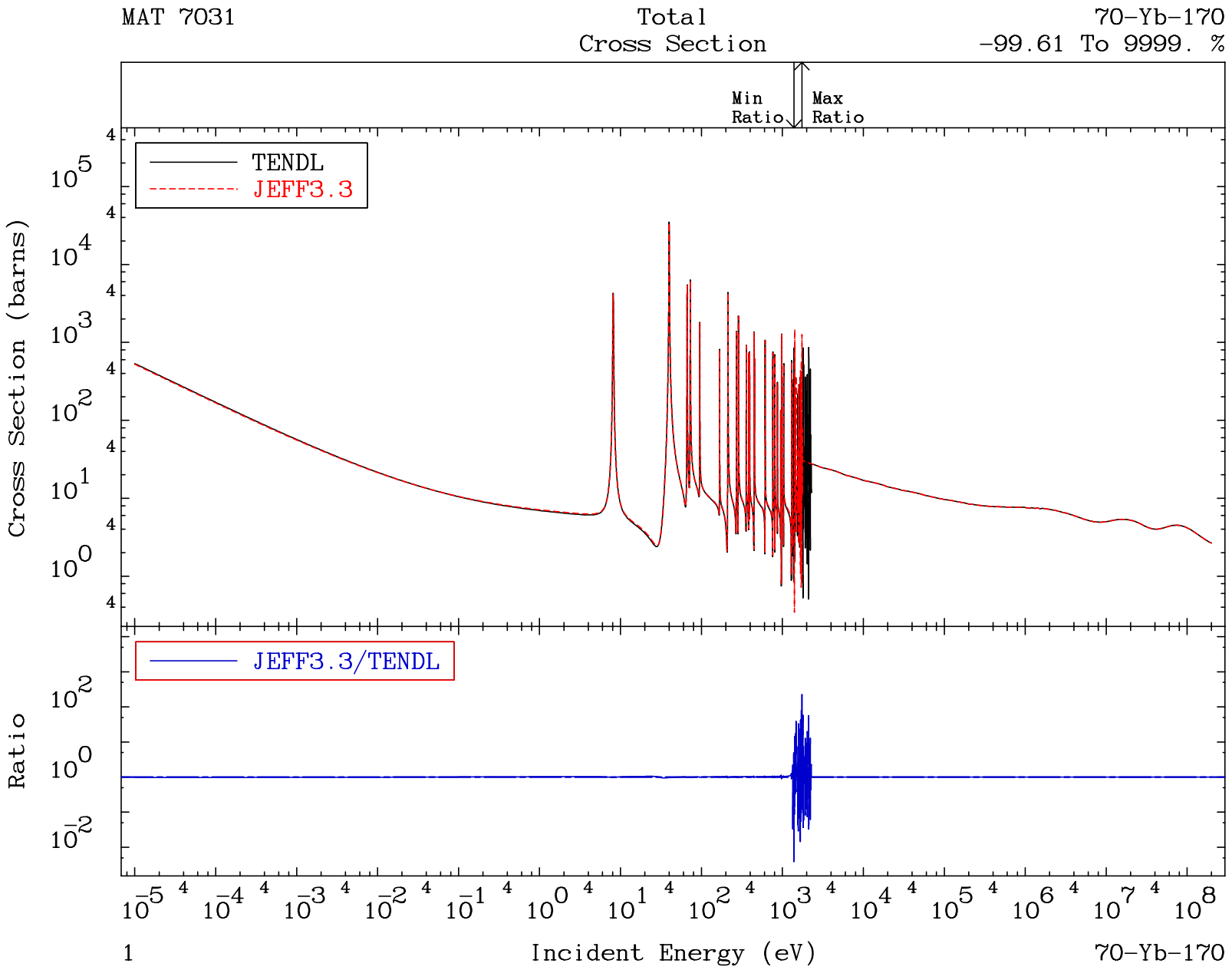
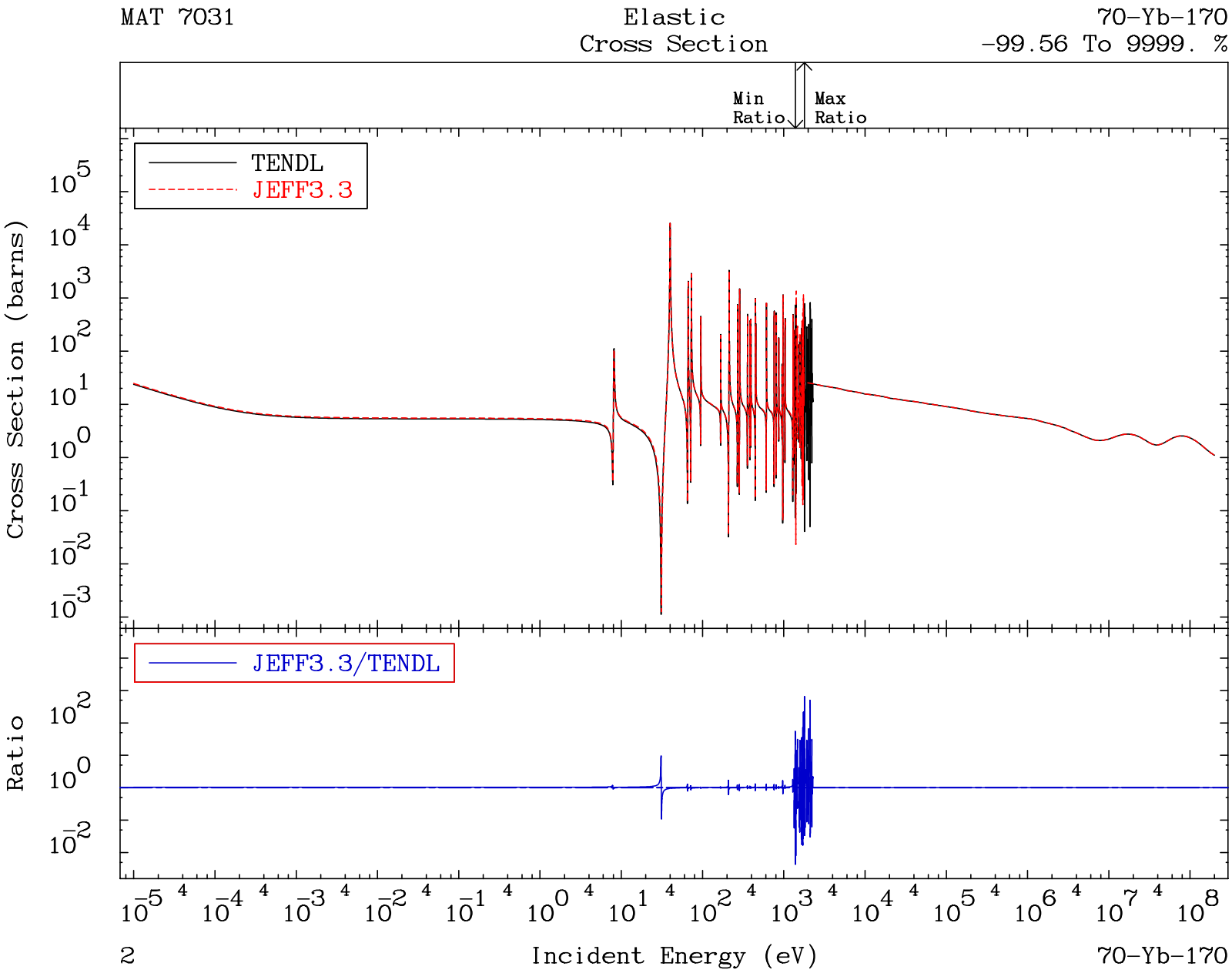
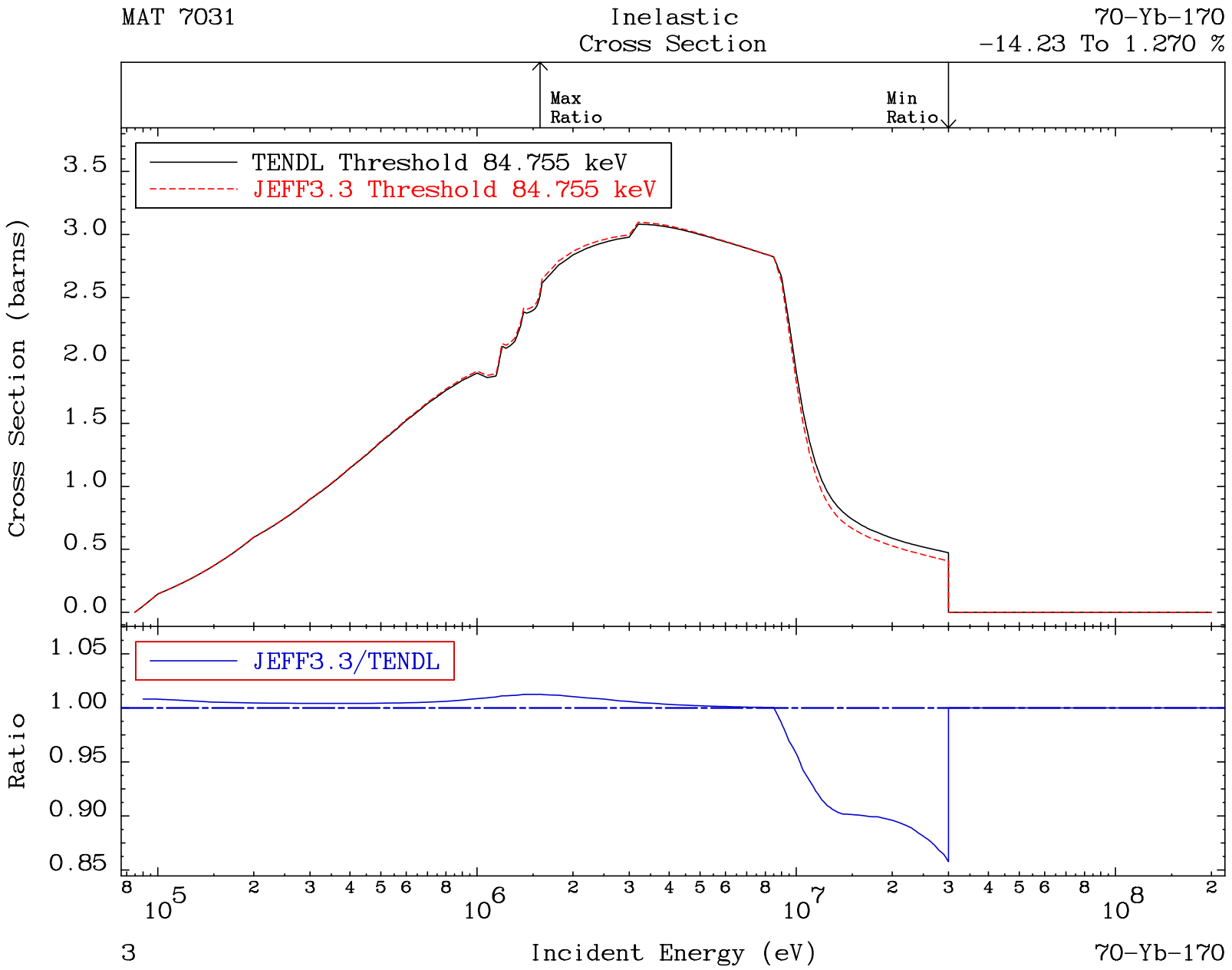
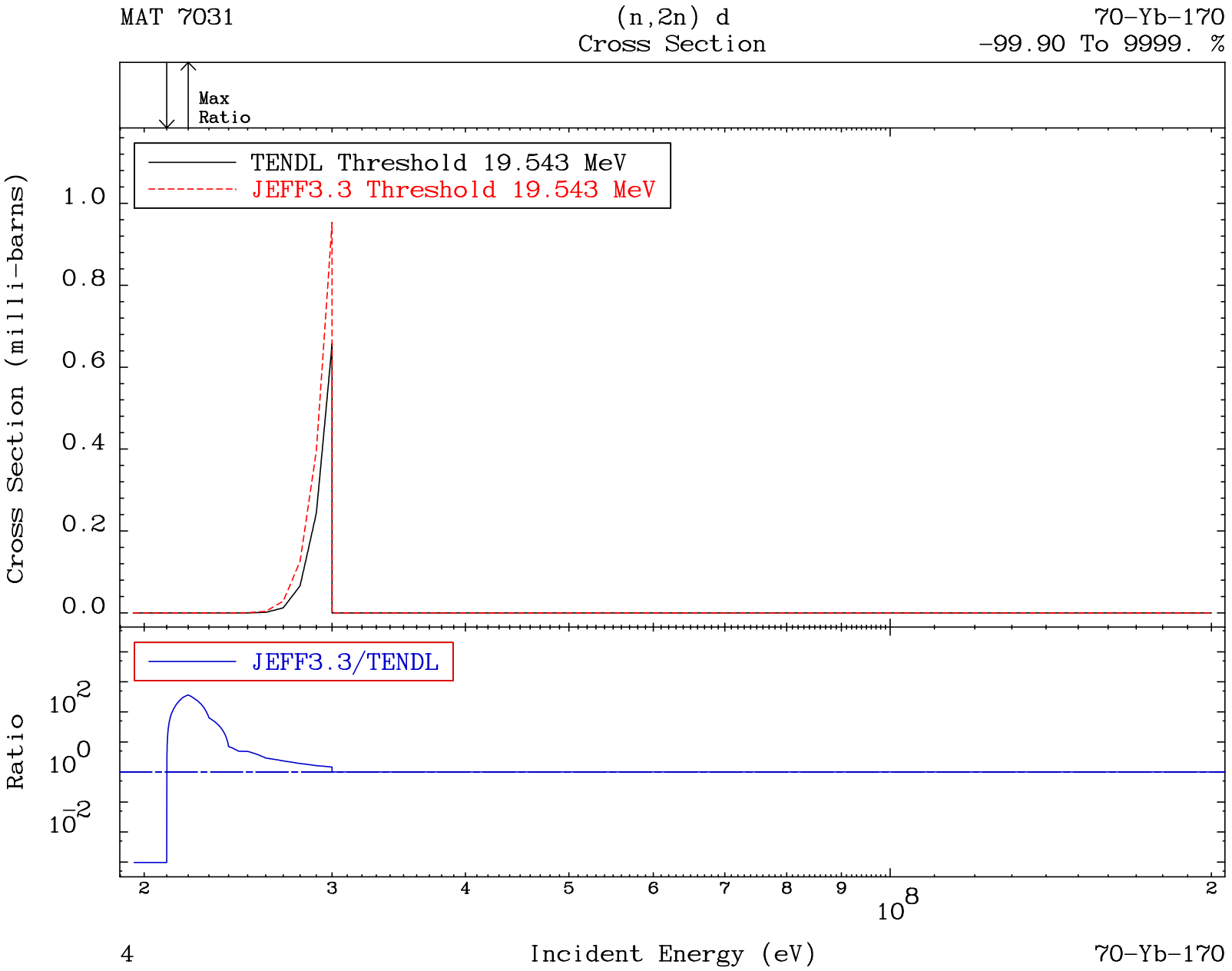
Program Complot
(Version 2018-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

