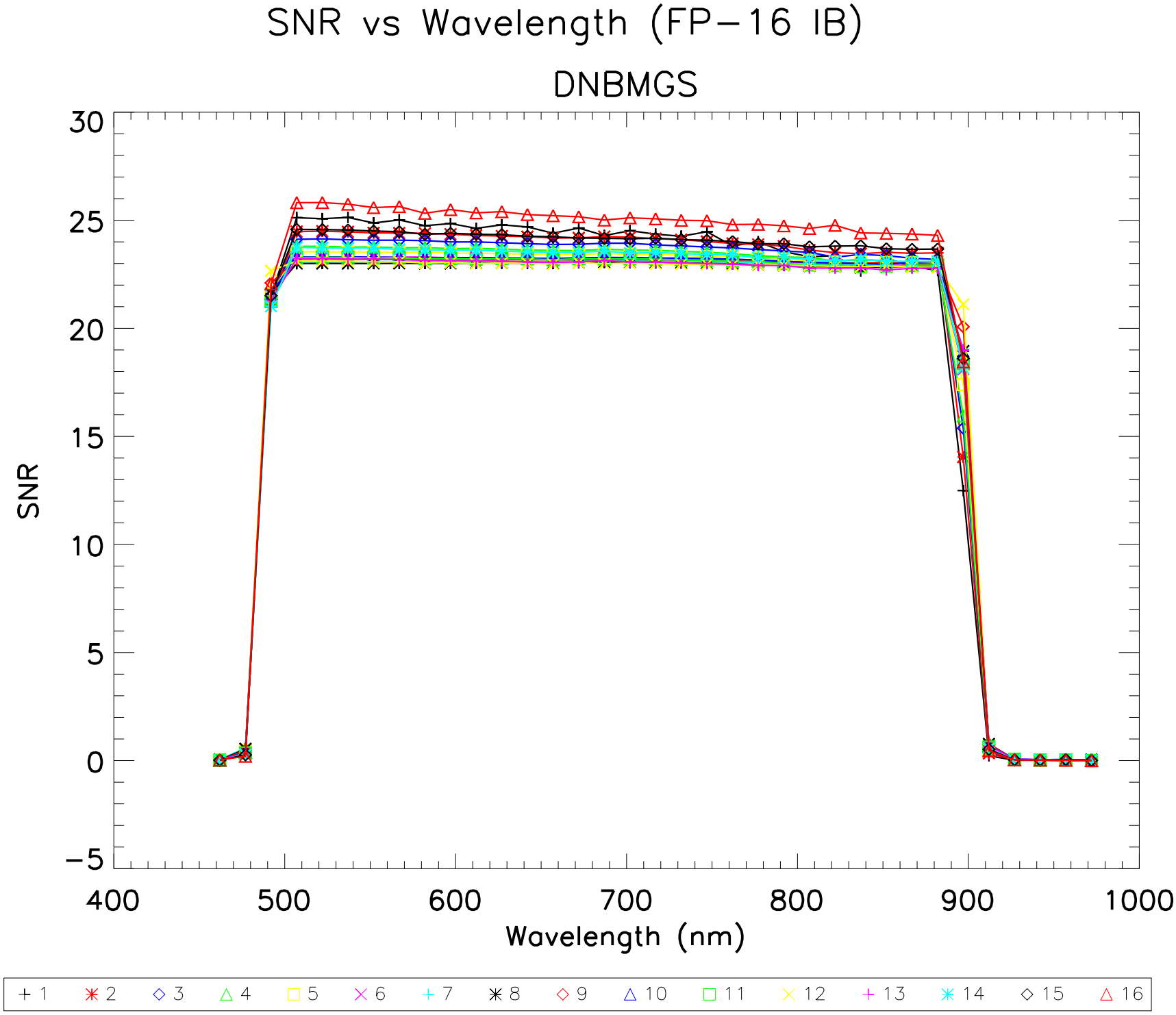

SNR vs Wavelength (FP-15)
DNBMGS
SNR
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
10^{-10}
10^{-12}
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

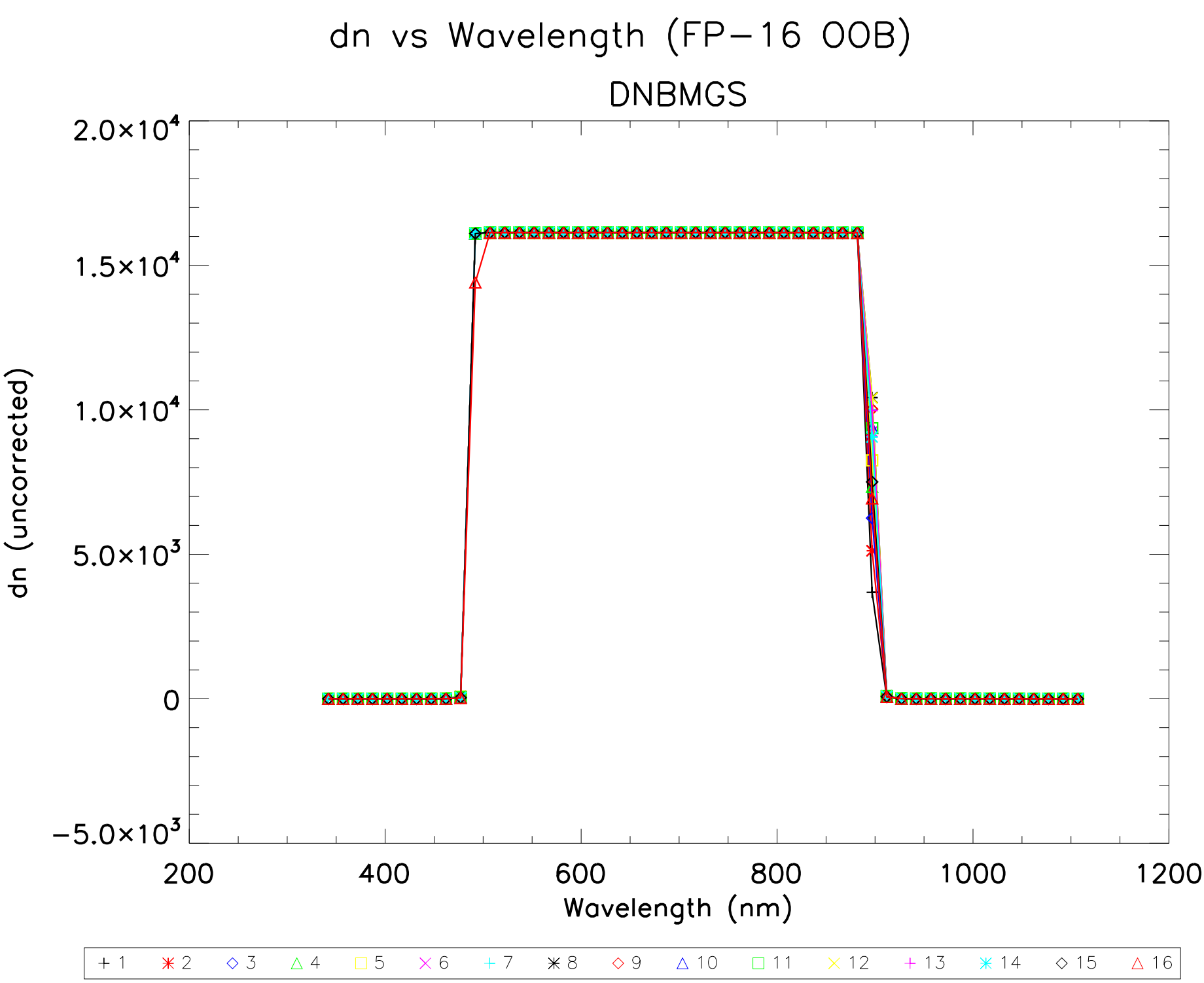

Calculated Transimittance of ND filter versus Detector
DNBMGS
Transimittance
0.0119
0.0118
0.0117
0.0116
0.0115
0.0114
0.0113
0.0112
0
5
10
15
20
Detector

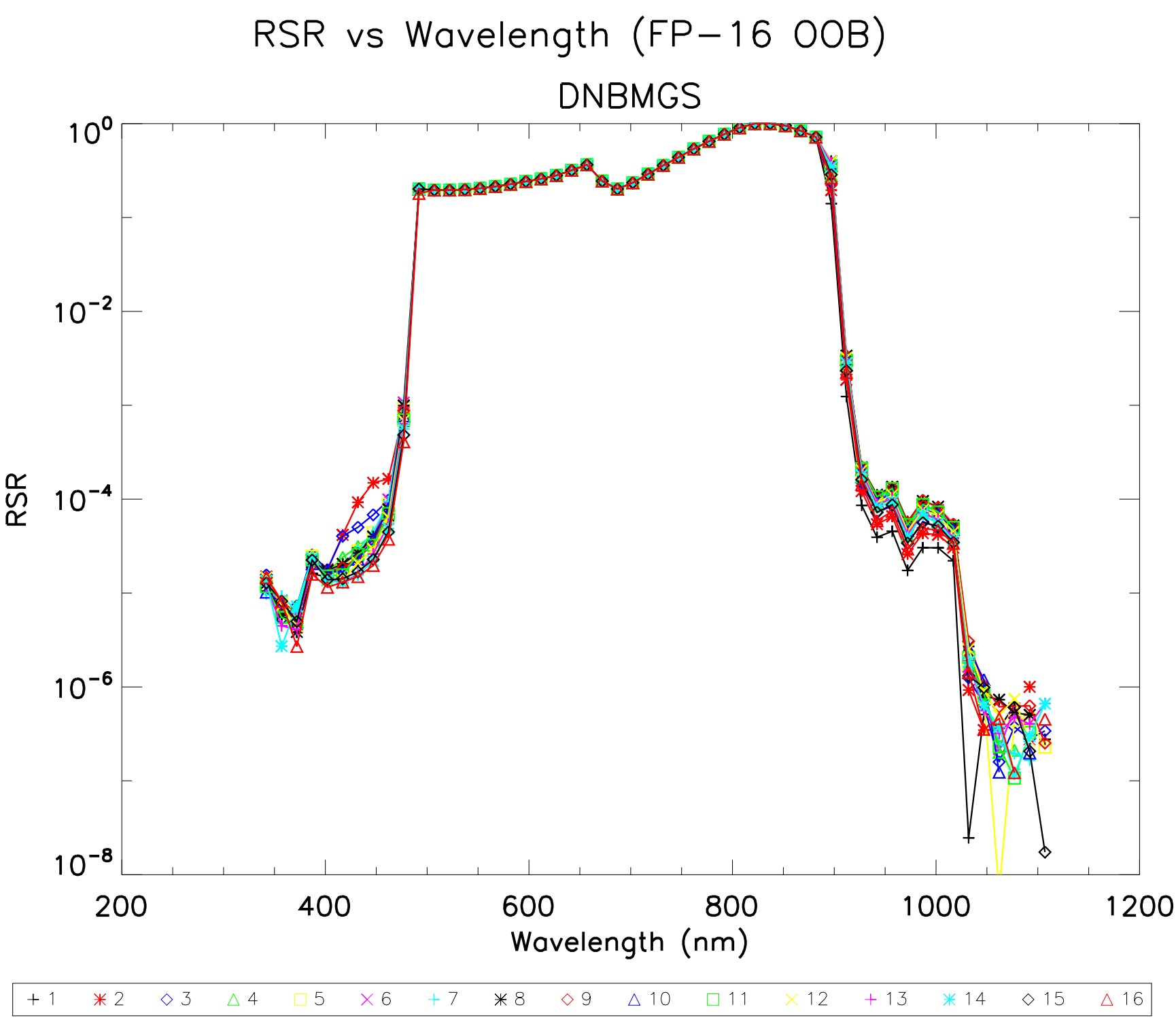

dn vs Wavelength (FP−16 IB)
DNBMGS
dn (uncorrected)
1.2×10^4
1.0×10^4
8.0×10^3
6.0×10^3
4.0×10^3
2.0×10^3
0
−2.0×10^3
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

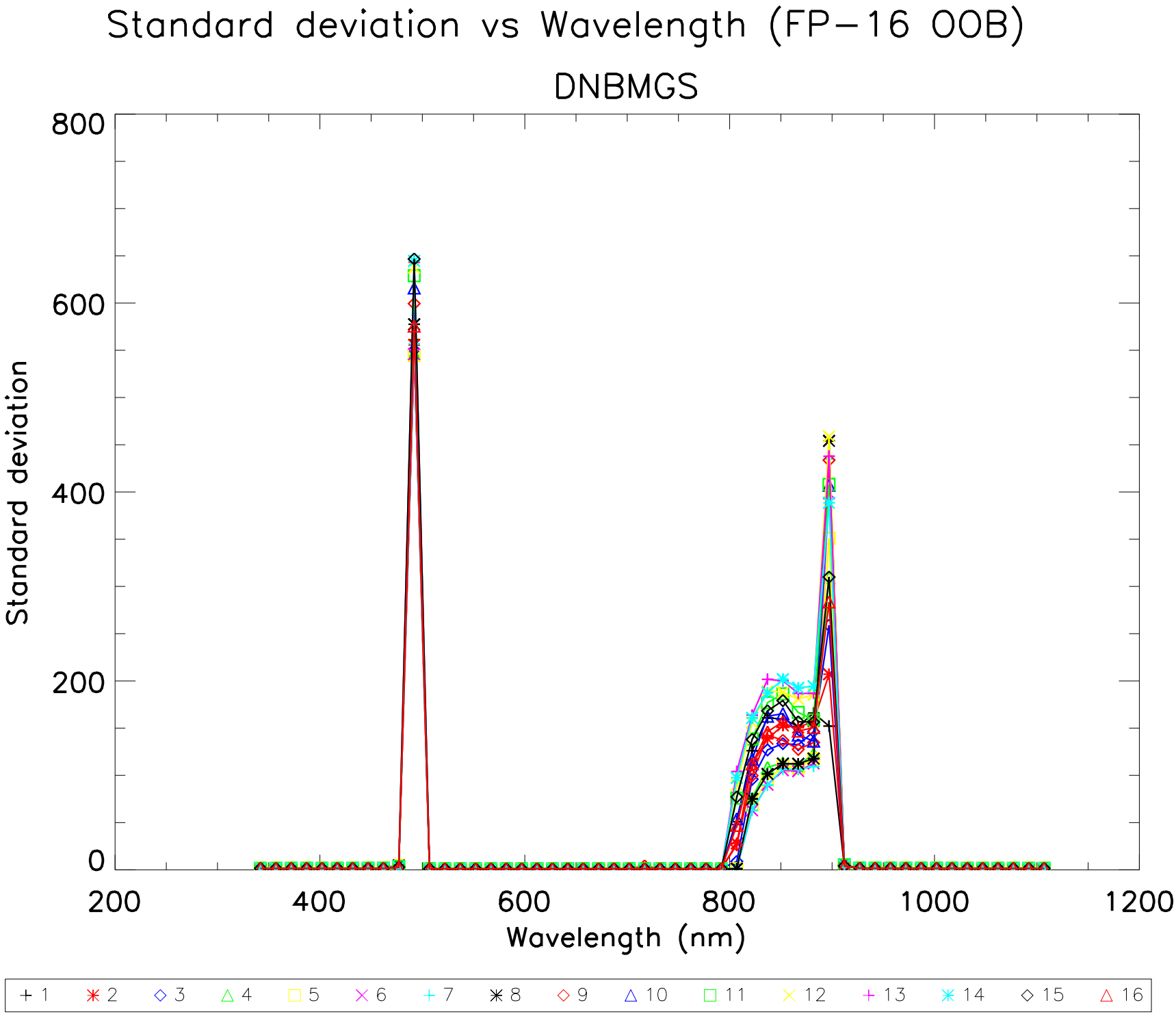

RSR vs Wavelength (FP-16 IB)
DNBMGS
RSR
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

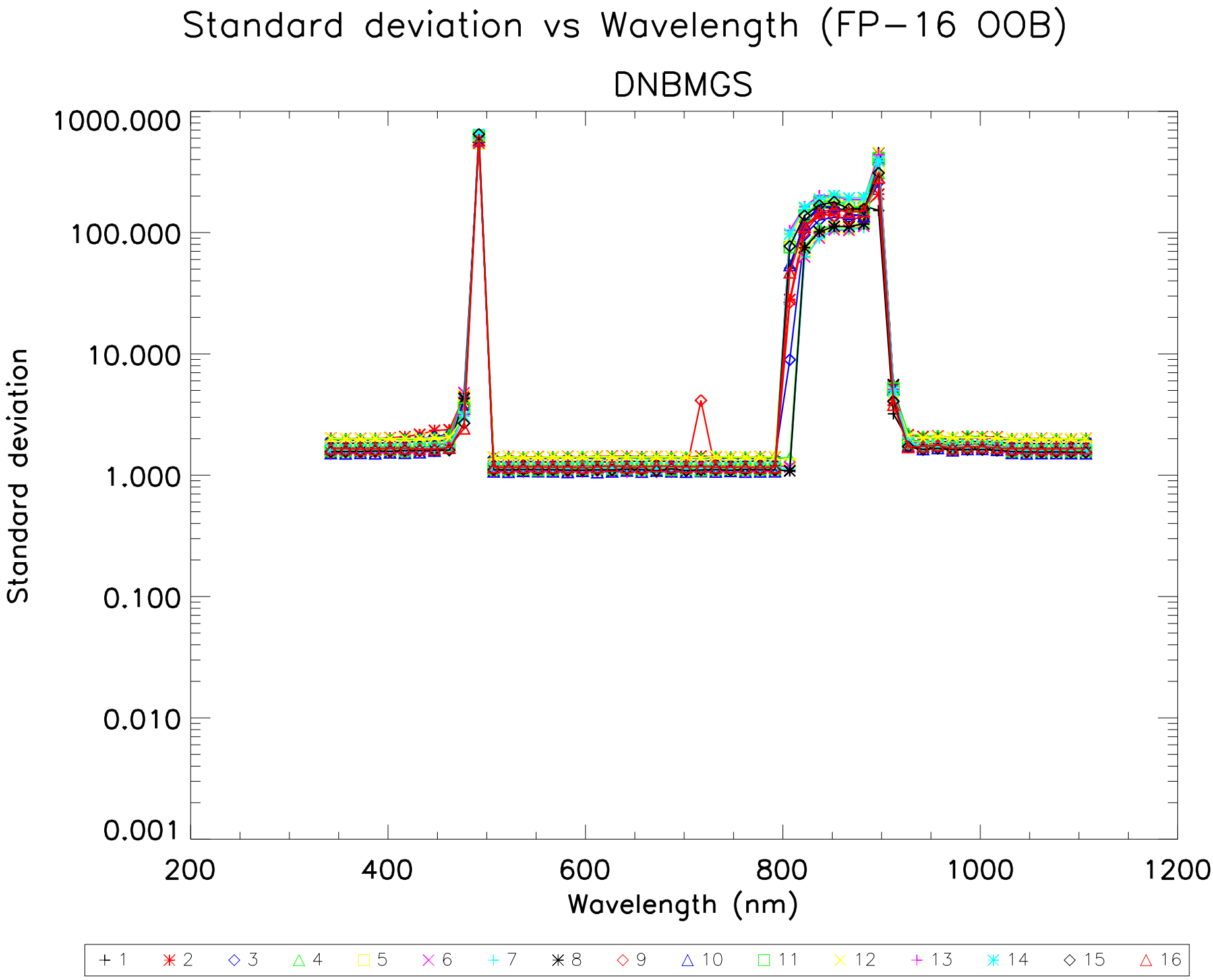

Standard deviation vs Wavelength (FP−16 IB)
DNBMGS
Standard deviation
0
100
200
300
400
500
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

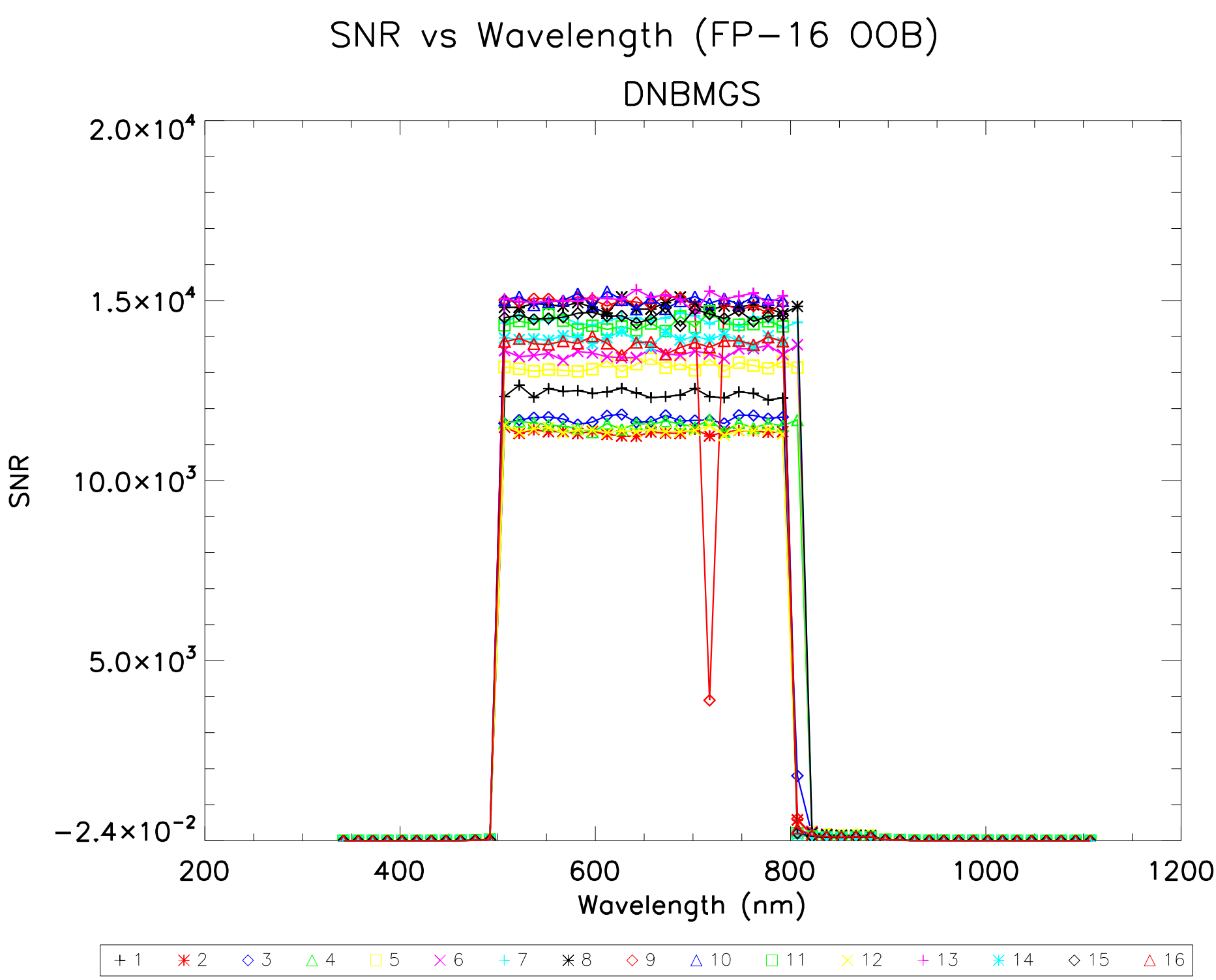

SNR vs Wavelength (FP-16 IB)
DNBMGS
SNR
30
25
20
15
10
5
0
-5
400
500
600
700
800
900
1000
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