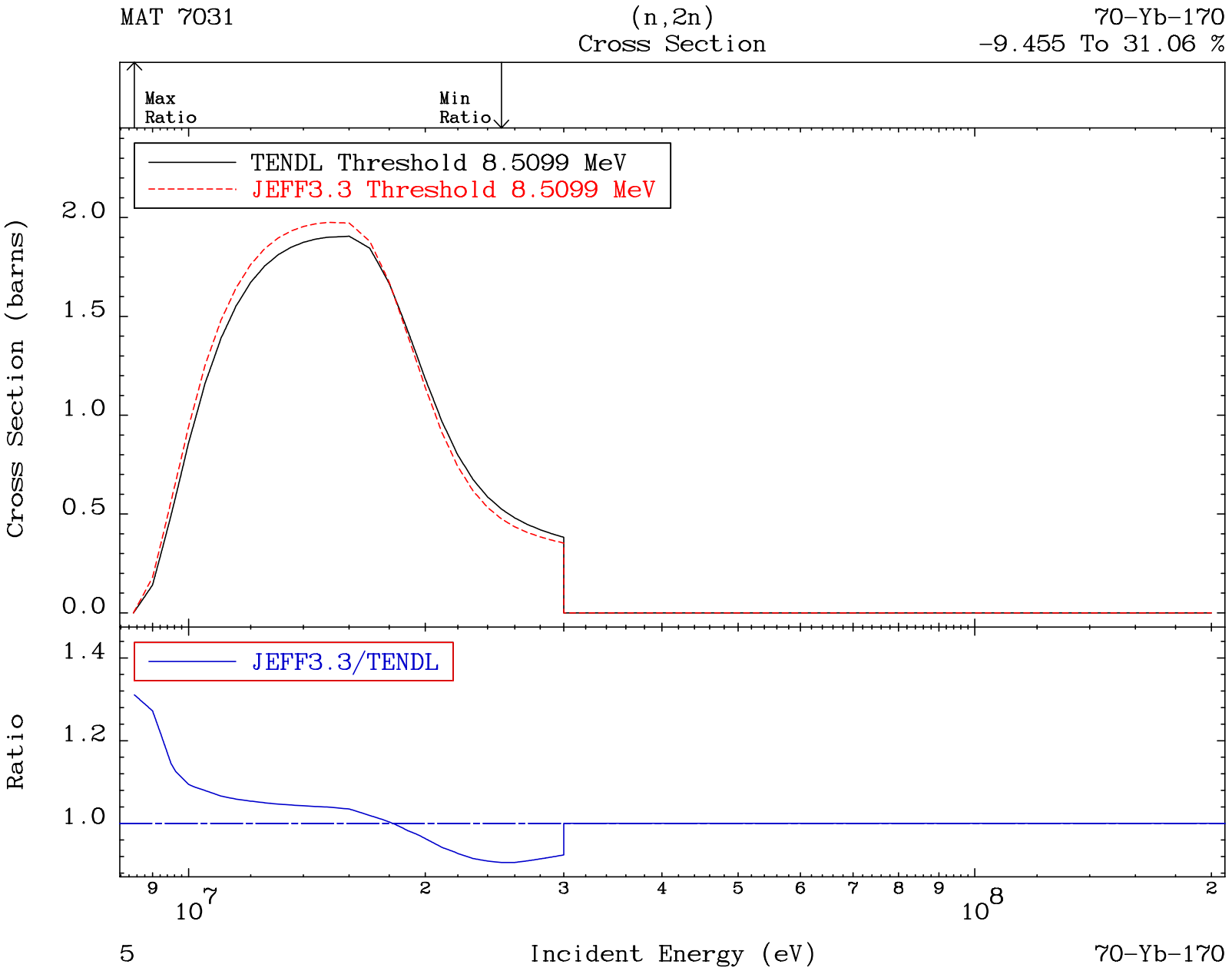
Press Mouse Button to Start

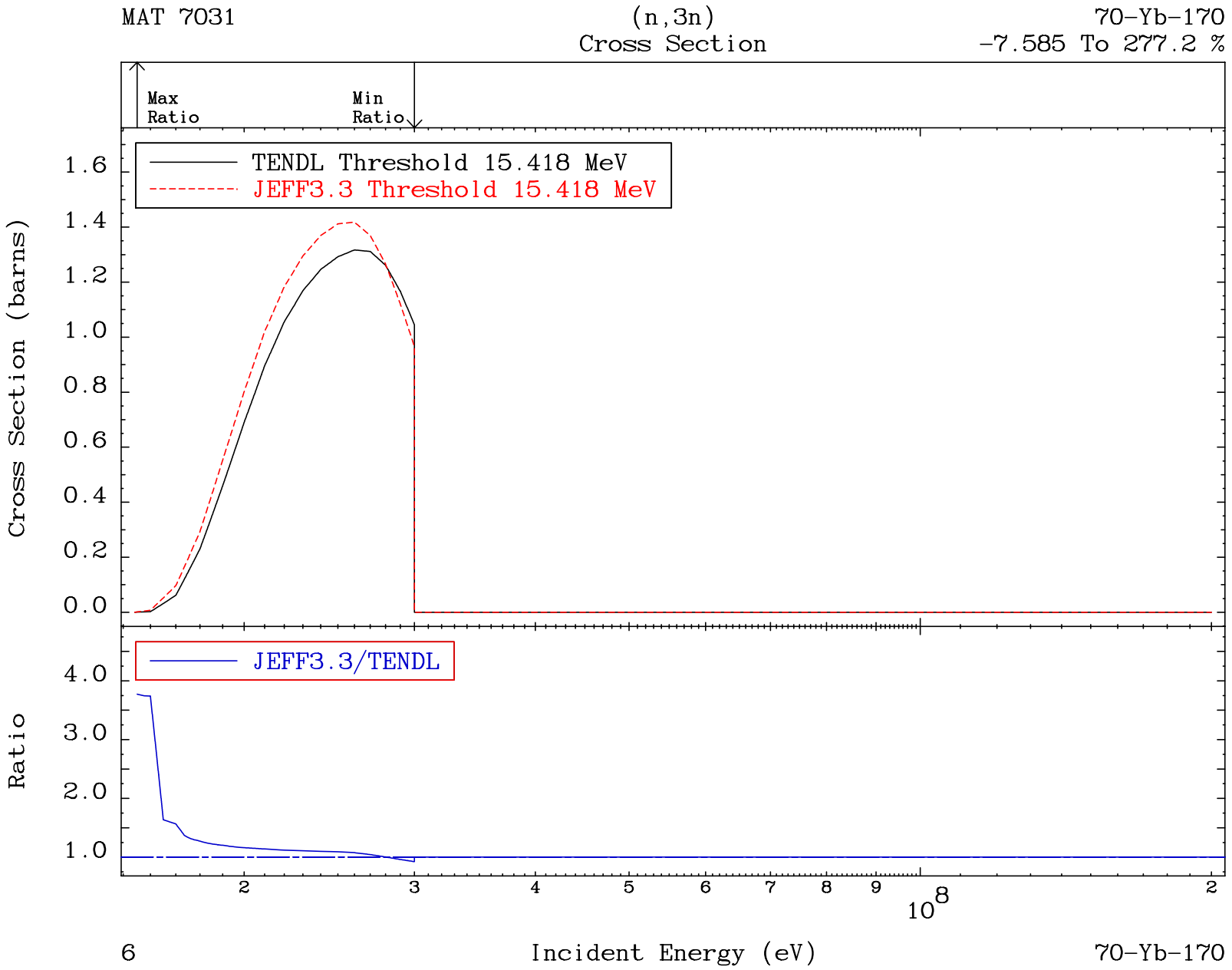

MAT 7031
Total
Cross Section
70-Yb-170
-99.61 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
1
70-Yb-170

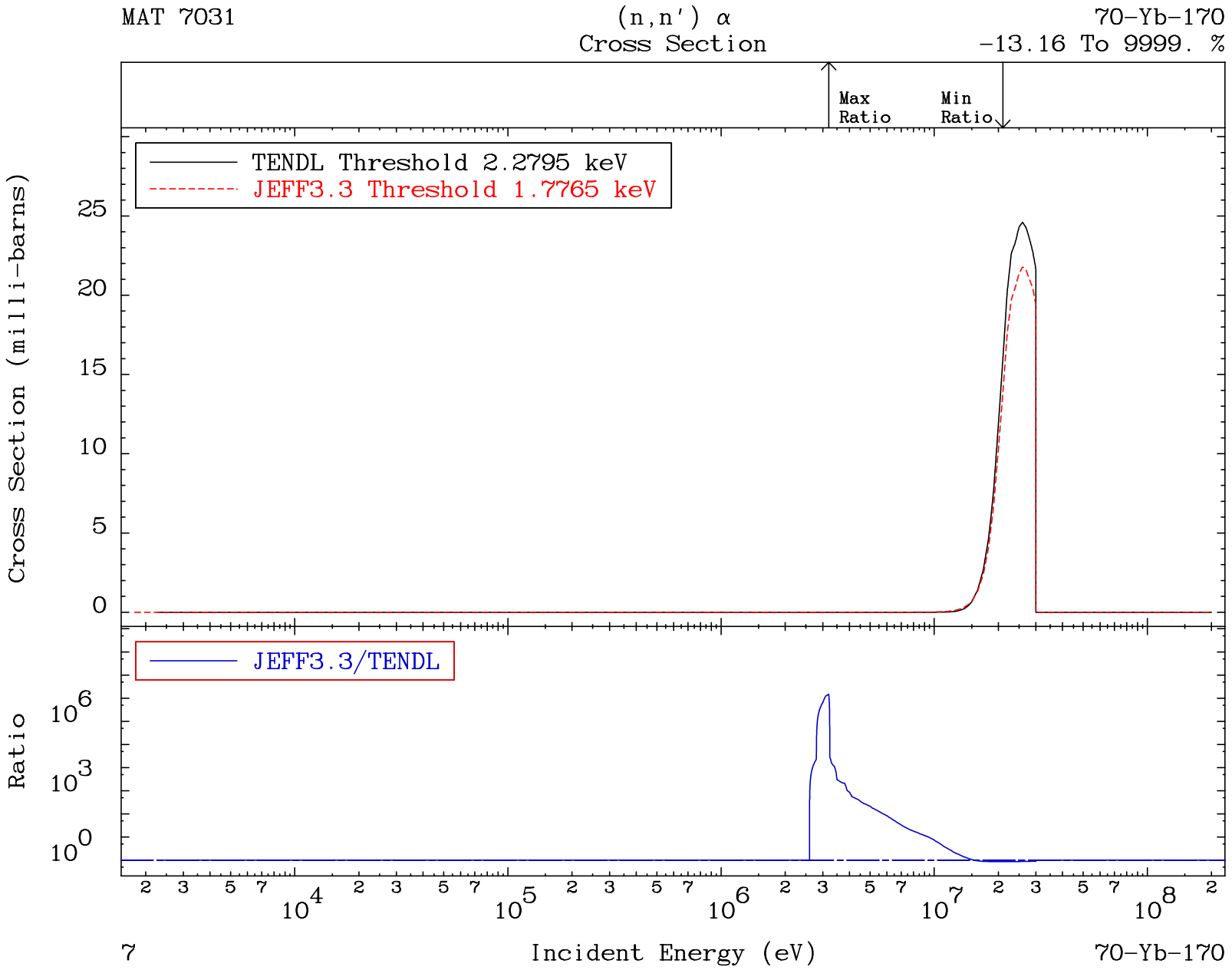

MAT 7031
Elastic
Cross Section
70-Yb-170
-99.56 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
2
70-Yb-170

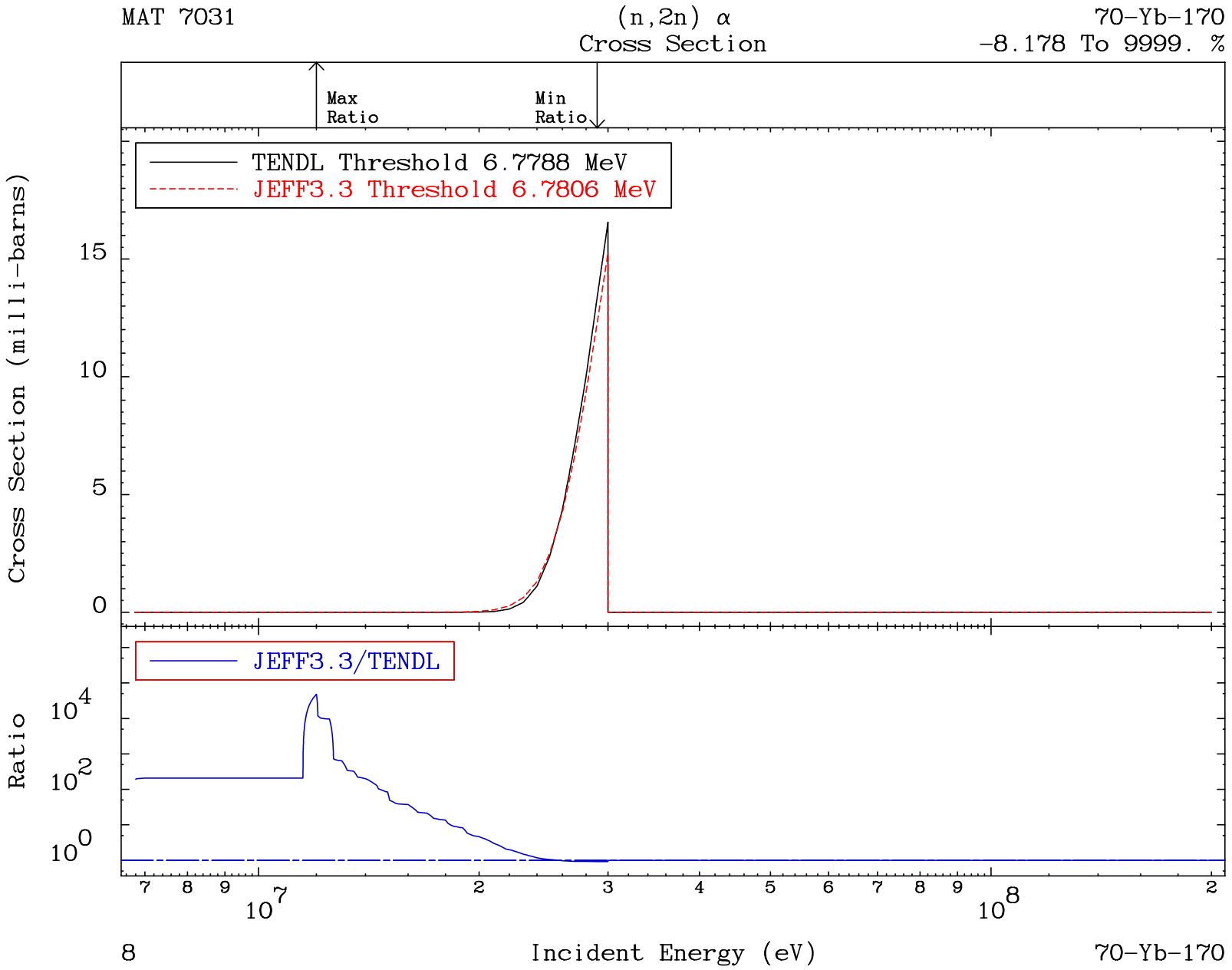

MAT 7031
Inelastic
Cross Section
70-Yb-170
-14.23 To 1.270 %
Max
Ratio
Min
Ratio
TENDL Threshold 84.755 keV
JEFF3.3 Threshold 84.755 keV
Cross Section (barns)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
JEFF3.3/TENDL
Ratio
1.05
1.00
0.95
0.90
0.85
8
10^5
2
3
4
5
6
8
10^6
2
3
4
5
6
8
10^7
2
3
4
5
6
8
10^8
2
3
Incident Energy (eV)
70-Yb-170