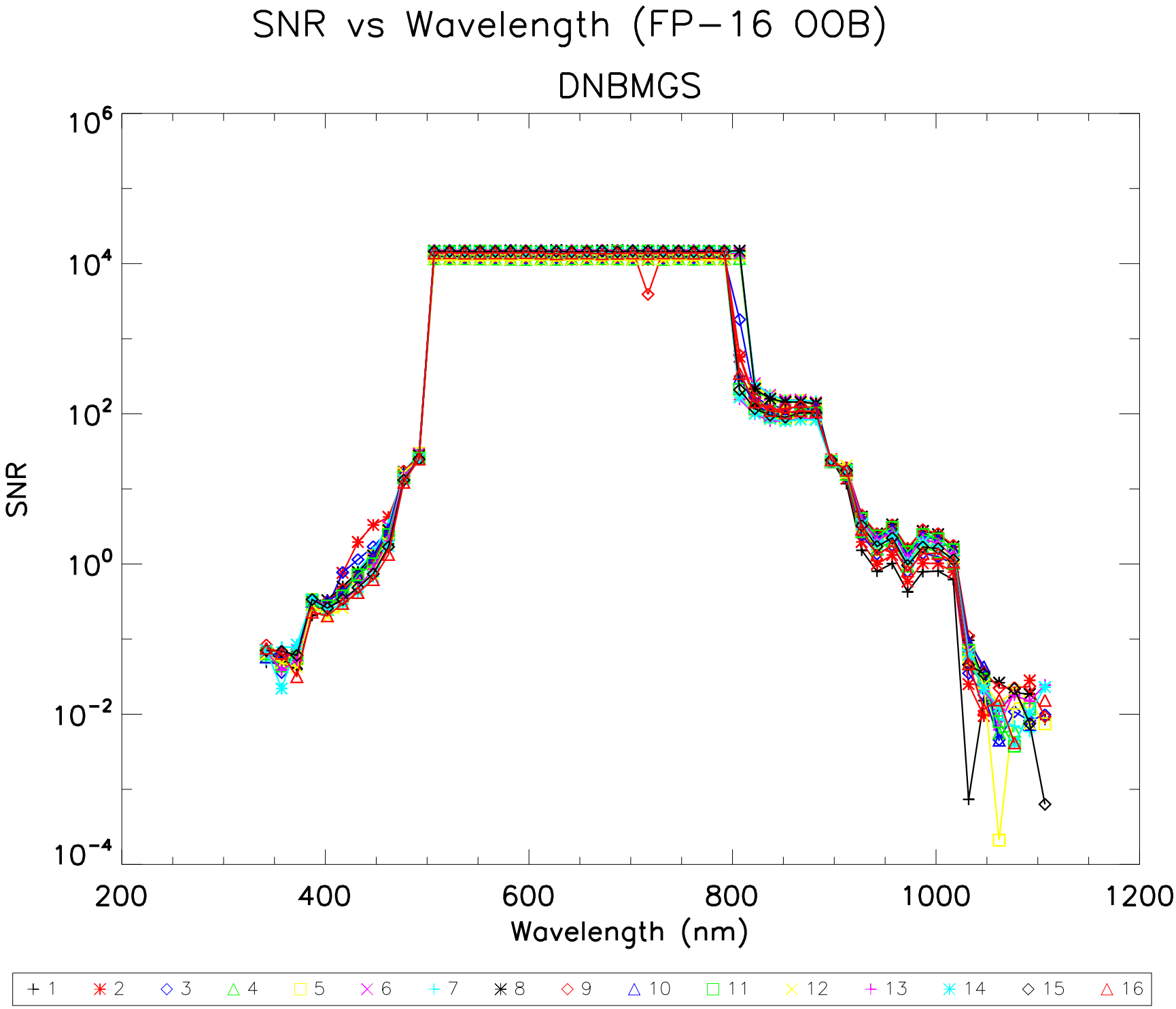

dn vs Wavelength (FP-16 OOB)
DNBMGS
2.0×10⁴
1.5×10⁴
1.0×10⁴
5.0×10³
0
−5.0×10³
dn (uncorrected)
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

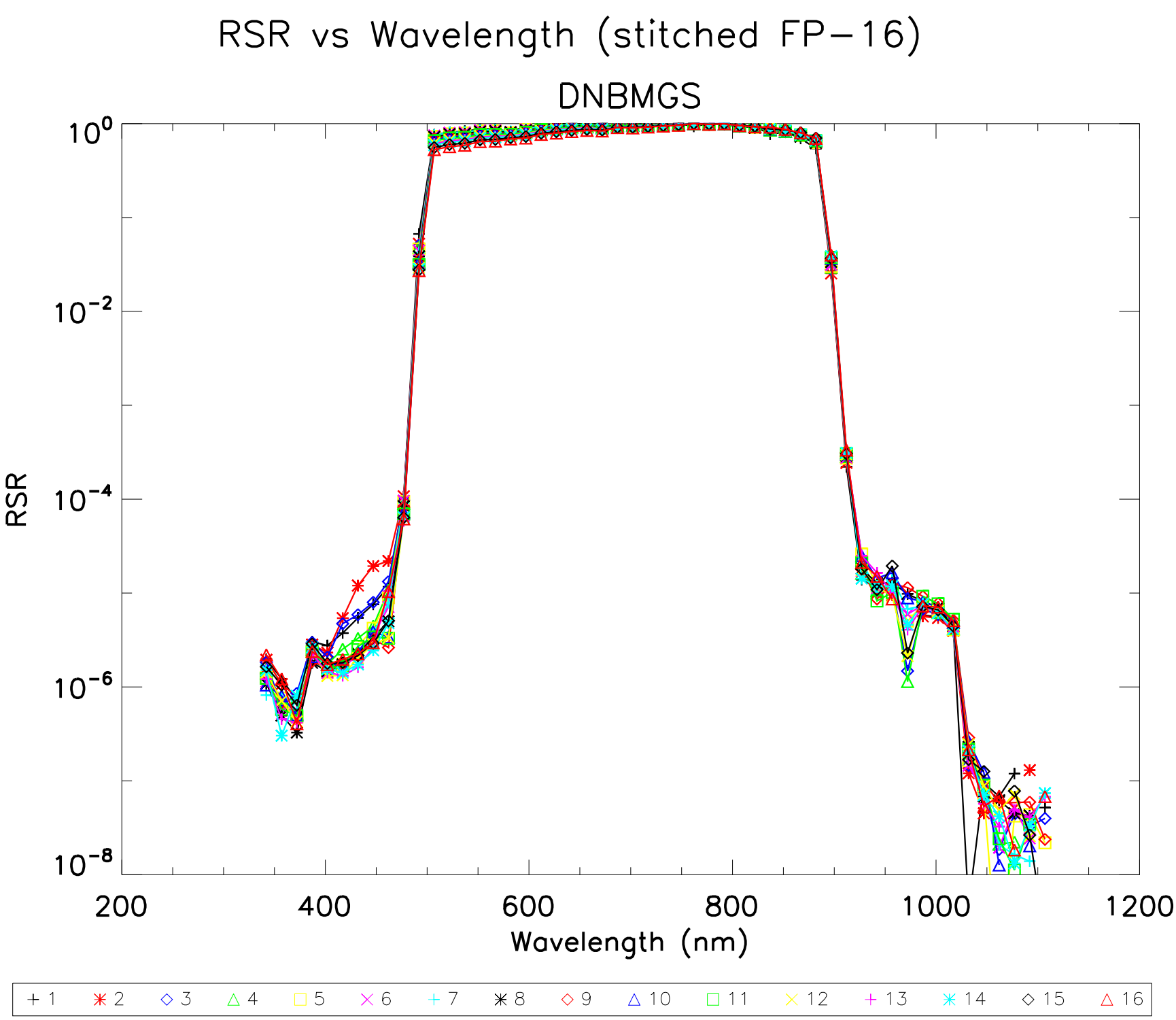

RSR vs Wavelength (FP-16 OOB)
DNBMGS
RSR
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

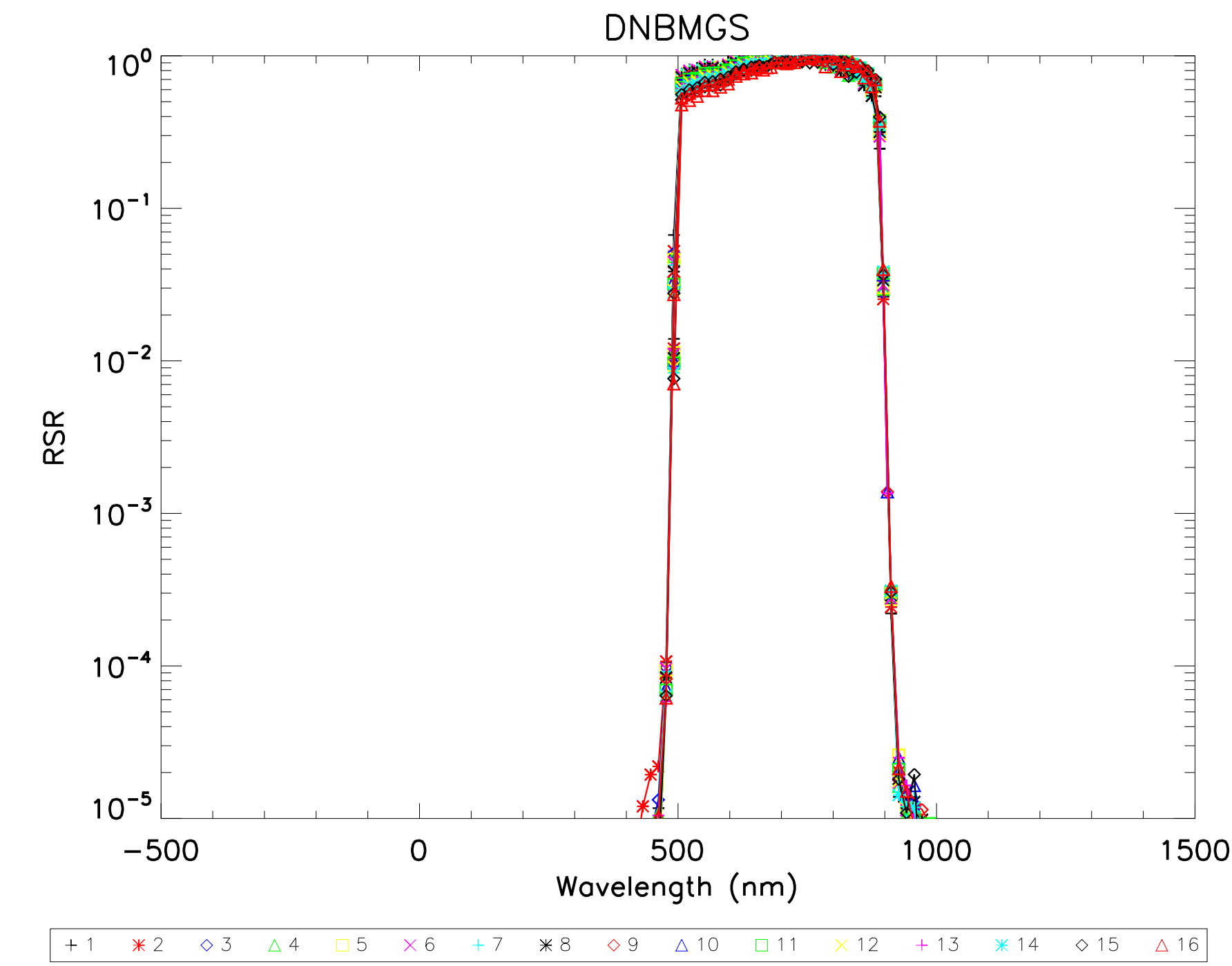

Standard deviation vs Wavelength (FP-16 OOB)
DNBMGS
Standard deviation
0
200
400
600
800
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

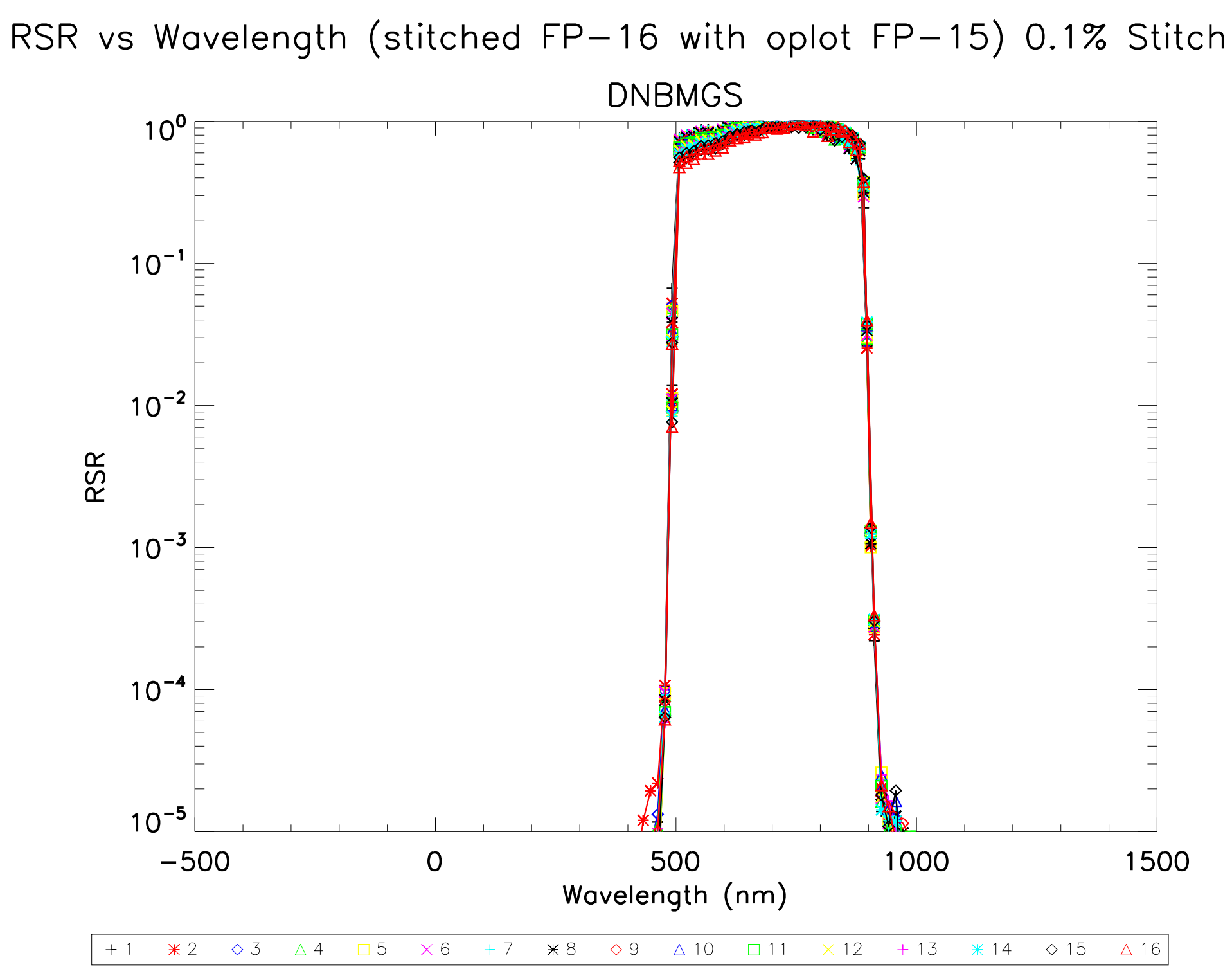

Standard deviation vs Wavelength (FP-16 OOB)
DNBMGS
1000.000
100.000
10.000
1.000
0.100
0.010
0.001
Standard deviation
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

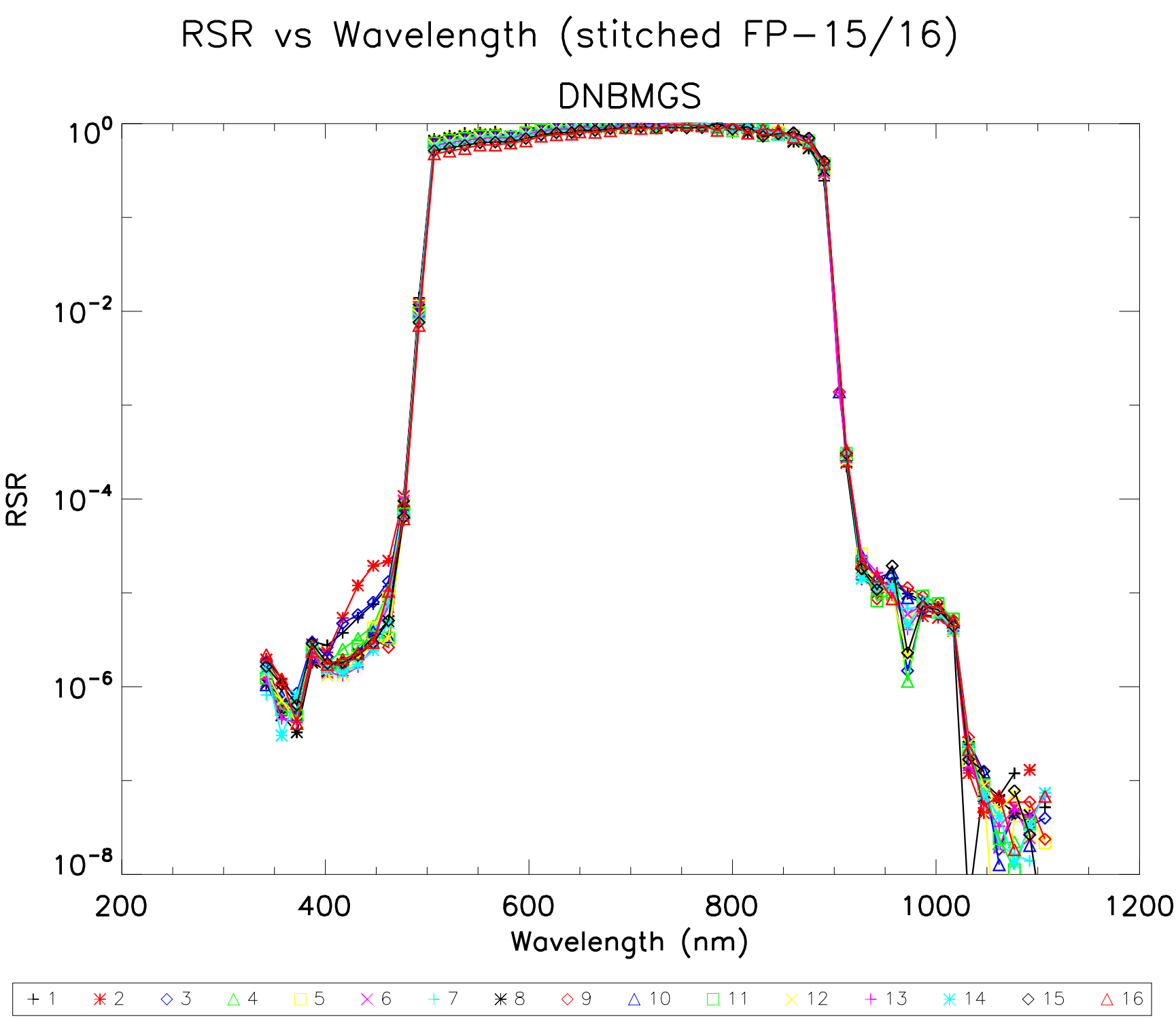

SNR vs Wavelength (FP-16 OOB)
DNBMGS
2.0×10^4
1.5×10^4
10.0×10^3
5.0×10^3
−2.4×10^−2
SNR
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