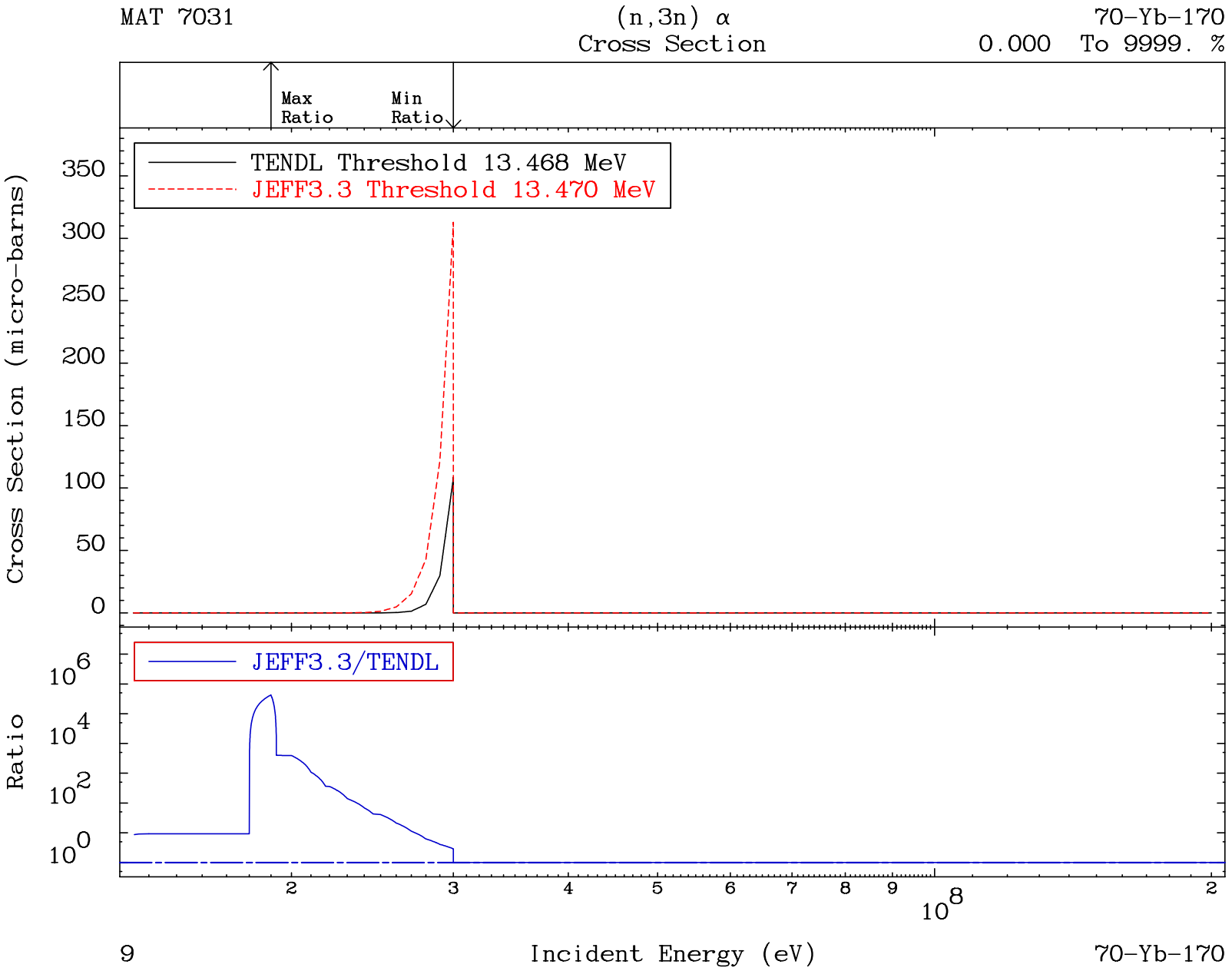

MAT 7031
(n,2n) d
Cross Section
70-Yb-170
-99.90 To 9999. %
Max
Ratio
TENDL Threshold 19.543 MeV
JEFF3.3 Threshold 19.543 MeV
Cross Section (milli-barns)
1.0
0.8
0.6
0.4
0.2
0.0
JEFF3.3/TENDL
Ratio
10^2
10^0
10^-2
2
3
4
5
6
7
8
9
10^8
2
4
Incident Energy (eV)
70-Yb-170

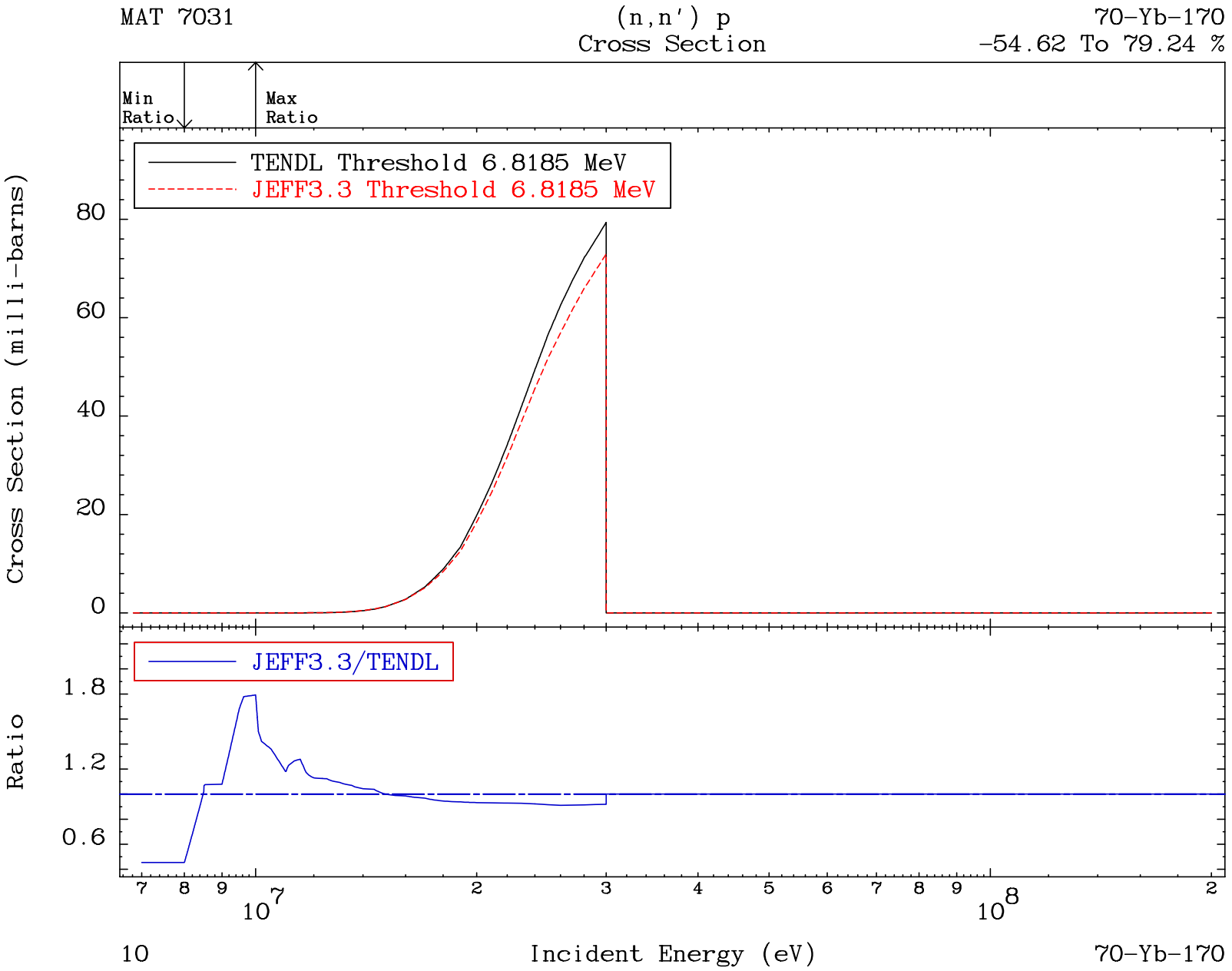

MAT 7031
(n,2n)
Cross Section
70-Yb-170
-9.455 To 31.06 %
Max Ratio
Min Ratio
TENDL Threshold 8.5099 MeV
JEFF3.3 Threshold 8.5099 MeV
Cross Section (barns)
2.0
1.5
1.0
0.5
0.0
JEFF3.3/TENDL
Ratio
1.4
1.2
1.0
9
10^7
2
3
4
5
6
7
8
9
10^8
2
5
Incident Energy (eV)
70-Yb-170

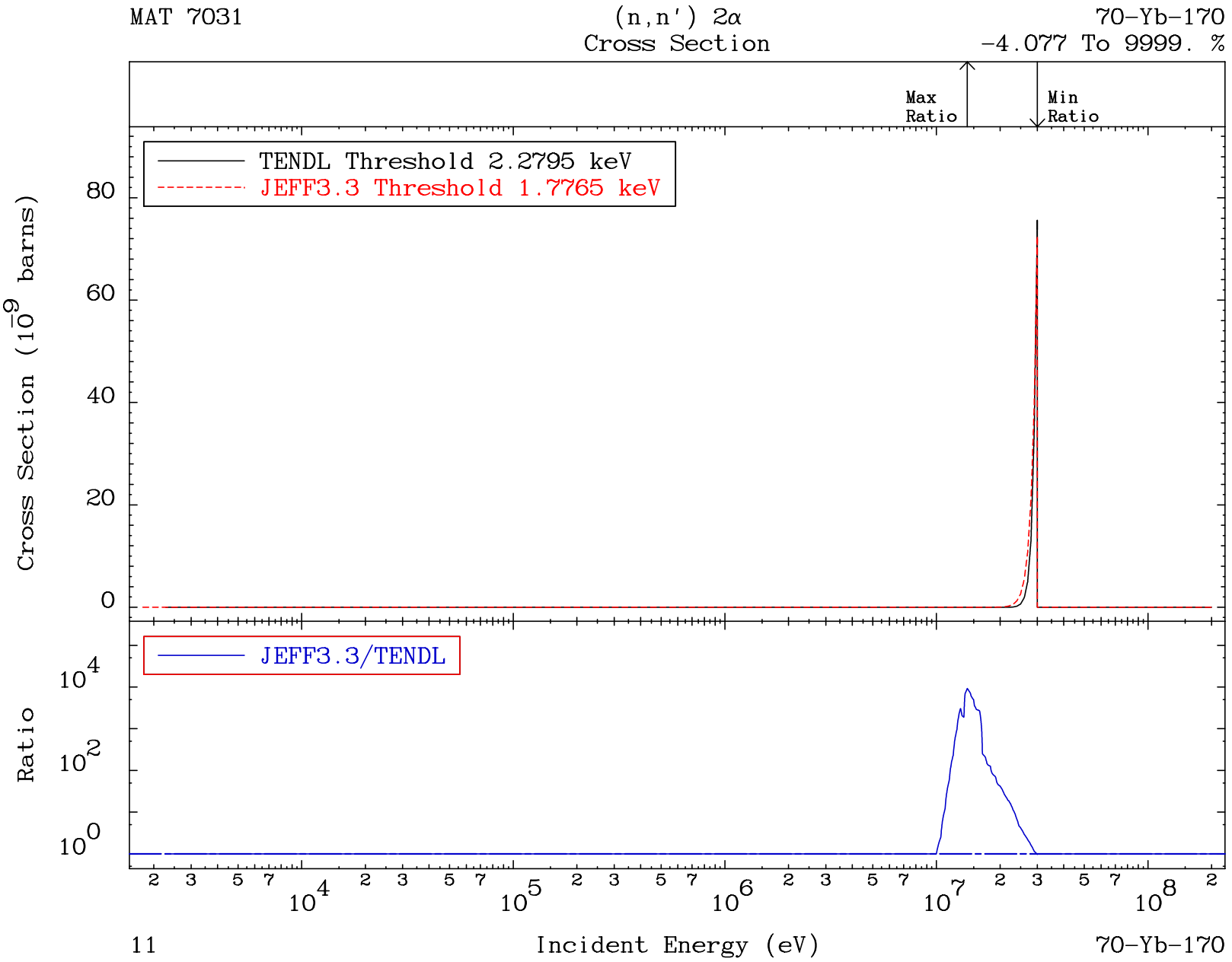

MAT 7031
(n,3n)
Cross Section
70-Yb-170
-7.585 To 277.2 %
Max Ratio
Min Ratio
TENDL Threshold 15.418 MeV
JEFF3.3 Threshold 15.418 MeV
Cross Section (barns)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
JEFF3.3/TENDL
Ratio
4.0
3.0
2.0
1.0
2
3
4
5
6
7
8
9
10^8
2
6
Incident Energy (eV)
70-Yb-170

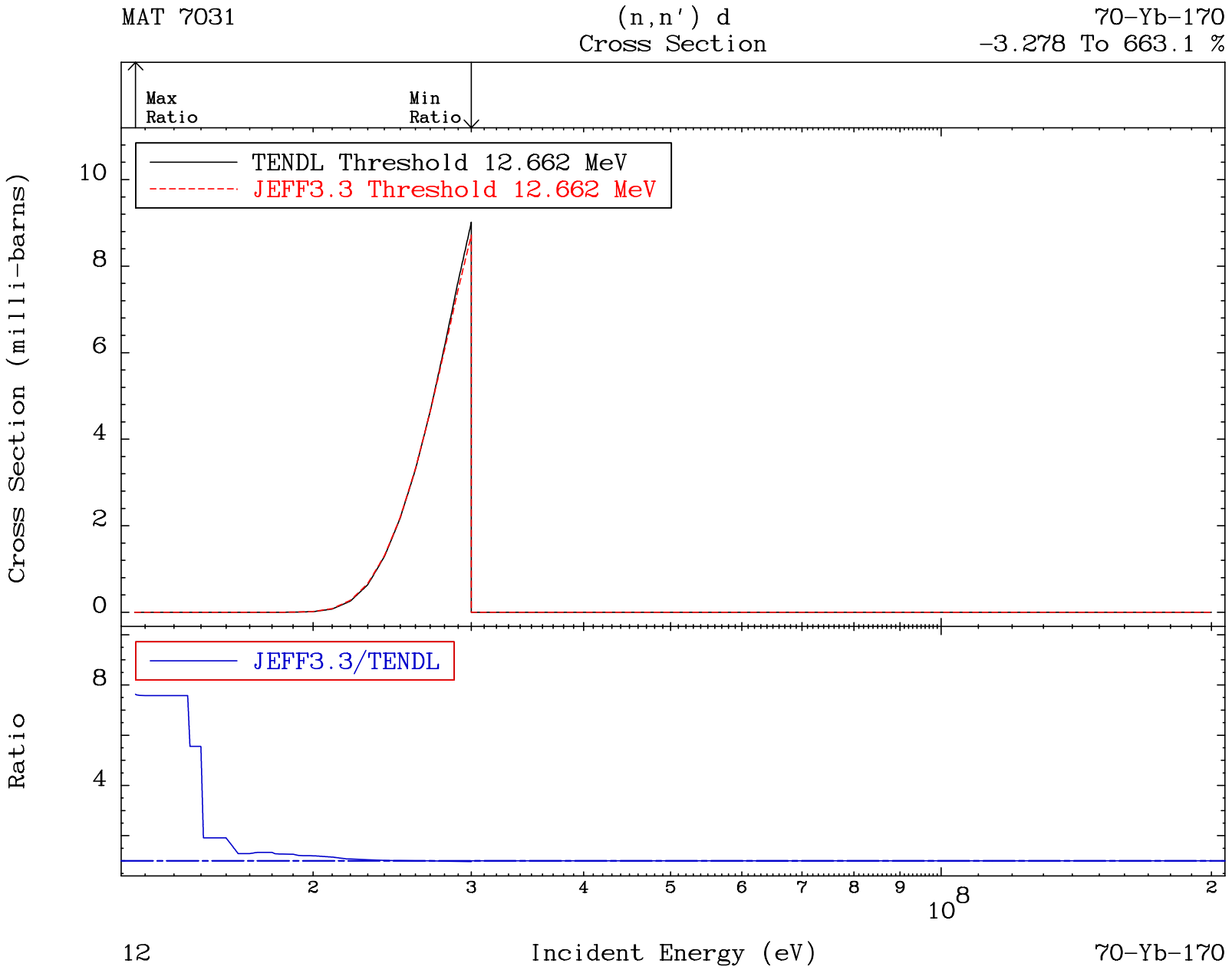

MAT 7031
(n,n') α
Cross Section
70-Yb-170
-13.16 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 2.2795 keV
JEFF3.3 Threshold 1.7765 keV
Cross Section (milli-barns)
25
20
15
10
5
0
JEFF3.3/TENDL
Ratio
10^6
10^3
10^0
2 3 5 7 10^4 2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
7
Incident Energy (eV)
70-Yb-170

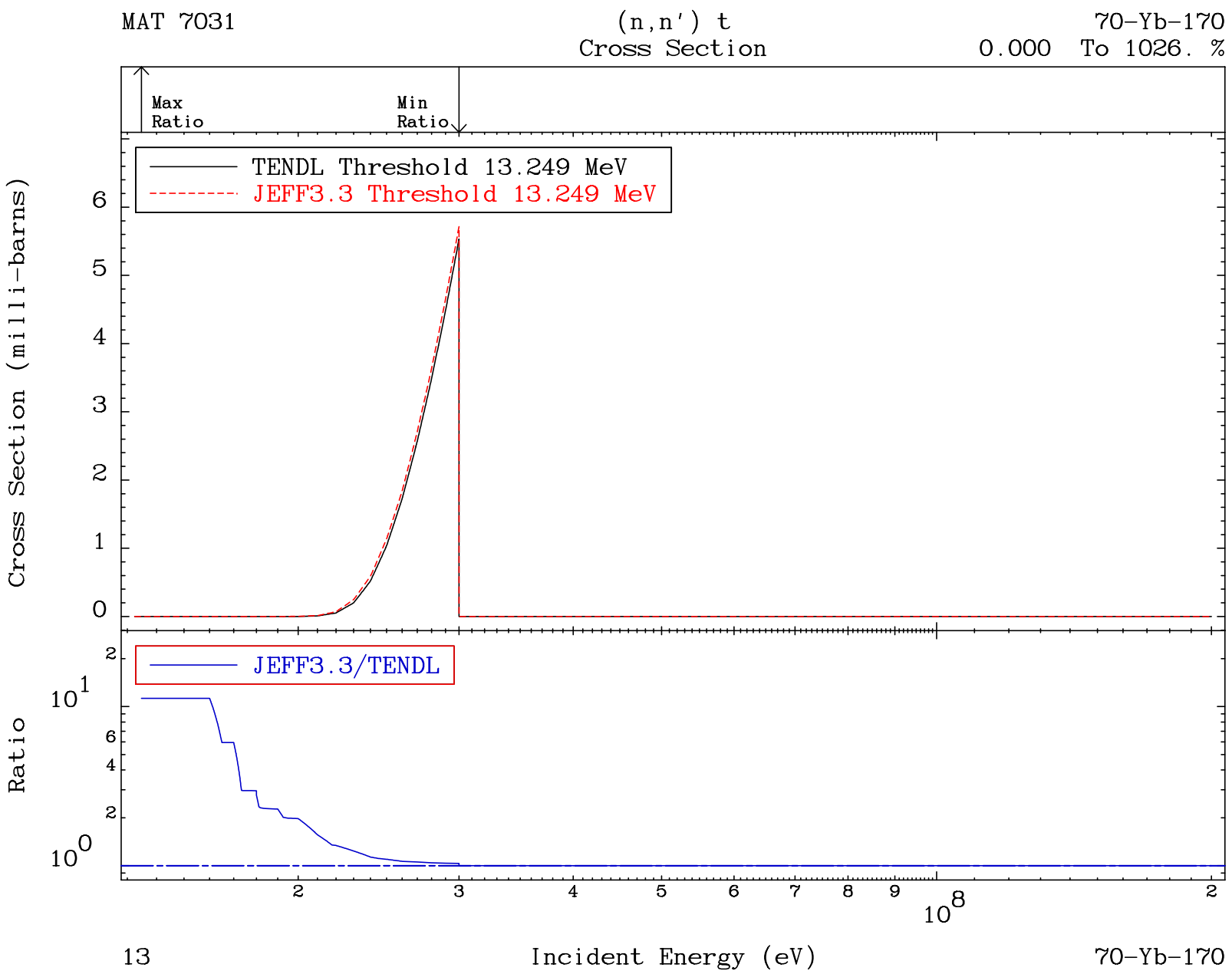

MAT 7031
(n,2n) α
Cross Section
70-Yb-170
-8.178 To 9999. %
Max
Ratio
Min
Ratio
TENDL Threshold 6.7788 MeV
JEFF3.3 Threshold 6.7806 MeV
Cross Section (milli-barns)
15
10
5
0
JEFF3.3/TENDL
Ratio
10^4
10^2
10^0
7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
8
Incident Energy (eV)
70-Yb-170

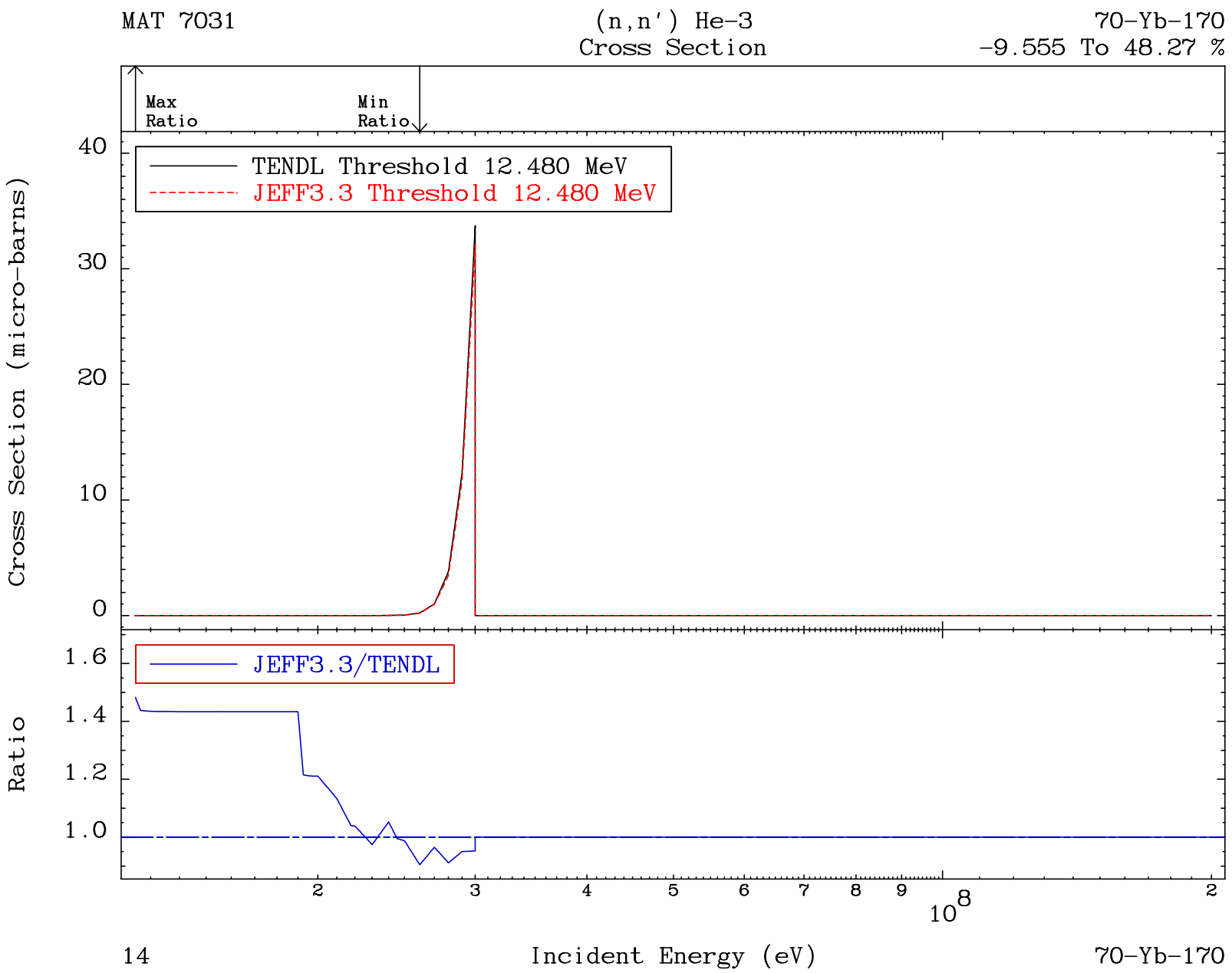

MAT 7031
(n,3n) α
Cross Section
70-Yb-170
0.000 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 13.468 MeV
JEFF3.3 Threshold 13.470 MeV
Cross Section (micro-barns)
350
300
250
200
150
100
50
0
JEFF3.3/TENDL
Ratio
10^6
10^4
10^2
10^0
2
3
4
5
6
7
8
9
10^8
2
9
Incident Energy (eV)
70-Yb-170

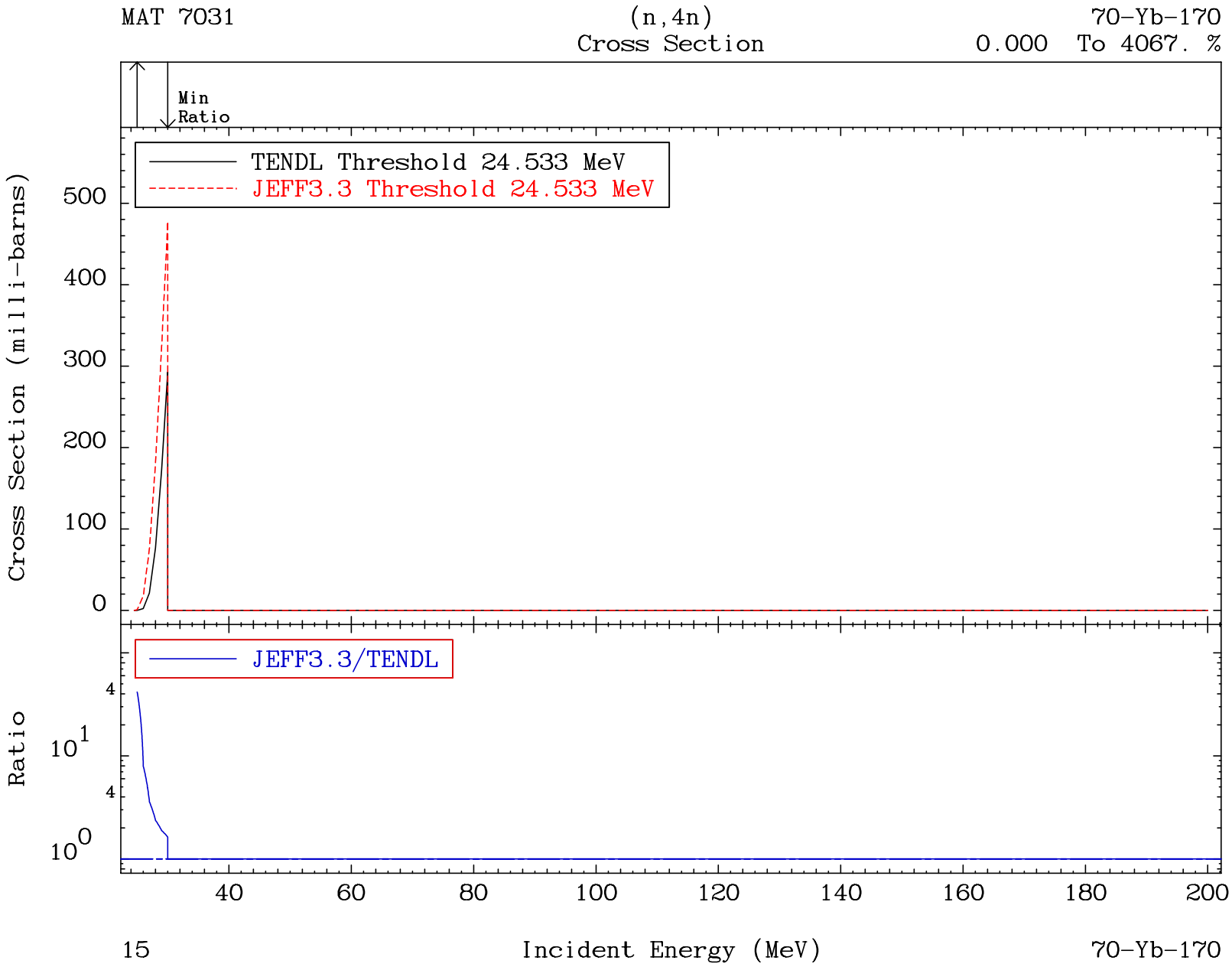

MAT 7031
(n,n') p
Cross Section
70-Yb-170
-54.62 To 79.24 %
Min Ratio
Max Ratio
TENDL Threshold 6.8185 MeV
JEFF3.3 Threshold 6.8185 MeV
Cross Section (milli-barns)
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.8
1.2
0.6
7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
10
Incident Energy (eV)
70-Yb-170