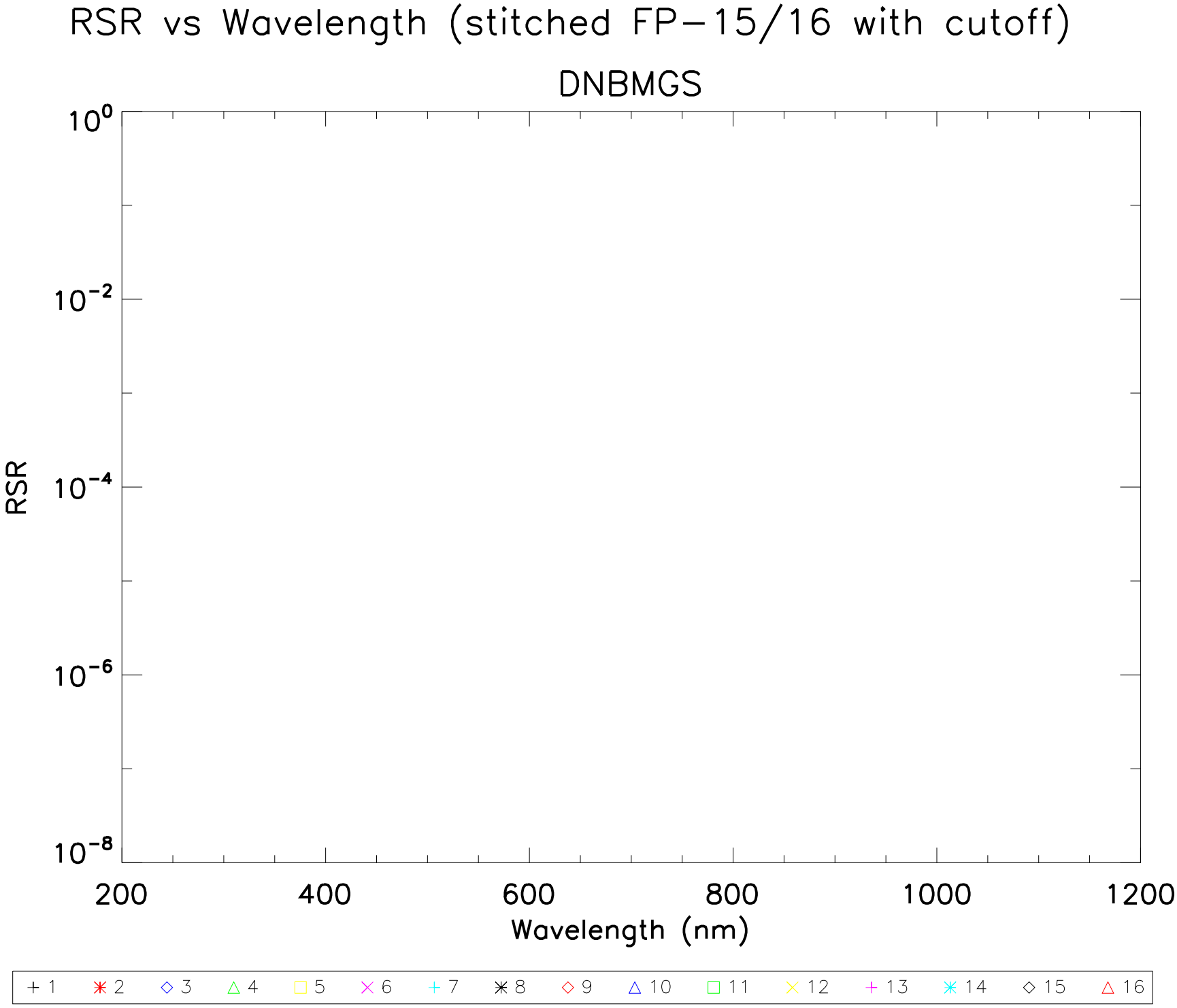

SNR vs Wavelength (FP−16 OOB)
DNBMGS
SNR
10^{6}
10^{4}
10^{2}
10^{0}
10^{-2}
10^{-4}
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

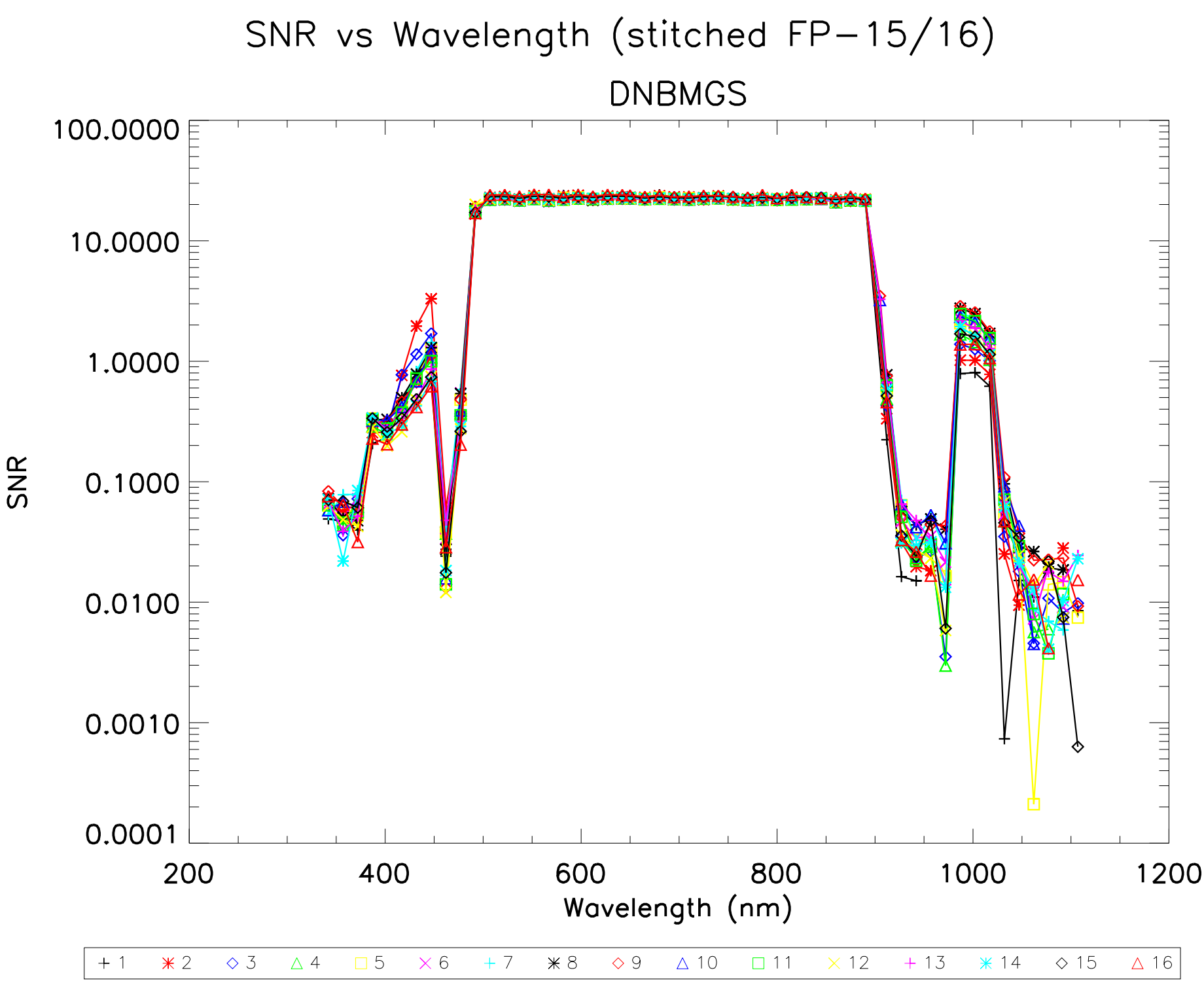

RSR vs Wavelength (stitched FP−16)
DNBMGS
RSR
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

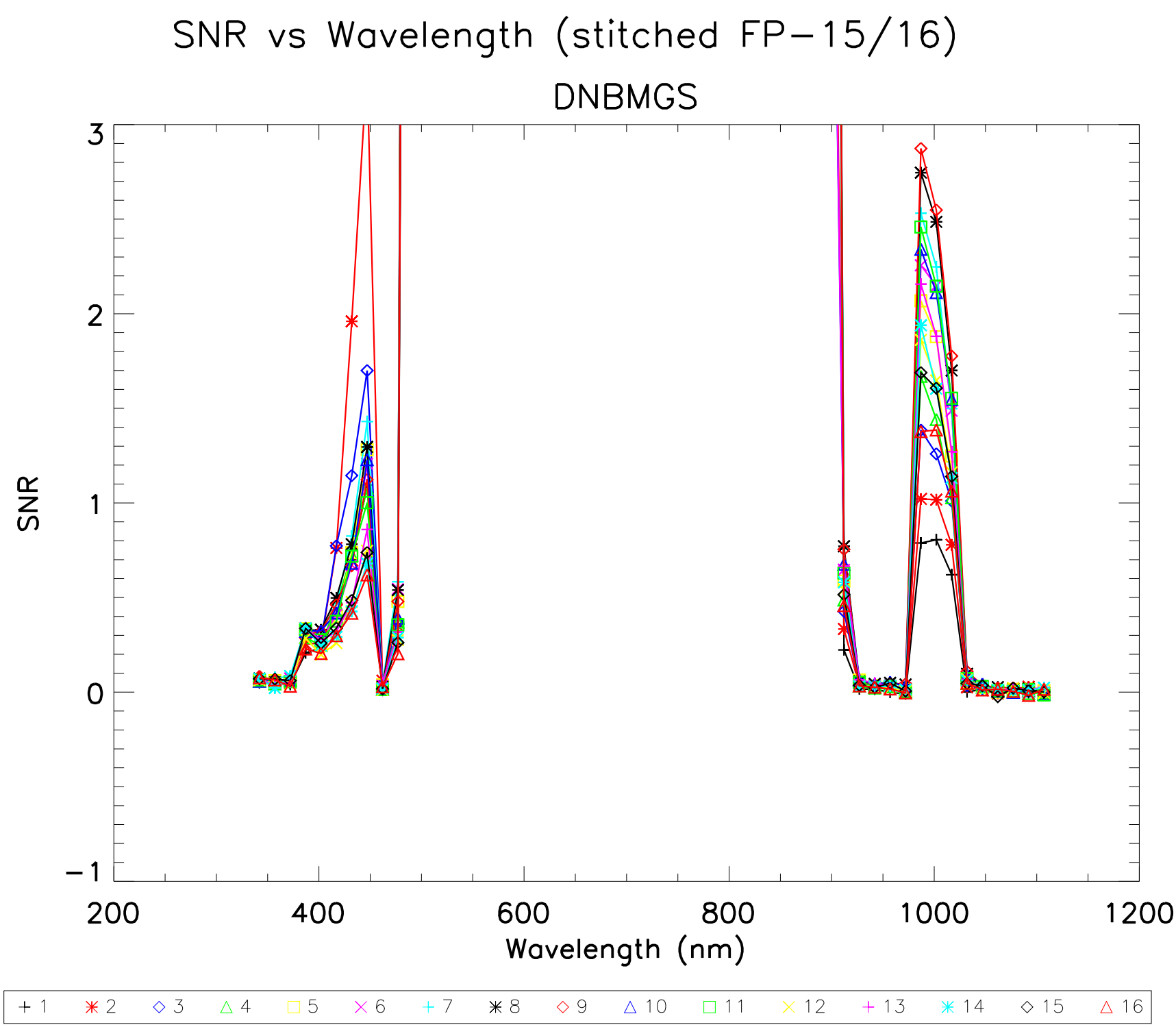

RSR vs Wavelength (stitched FP−16 with oplot FP−15) SNR=3
DNBMGS
RSR
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
−500
0
500
1000
1500
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

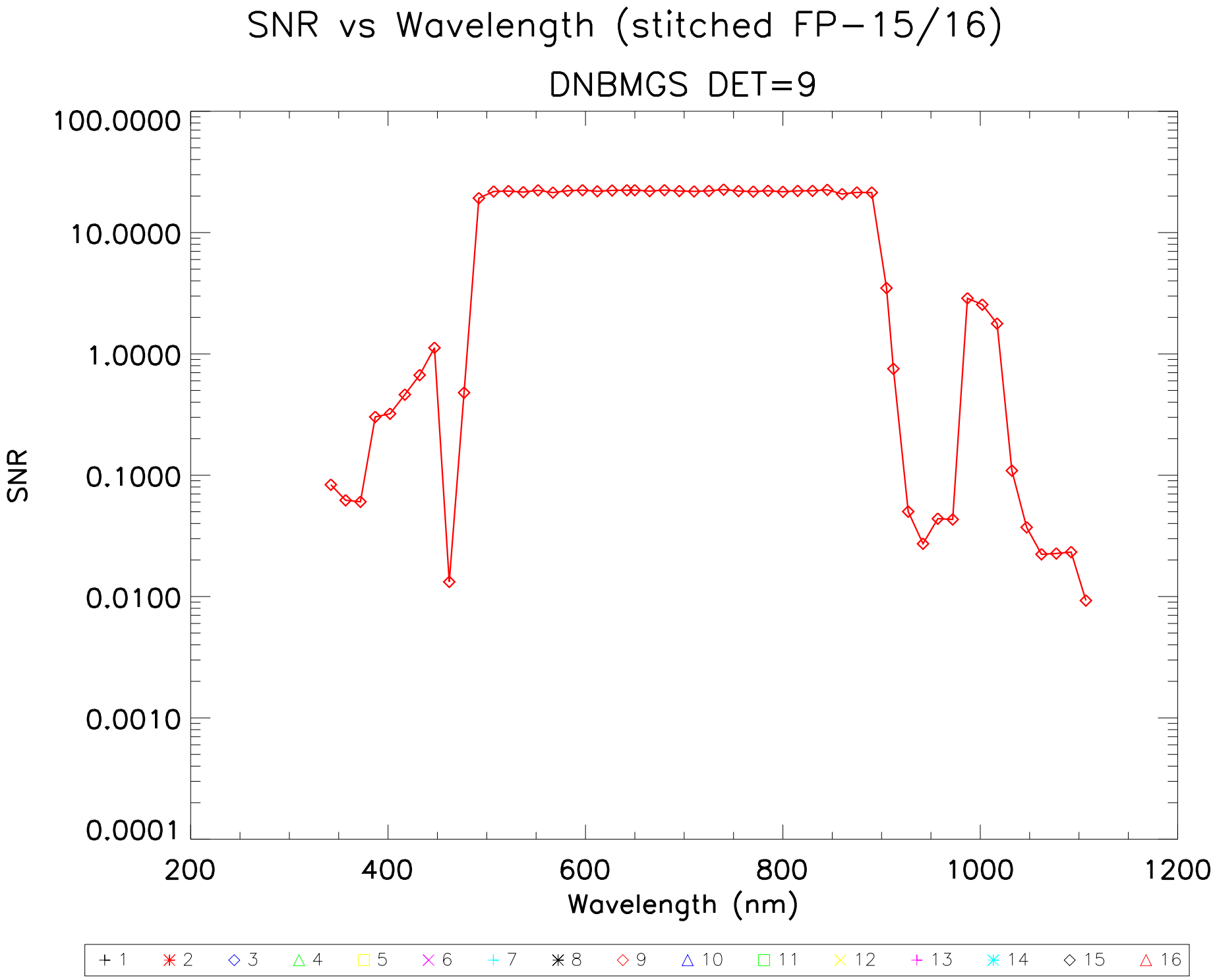

RSR vs Wavelength (stitched FP−16 with oplot FP−15) 0.1% Stitch
DNBMGS
RSR
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
−500
0
500
1000
1500
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

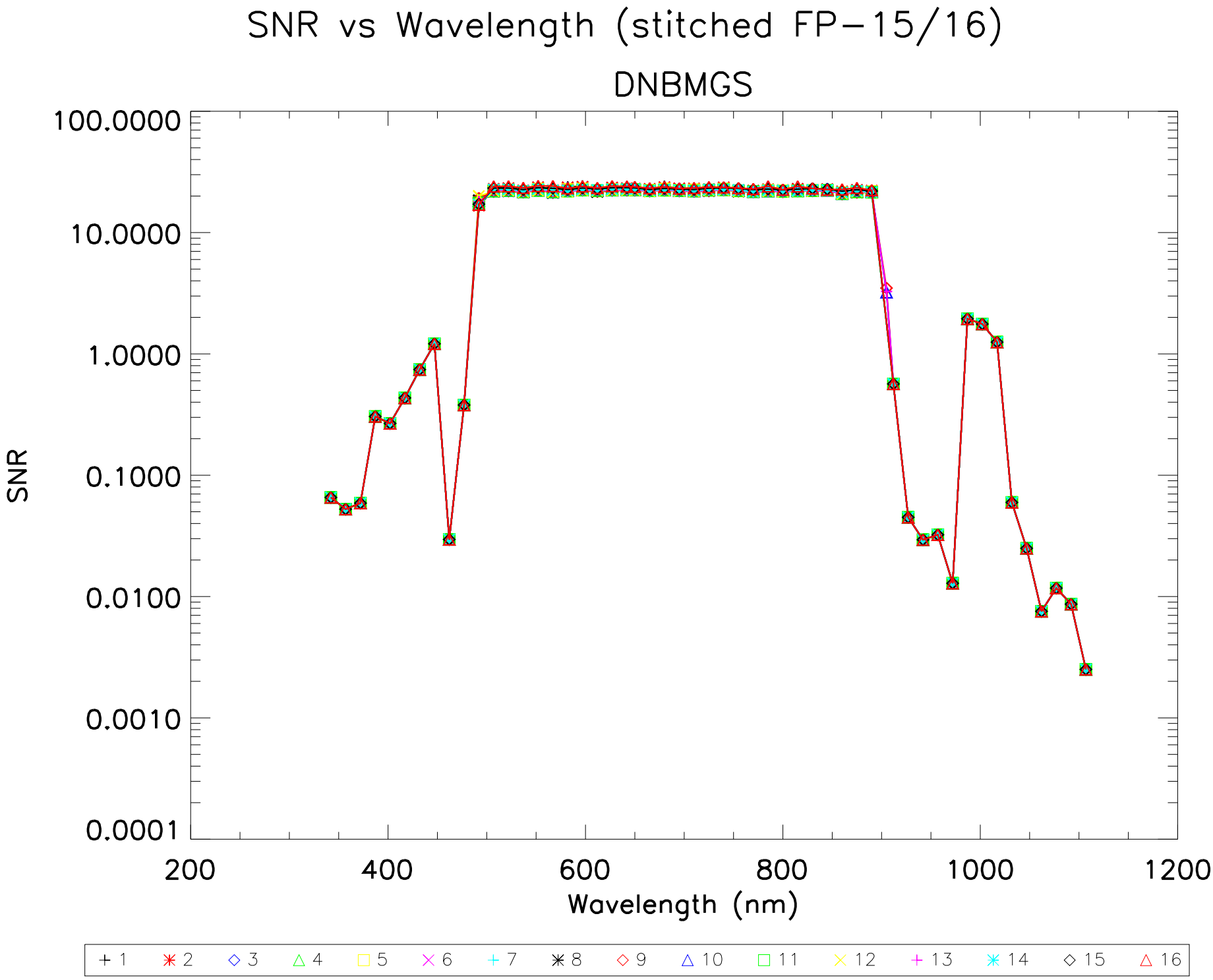

RSR vs Wavelength (stitched FP−15/16)
DNBMGS
RSR
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

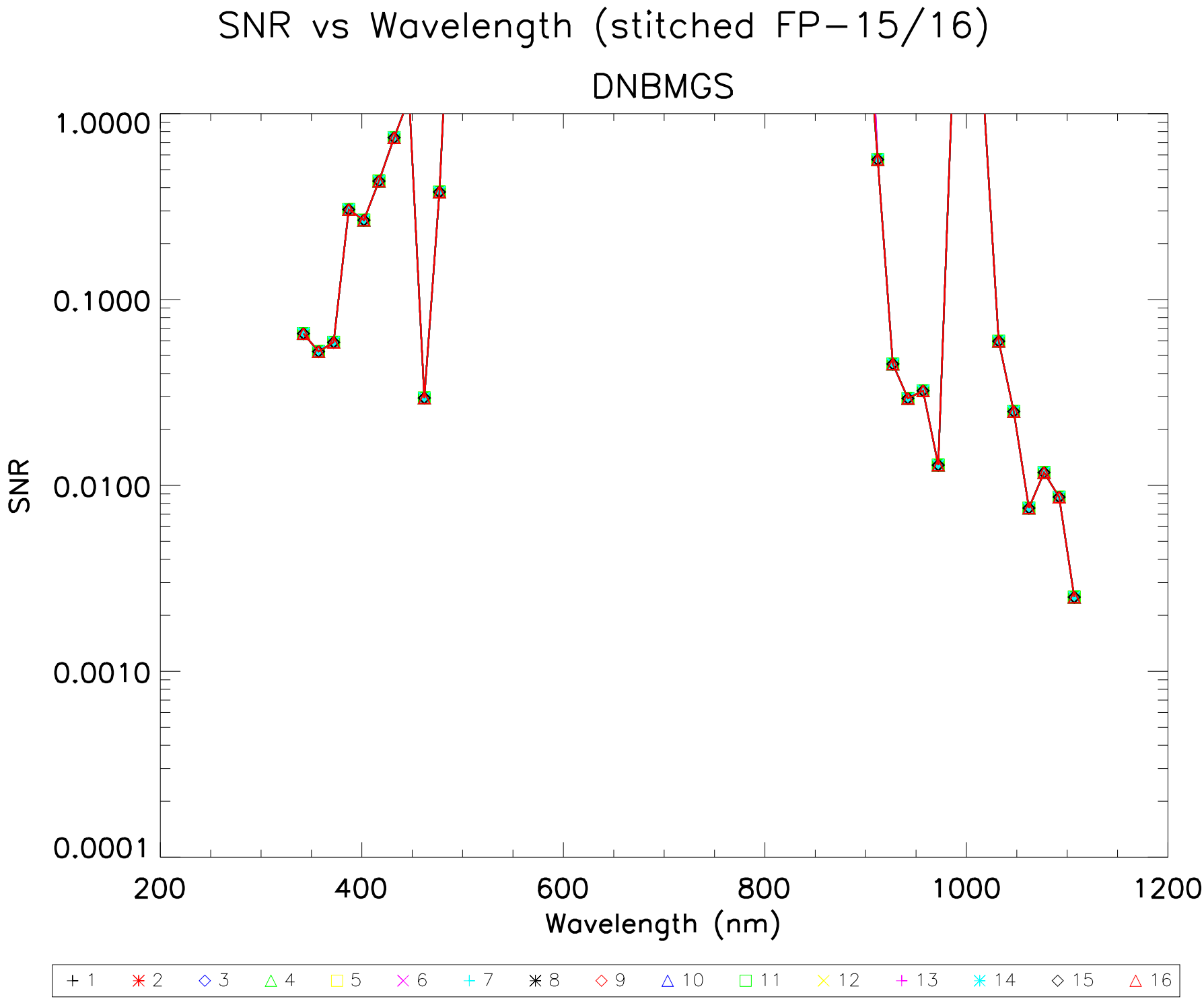

RSR vs Wavelength (stitched FP−15/16 with cutoff)
DNBMGS
RSR
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