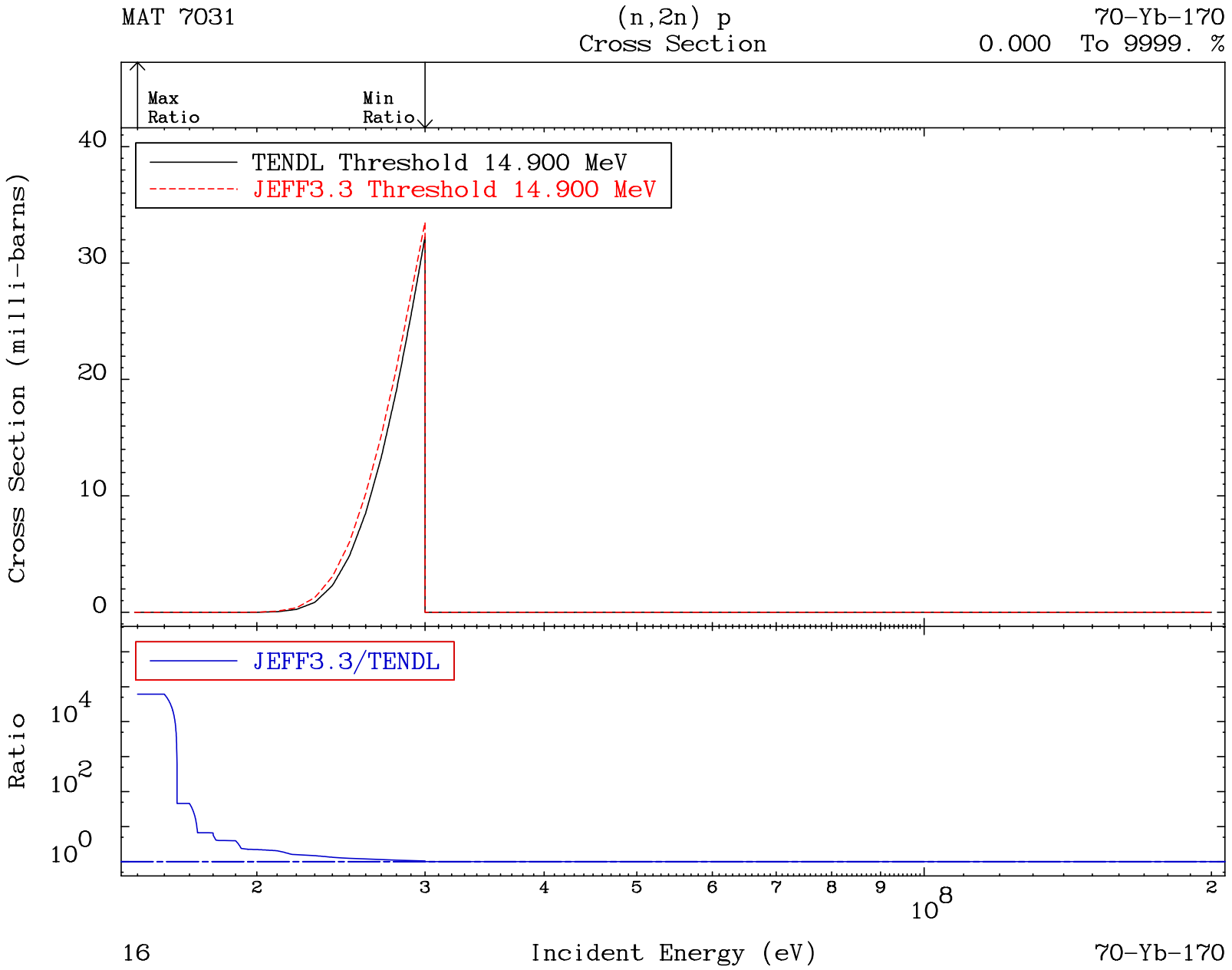

MAT 7031
(n,n') 2α
Cross Section
70-Yb-170
-4.077 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 2.2795 keV
JEFF3.3 Threshold 1.7765 keV
Cross Section (10^-9 barns)
0
20
40
60
80
JEFF3.3/TENDL
Ratio
10^0
10^2
10^4
2 3 5 7 10^4 2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
11
Incident Energy (eV)
70-Yb-170

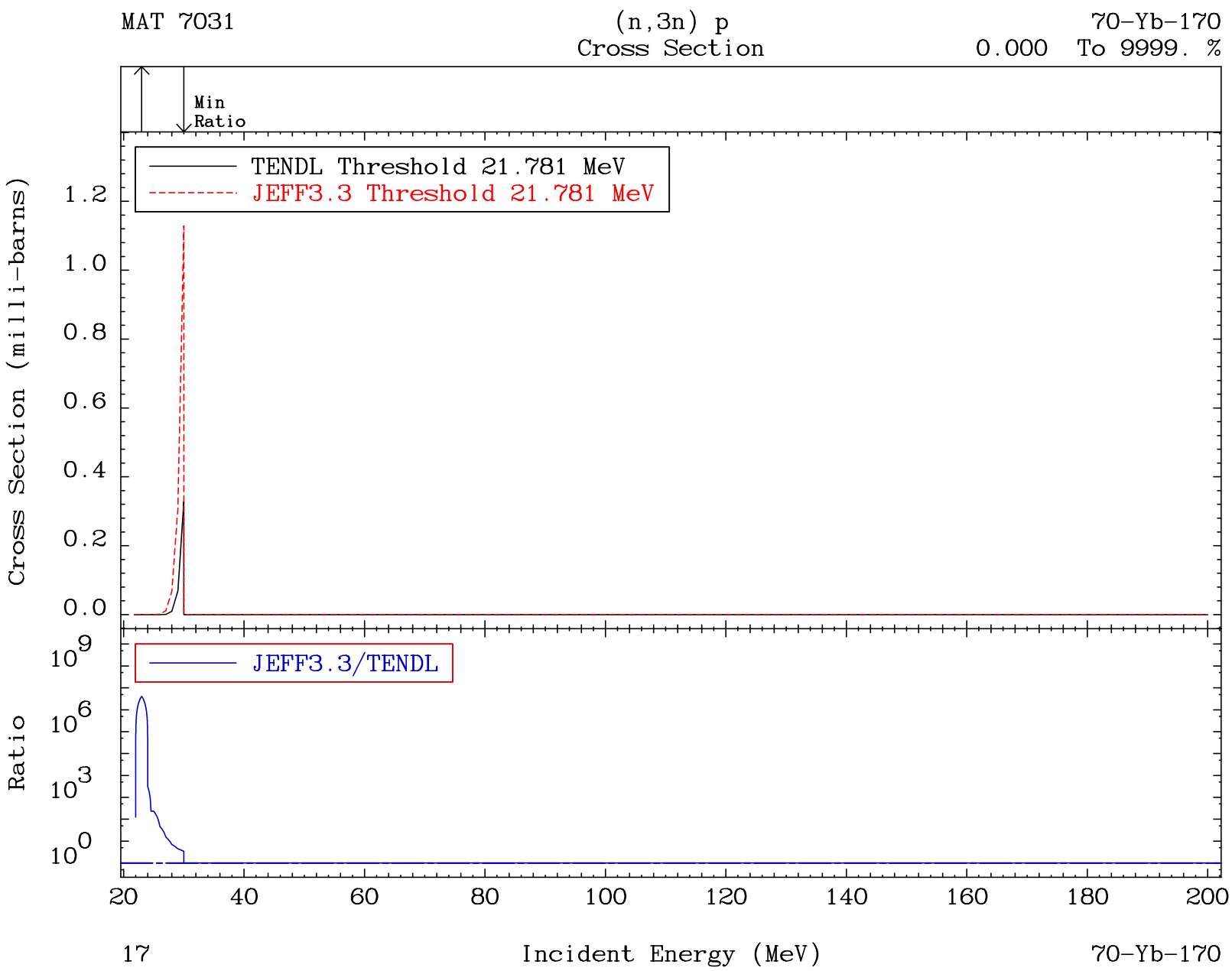

MAT 7031
(n,n') d
Cross Section
70-Yb-170
-3.278 To 663.1 %
Max Ratio
Min Ratio
TENDL Threshold 12.662 MeV
JEFF3.3 Threshold 12.662 MeV
JEFF3.3/TENDL
Cross Section (milli-barns)
Ratio
Incident Energy (eV)
12
70-Yb-170

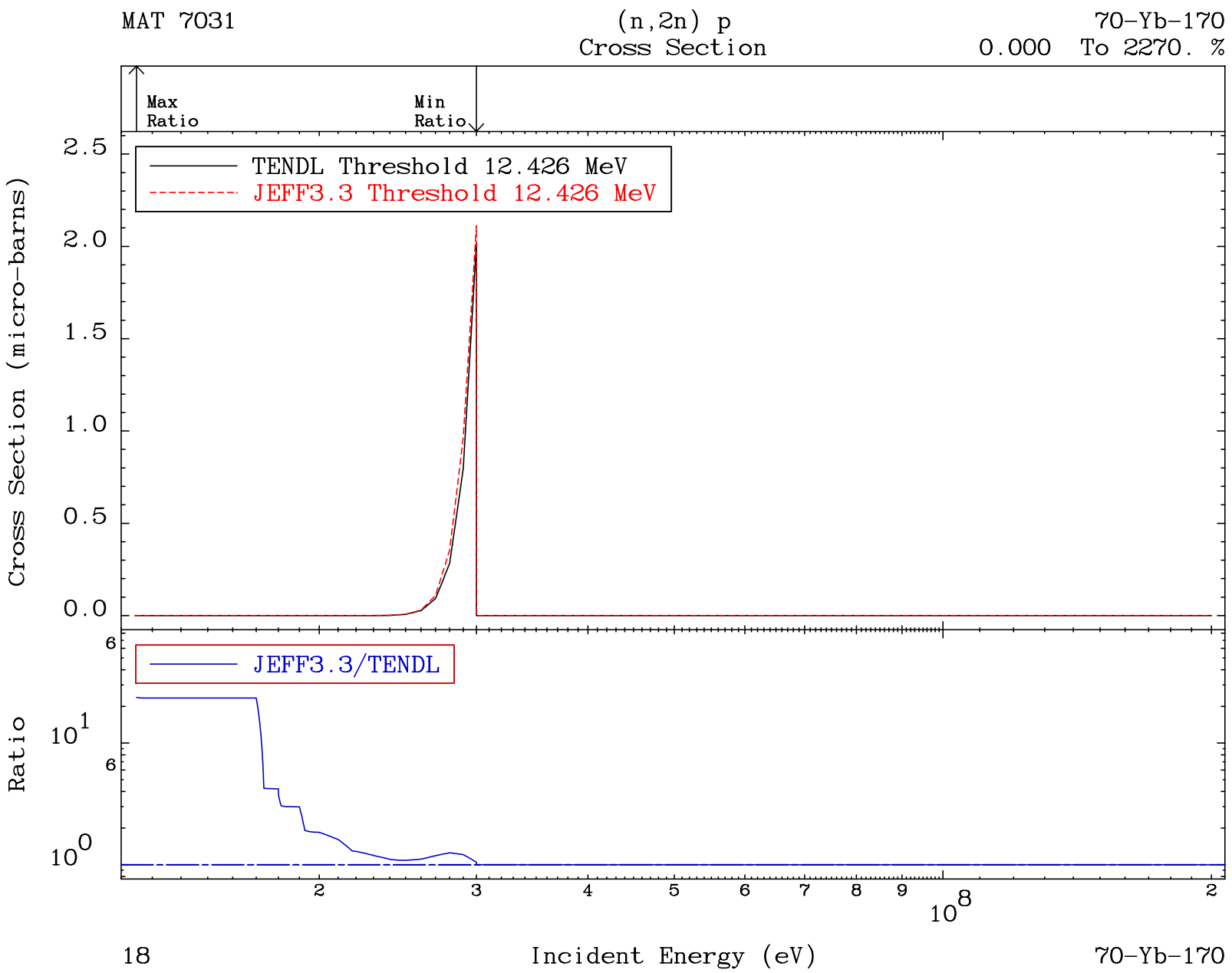

MAT 7031
(n,n') t
Cross Section
70-Yb-170
0.000 To 1026. %
Max Ratio
Min Ratio
TENDL Threshold 13.249 MeV
JEFF3.3 Threshold 13.249 MeV
Cross Section (milli-barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
13
70-Yb-170

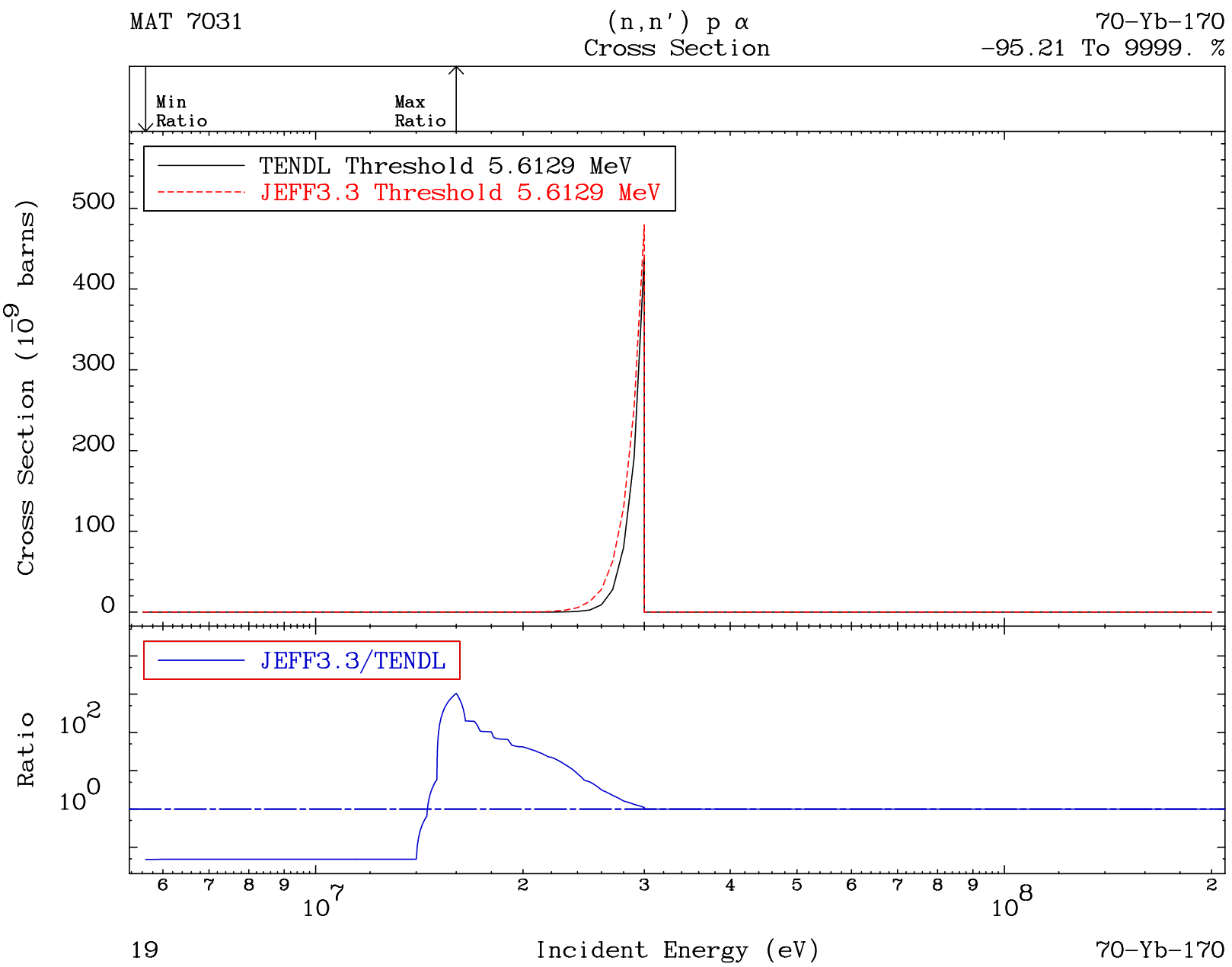

MAT 7031
(n,n') He-3
Cross Section
70-Yb-170
-9.555 To 48.27 %
Max Ratio
Min Ratio
TENDL Threshold 12.480 MeV
JEFF3.3 Threshold 12.480 MeV
Cross Section (micro-barns)
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.6
1.4
1.2
1.0
2
3
4
5
6
7
8
9
10^8
2
14
Incident Energy (eV)
70-Yb-170

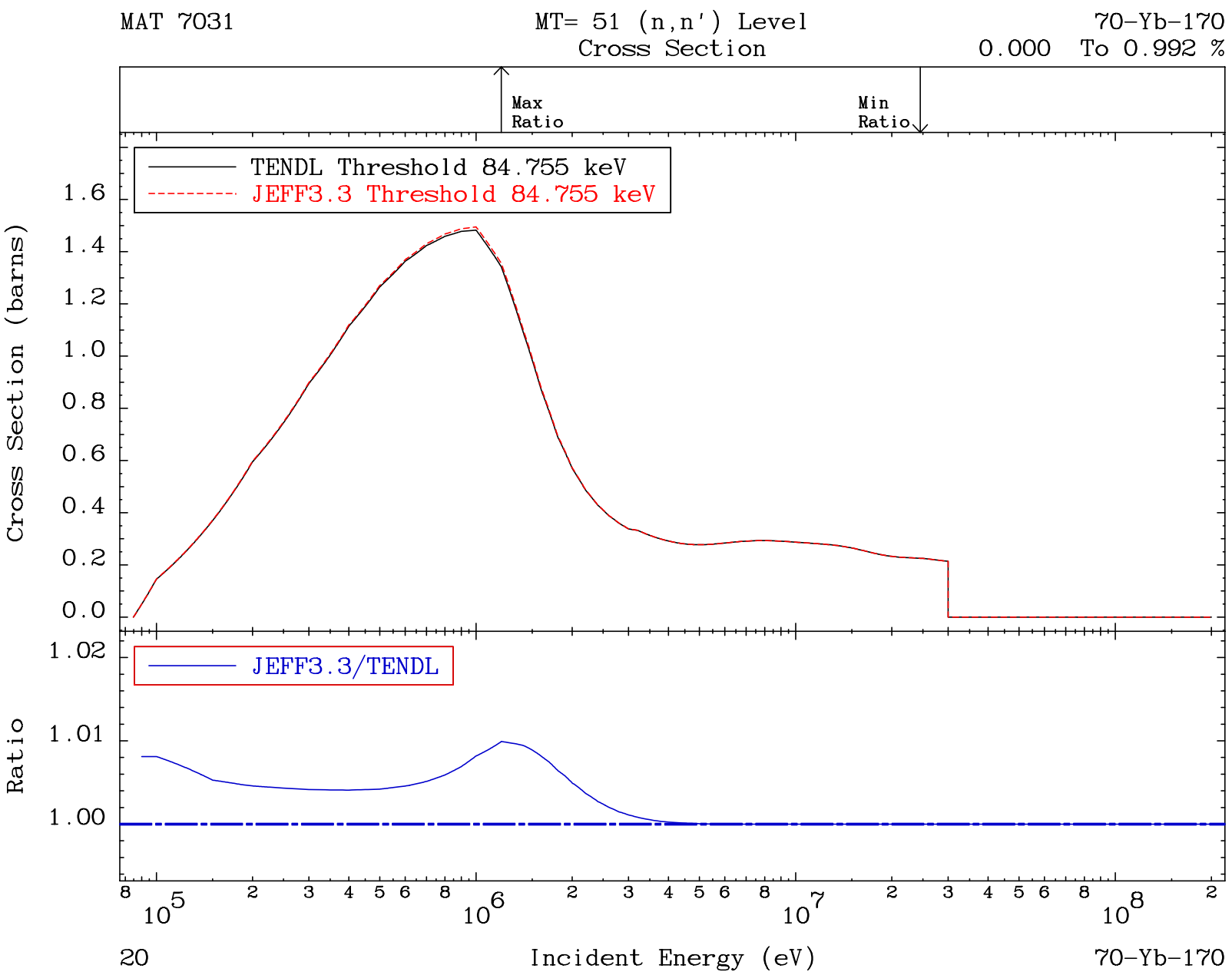

MAT 7031
(n,4n)
Cross Section
70-Yb-170
0.000 To 4067. %
Min
Ratio
TENDL Threshold 24.533 MeV
JEFF3.3 Threshold 24.533 MeV
Cross Section (milli-barns)
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
4
10^1
4
10^0
40
60
80
100
120
140
160
180
200
15
Incident Energy (MeV)
70-Yb-170

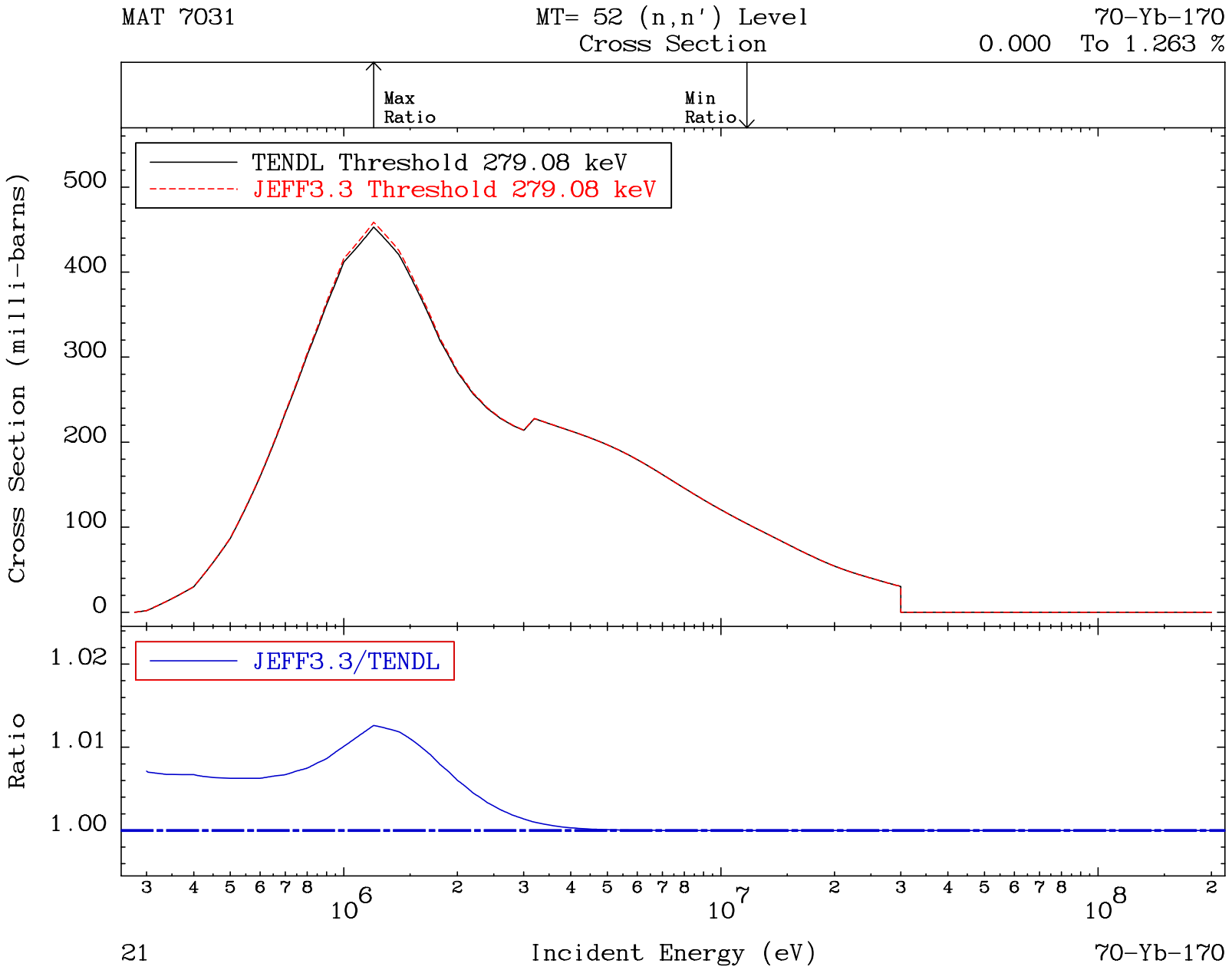

MAT 7031
(n,2n) p
Cross Section
70-Yb-170
0.000 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 14.900 MeV
JEFF3.3 Threshold 14.900 MeV
Cross Section (milli-barns)
40
30
20
10
0
JEFF3.3/TENDL
Ratio
10^4
10^2
10^0
2
3
4
5
6
7
8
9
10^8
2
16
Incident Energy (eV)
70-Yb-170

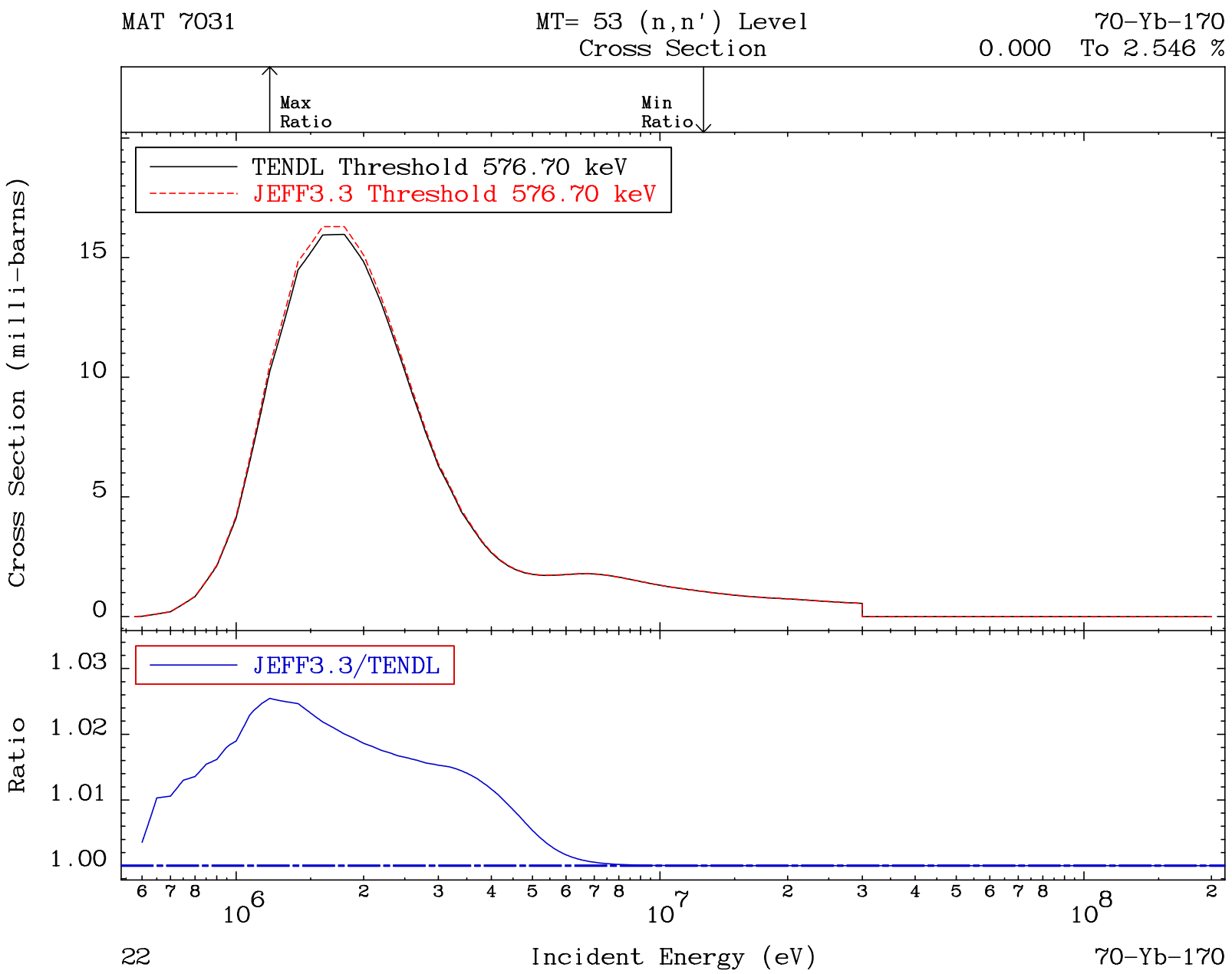

MAT 7031
(n,3n) p
Cross Section
70-Yb-170
0.000 To 9999. %
Min
Ratio
TENDL Threshold 21.781 MeV
JEFF3.3 Threshold 21.781 MeV
Cross Section (milli-barns)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
JEFF3.3/TENDL
Ratio
10^9
10^6
10^3
10^0
20
40
60
80
100
120
140
160
180
200
17
Incident Energy (MeV)
70-Yb-170

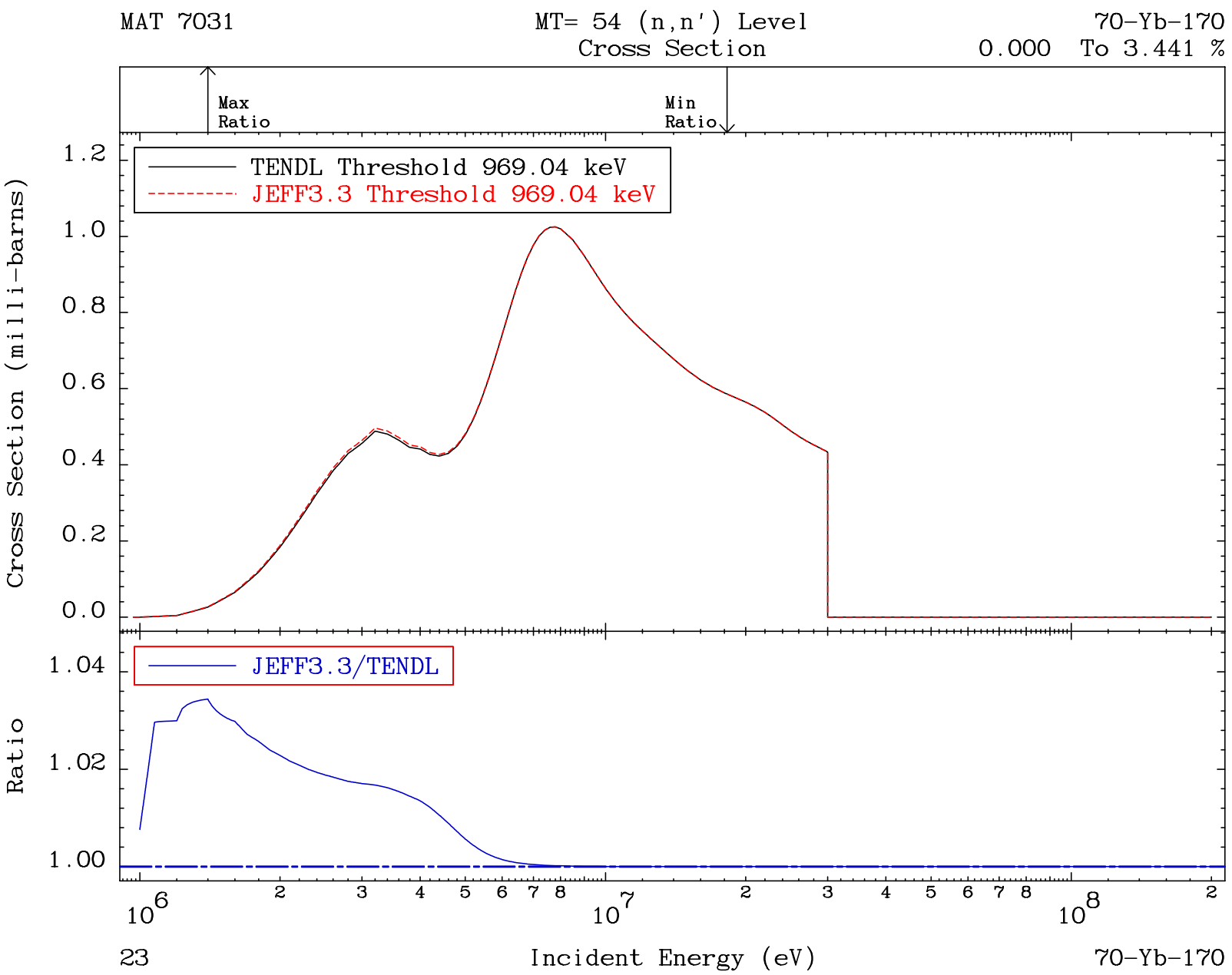

MAT 7031
(n,2n) p
Cross Section
70-Yb-170
0.000 To 2270. %
Max Ratio
Min Ratio
TENDL Threshold 12.426 MeV
JEFF3.3 Threshold 12.426 MeV
Cross Section (micro-barns)
2.5
2.0
1.5
1.0
0.5
0.0
JEFF3.3/TENDL
Ratio
6
10^1
6
10^0
2
3
4
5
6
7
8
9
10^8
2
18
Incident Energy (eV)
70-Yb-170