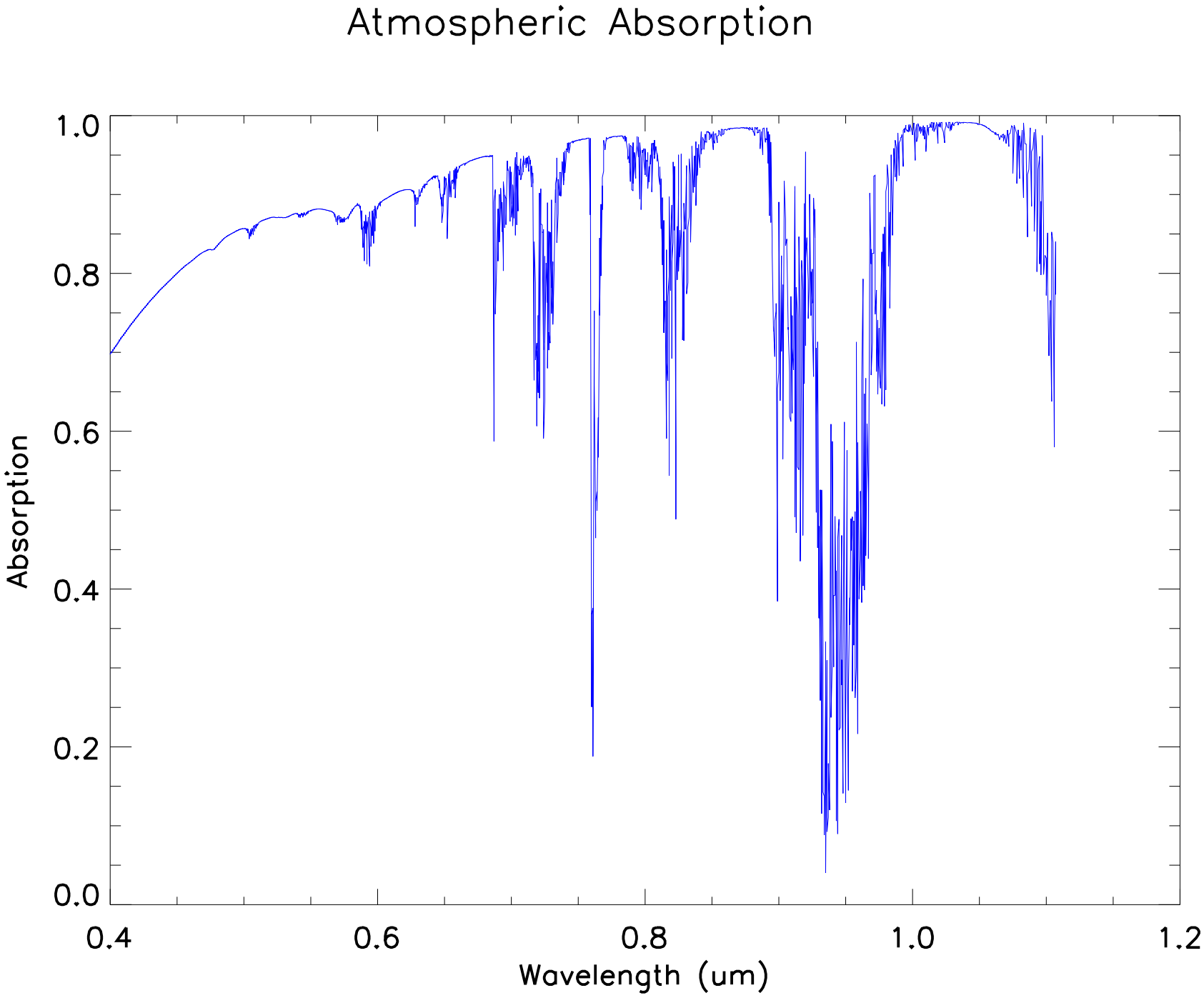

SNR vs Wavelength (stitched FP-15/16)
DNBMGS
100.0000
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
SNR
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16


SNR vs Wavelength (stitched FP−15/16)
DNBMGS
SNR
3
2
1
0
−1
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

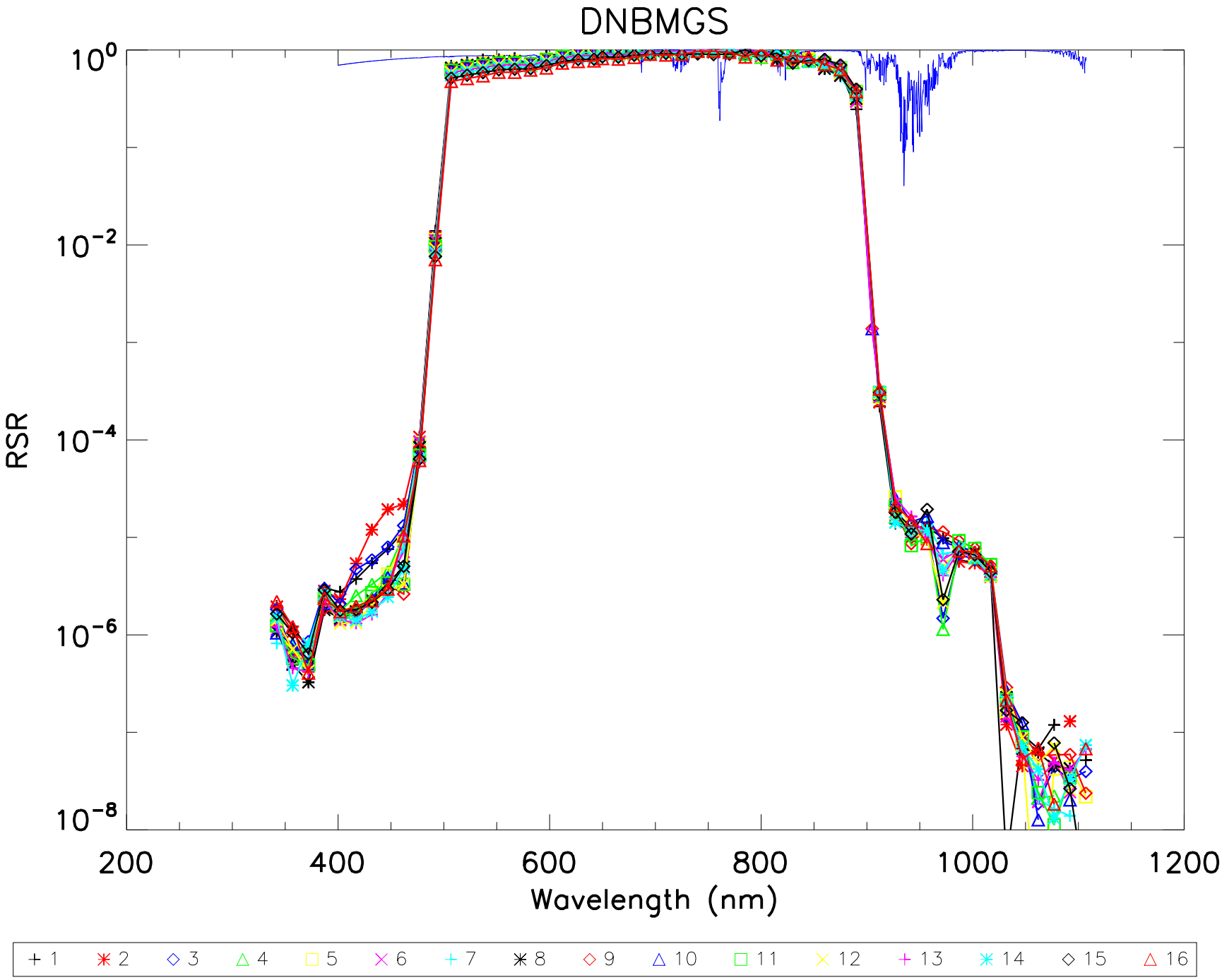

SNR vs Wavelength (stitched FP-15/16)
DNBMGS DET=9
100.0000
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
SNR
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

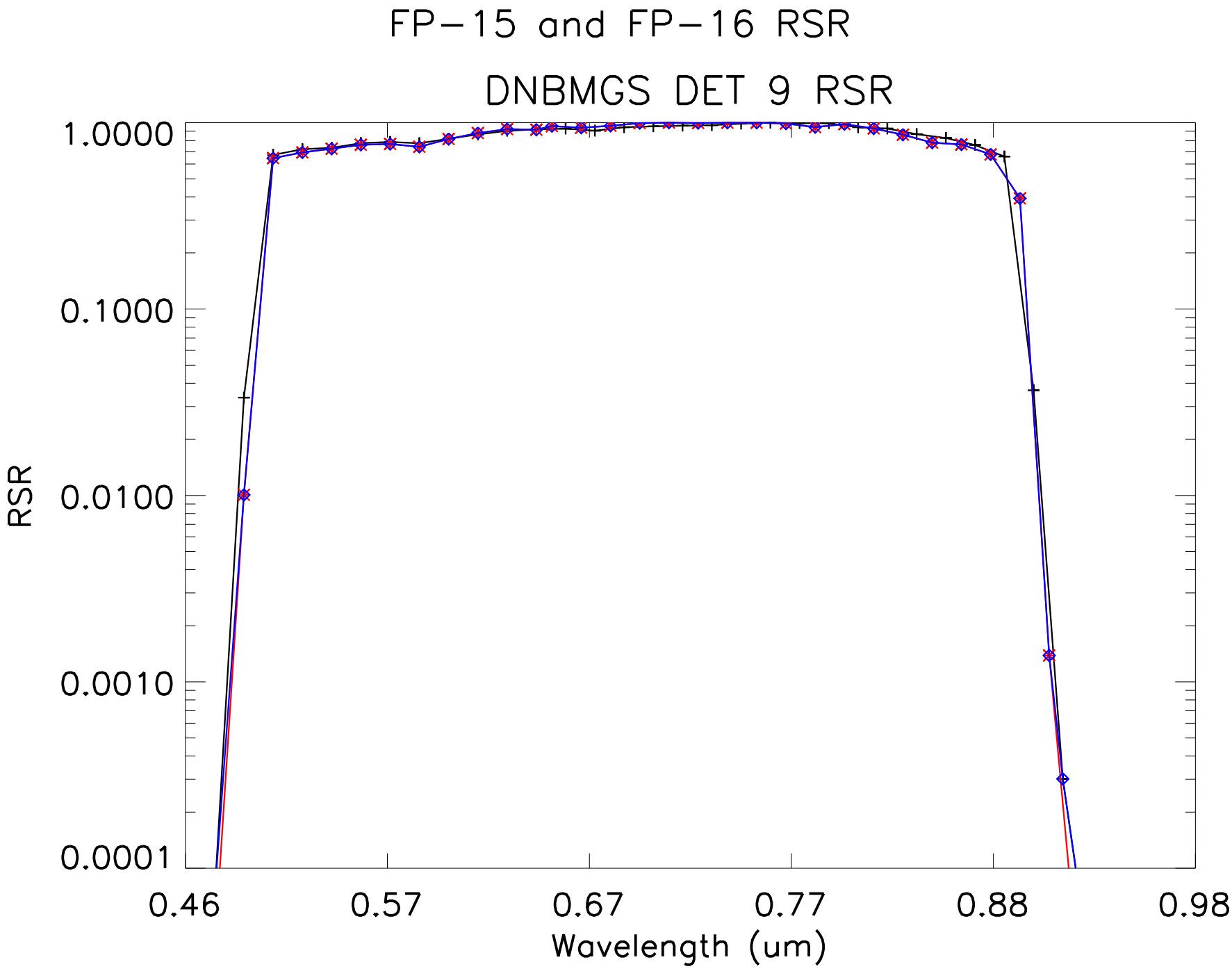

SNR vs Wavelength (stitched FP-15/16)
DNBMGS
100.0000
10.0000
1.0000
0.1000
0.0100
0.0010
0.0001
SNR
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16


SNR vs Wavelength (stitched FP-15/16)
DNBMGS
1.0000
0.1000
0.0100
0.0010
0.0001
SNR
200
400
600
800
1000
1200
Wavelength (nm)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