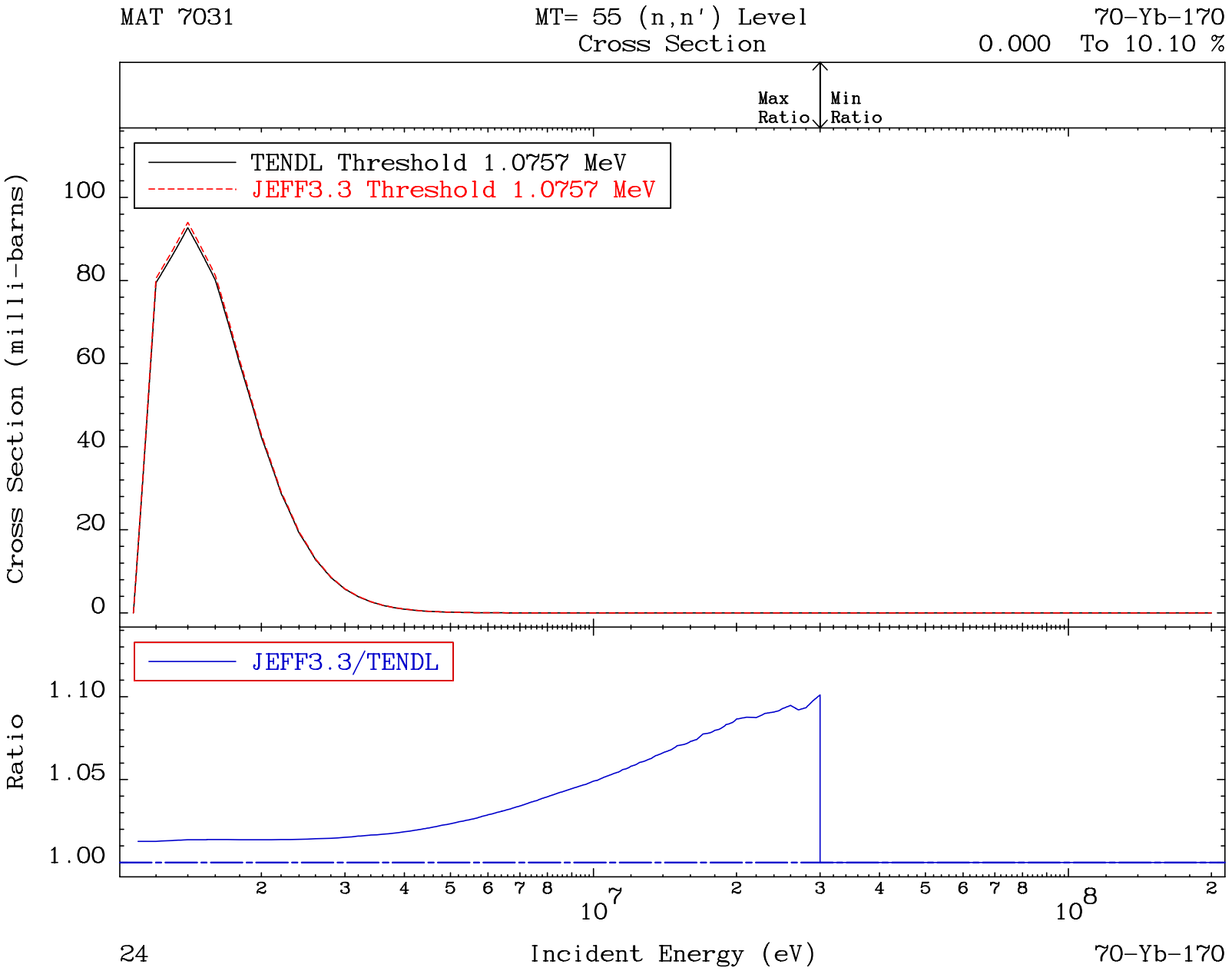

MAT 7031
(n,n') p α
Cross Section
70-Yb-170
-95.21 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 5.6129 MeV
JEFF3.3 Threshold 5.6129 MeV
Cross Section (10^-9 barns)
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
10^2
10^0
6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
19
Incident Energy (eV)
70-Yb-170

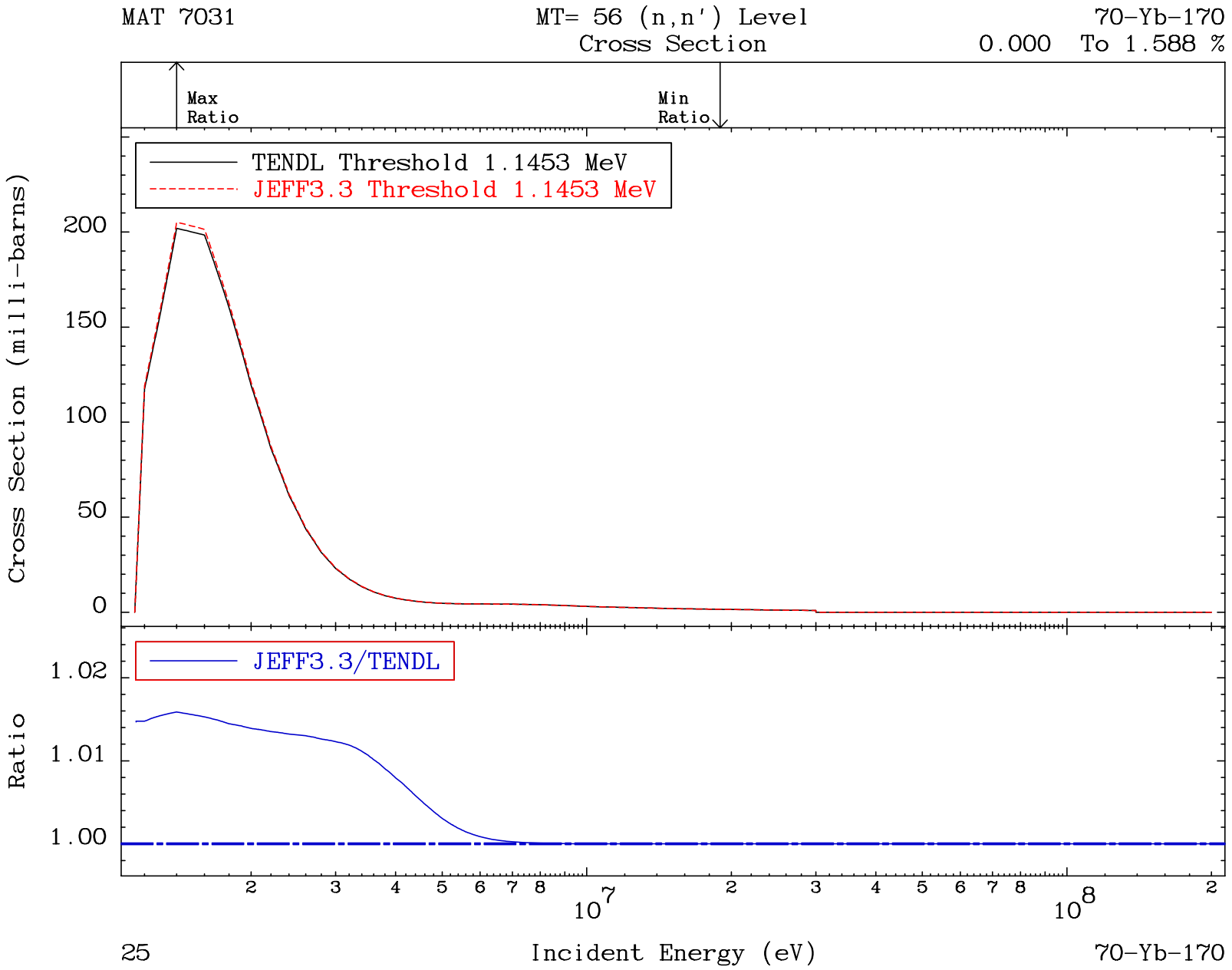

MAT 7031
MT= 51 (n,n') Level
Cross Section
70-Yb-170
0.000 To 0.992 %
Max
Ratio
Min
Ratio
TENDL Threshold 84.755 keV
JEFF3.3 Threshold 84.755 keV
Cross Section (barns)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
8
10^5
2
3
4
5
6
8
10^6
2
3
4
5
6
8
10^7
2
3
4
5
6
8
10^8
2
20
Incident Energy (eV)
70-Yb-170

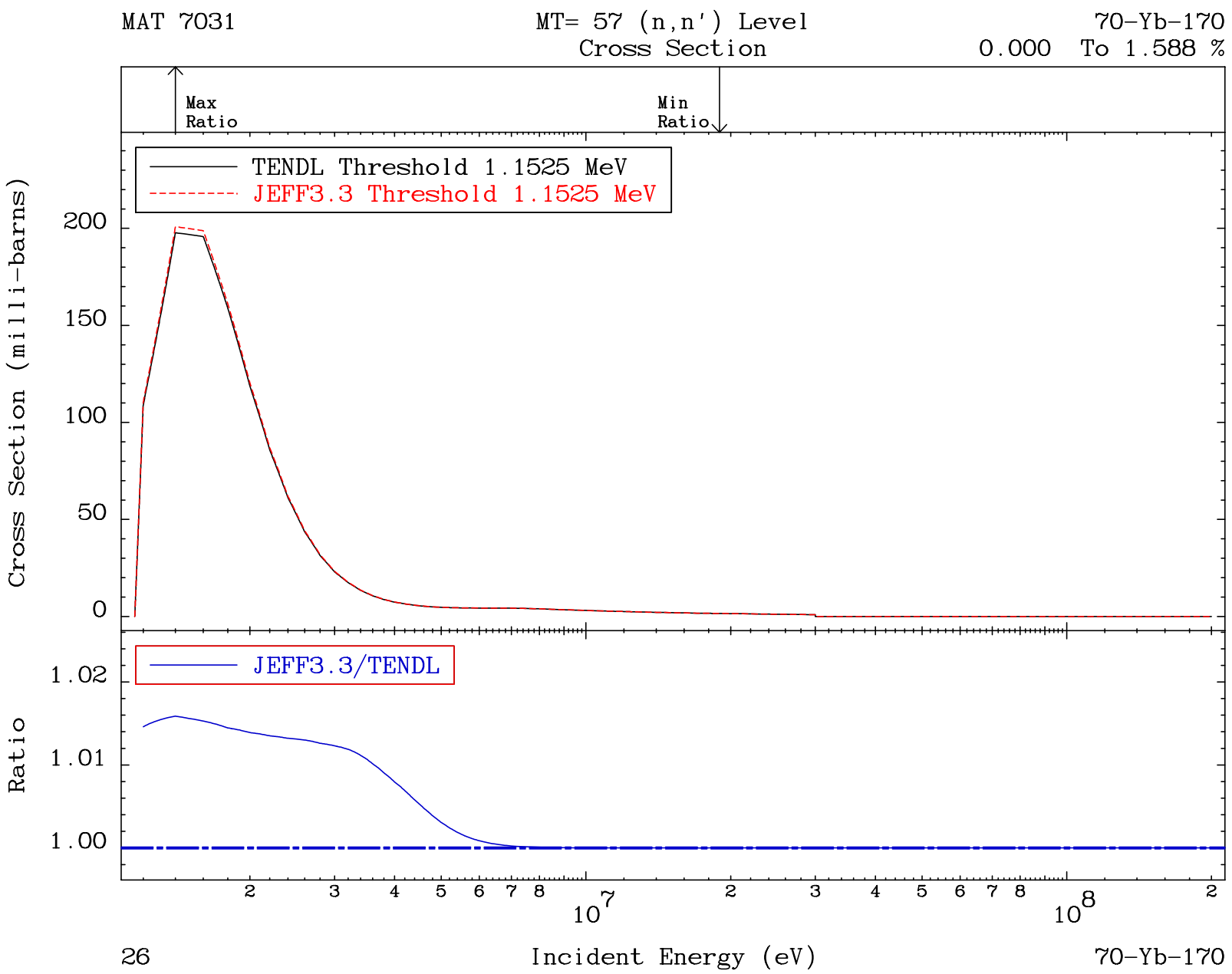

MAT 7031
MT= 52 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.263 %
Max Ratio
Min Ratio
TENDL Threshold 279.08 keV
JEFF3.3 Threshold 279.08 keV
Cross Section (milli-barns)
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
3 4 5 6 7 8 10^6 2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
21
Incident Energy (eV)
70-Yb-170