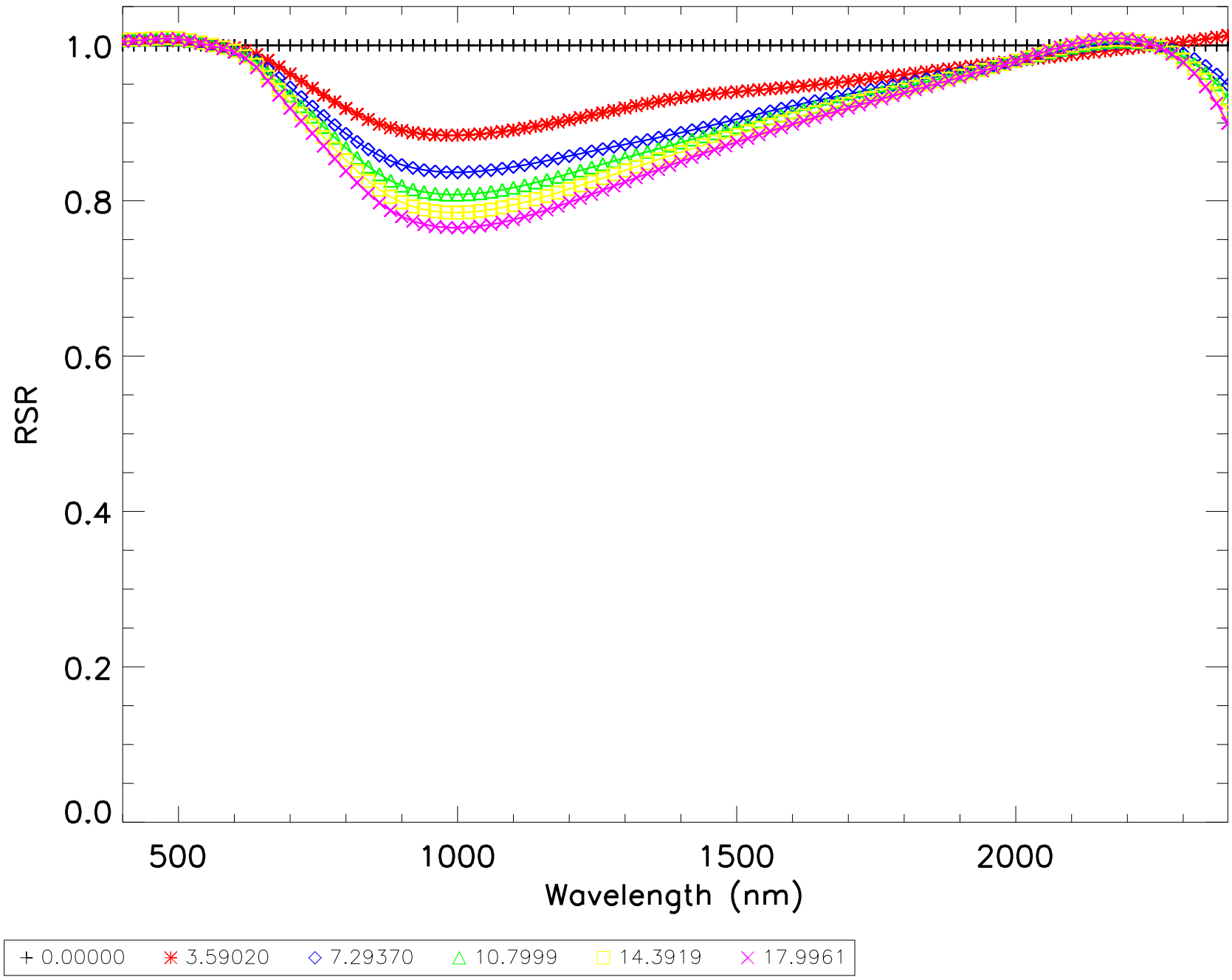

Atmospheric Absorption
Absorption
1.0
0.8
0.6
0.4
0.2
0.0
0.4
0.6
0.8
1.0
1.2
Wavelength (um)

RSR vs Wavelength (stitched FP-15/16) with Atmoshperic Absorption

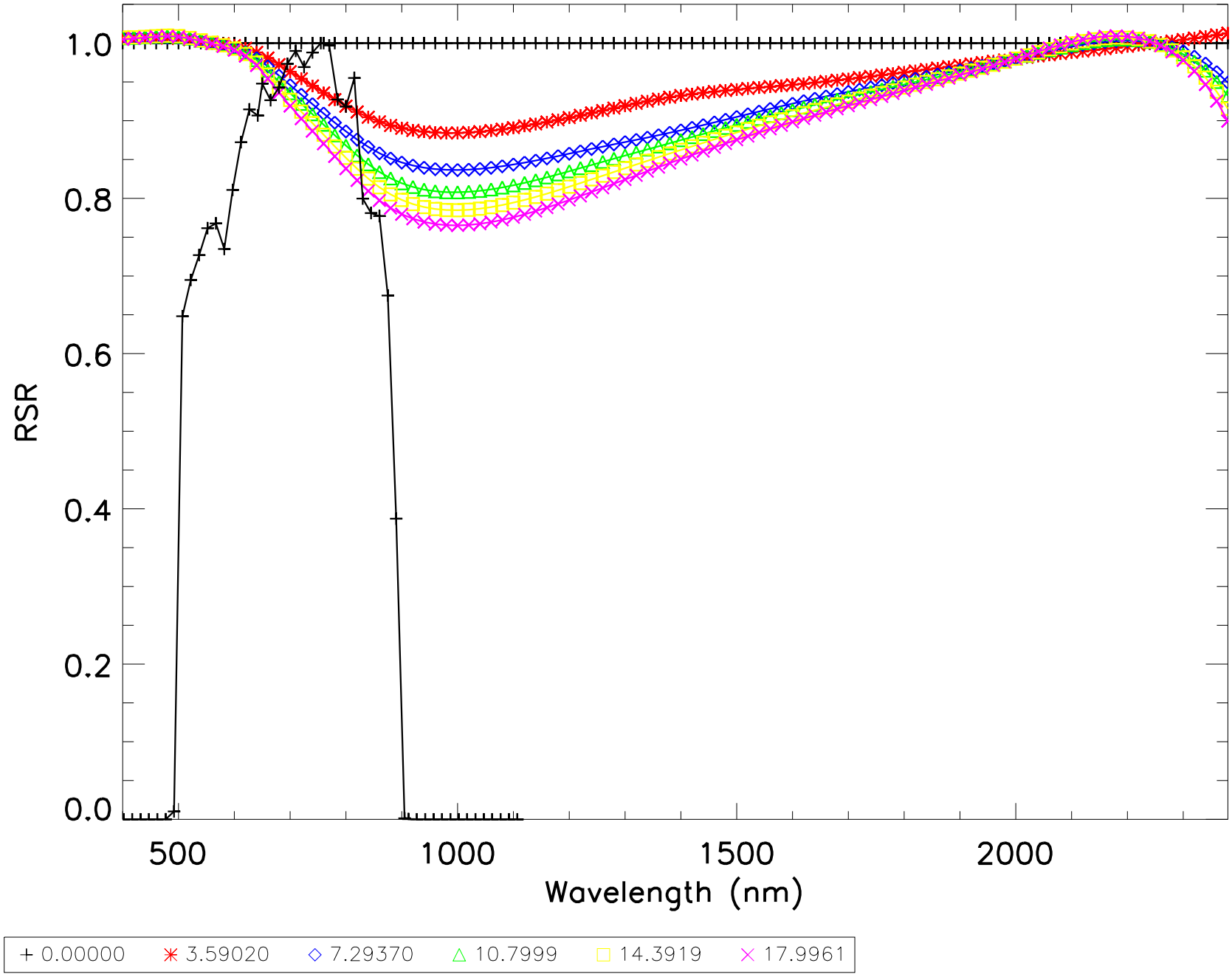


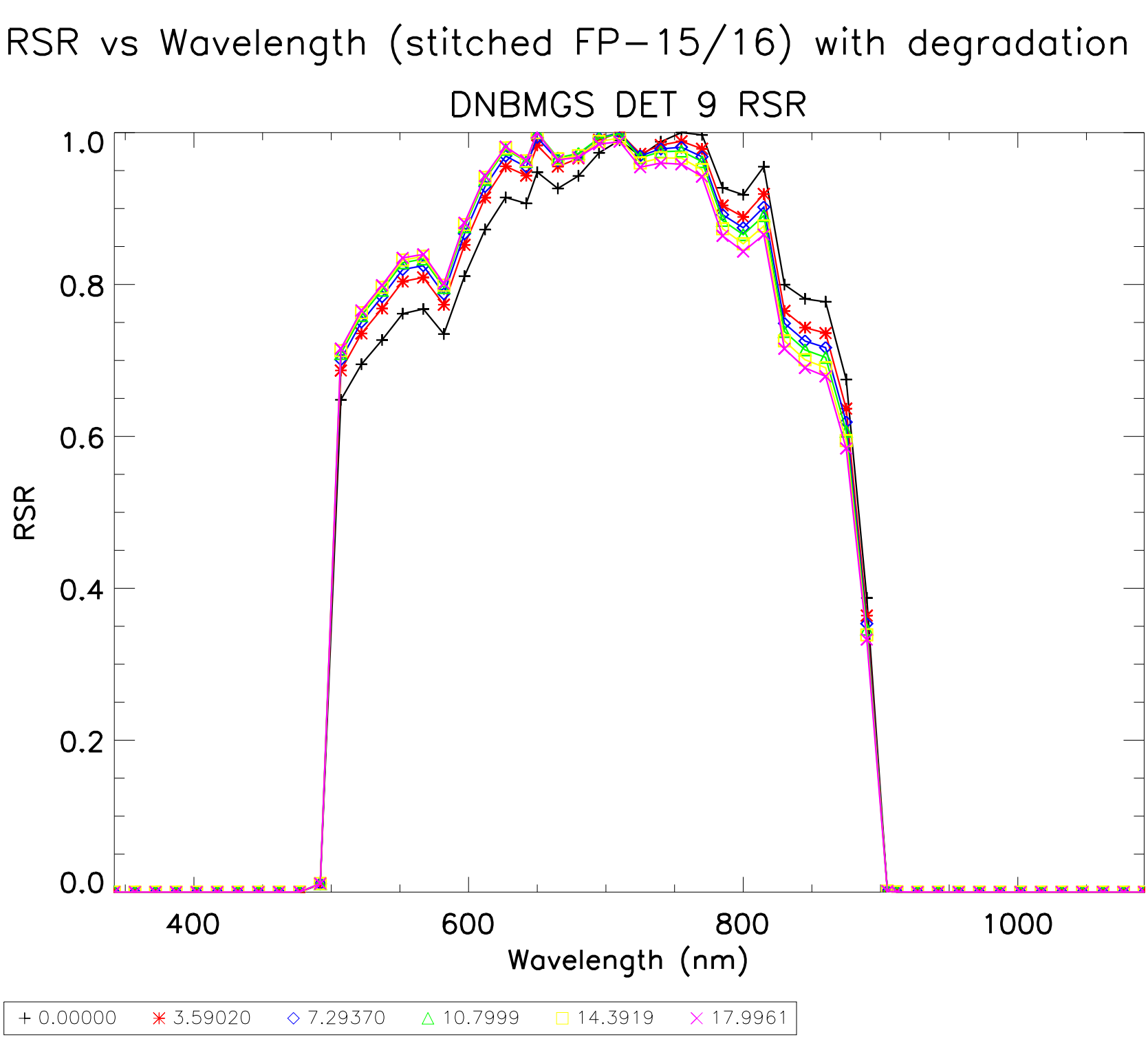

FP−15 and FP−16 RSR
DNBMGS DET 9 RSR
1.0000
0.1000
0.0100
0.0010
0.0001
RSR
0.46
0.57
0.67
0.77
0.88
0.98
Wavelength (um)

Throughput Degradation



Throughput Degradation + DET 9 RSR




RSR vs Wavelength (stitched FP-15/16) with degradation
DNBMGS DET 9 RSR
RSR
1.0
0.8
0.6
0.4
0.2
0.0
400
600
800
1000
Wavelength (nm)
+ 0.00000
3.59020
7.29370
10.7999
14.3919
17.9961