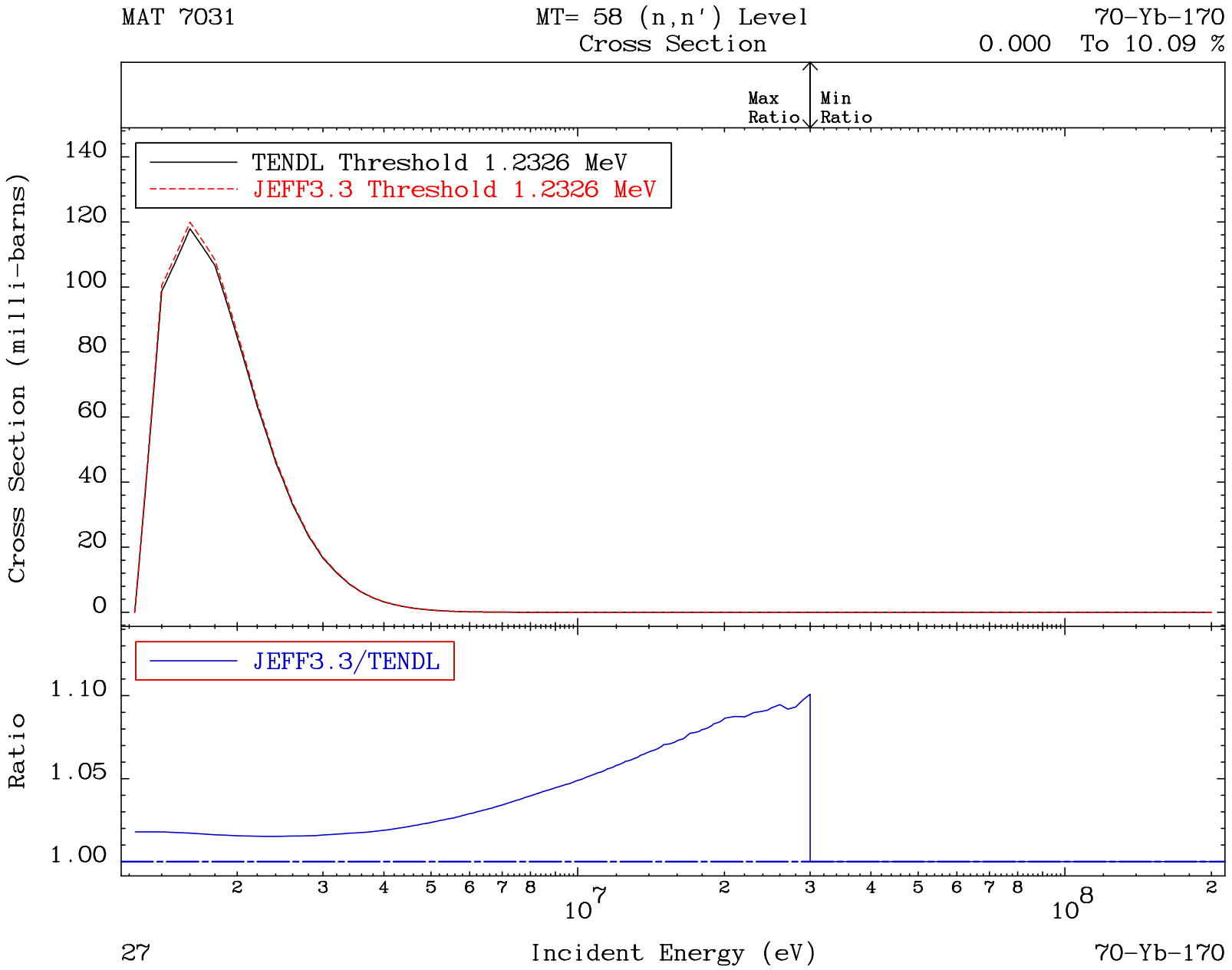

MAT 7031
MT= 53 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.546 %
Max Ratio
Min Ratio
TENDL Threshold 576.70 keV
JEFF3.3 Threshold 576.70 keV
Cross Section (milli-barns)
15
10
5
0
JEFF3.3/TENDL
Ratio
1.03
1.02
1.01
1.00
6 7 8
10^6
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
22
Incident Energy (eV)
70-Yb-170

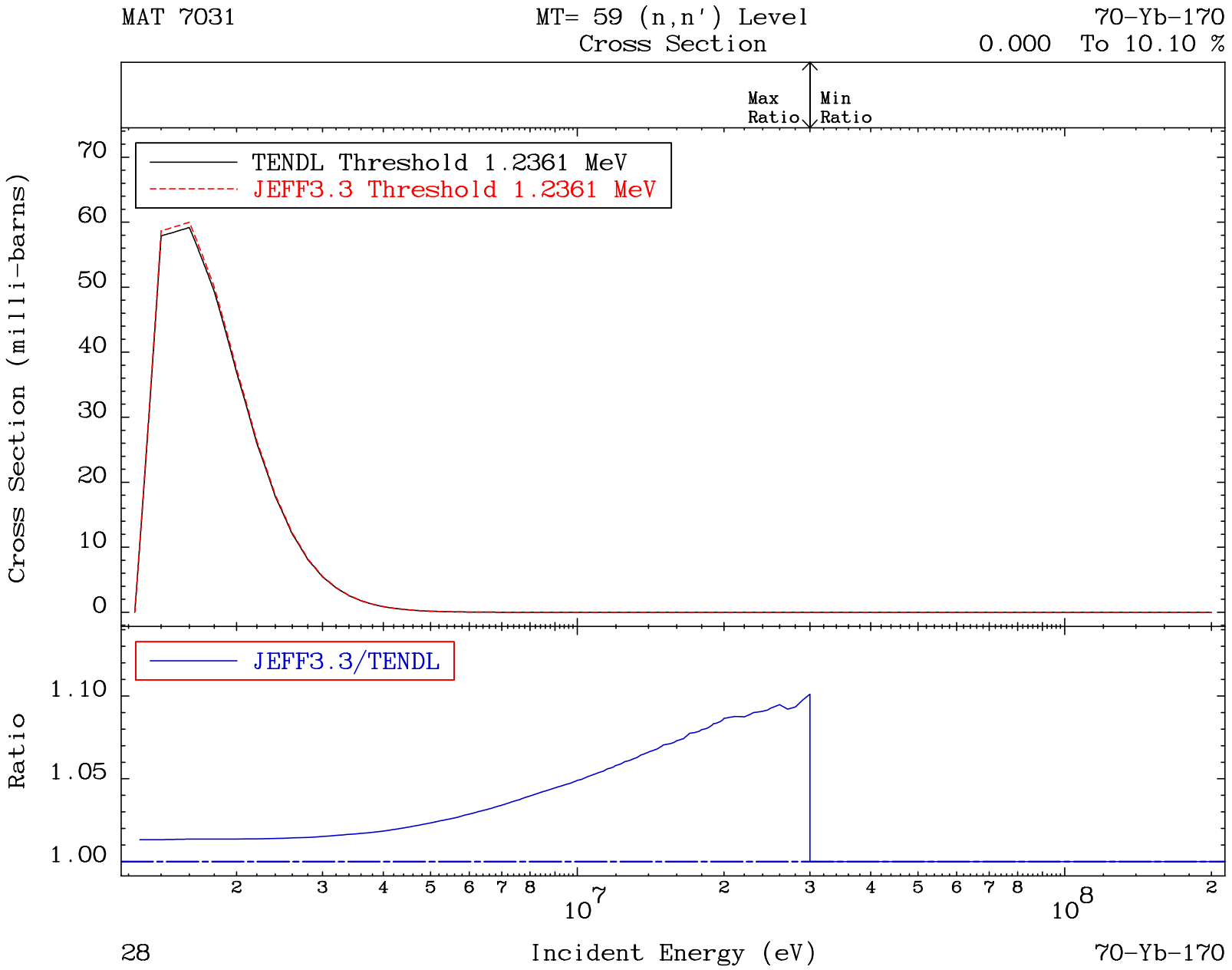

MAT 7031
MT= 54 (n,n') Level
Cross Section
70-Yb-170
0.000 To 3.441 %
Max Ratio
Min Ratio
TENDL Threshold 969.04 keV
JEFF3.3 Threshold 969.04 keV
Cross Section (milli-barns)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
JEFF3.3/TENDL
Ratio
1.04
1.02
1.00
10^6
10^7
10^8
Incident Energy (eV)
23
70-Yb-170

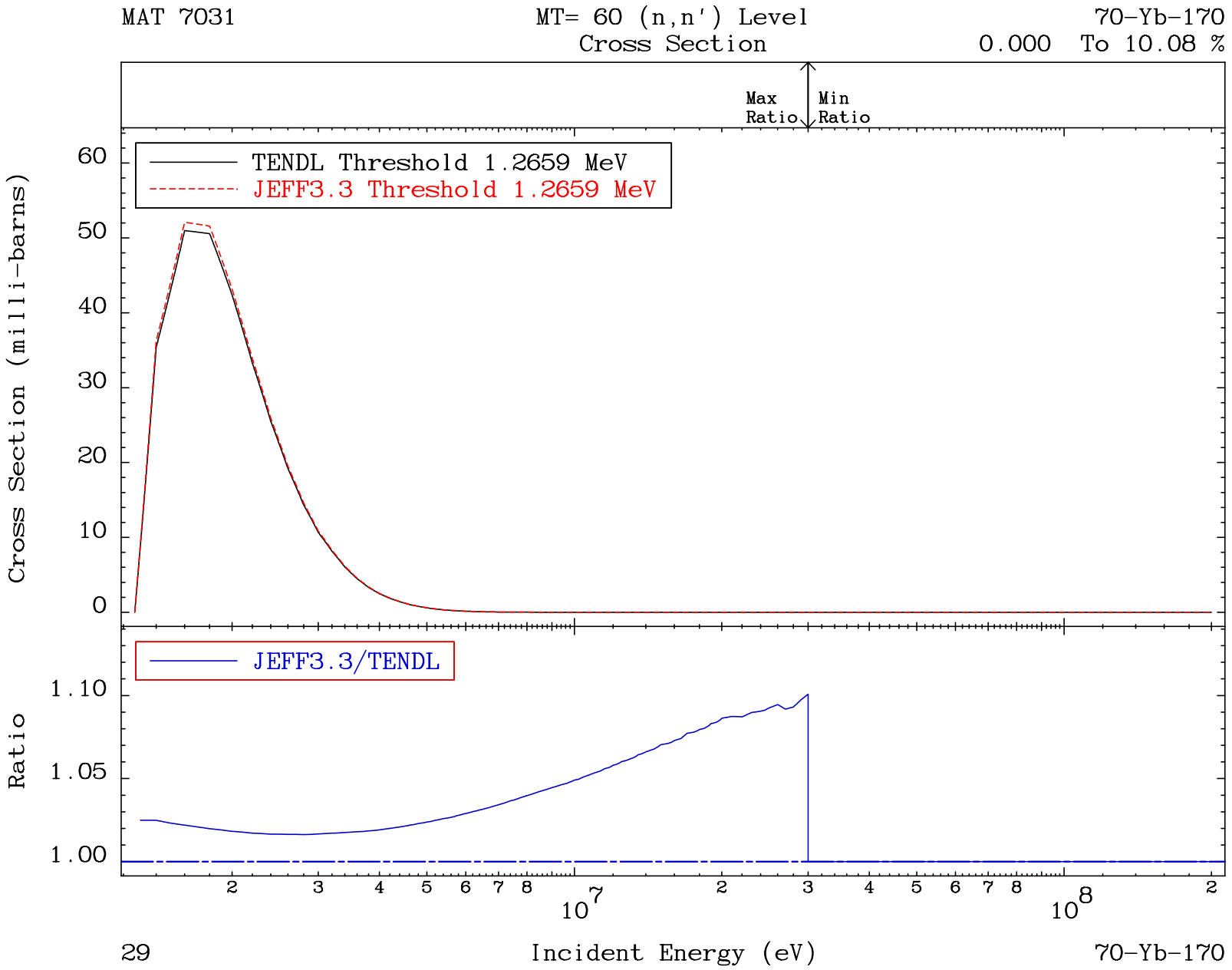

MAT 7031
MT= 55 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.10 %
Max Ratio
Min Ratio
TENDL Threshold 1.0757 MeV
JEFF3.3 Threshold 1.0757 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
24
Incident Energy (eV)
70-Yb-170

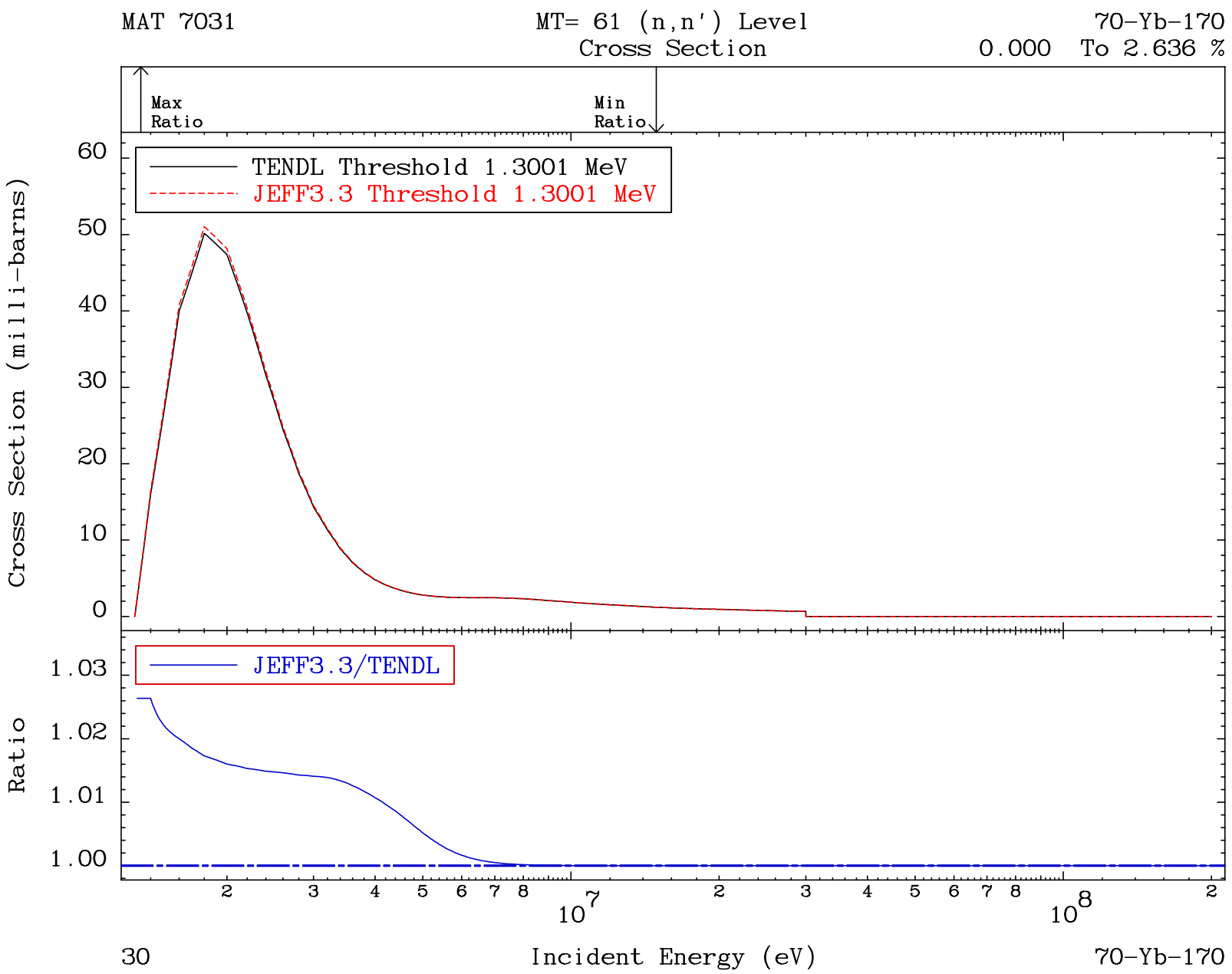

MAT 7031
MT= 56 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.588 %
Max Ratio
Min Ratio
TENDL Threshold 1.1453 MeV
JEFF3.3 Threshold 1.1453 MeV
Cross Section (milli-barns)
200
150
100
50
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
25
Incident Energy (eV)
70-Yb-170

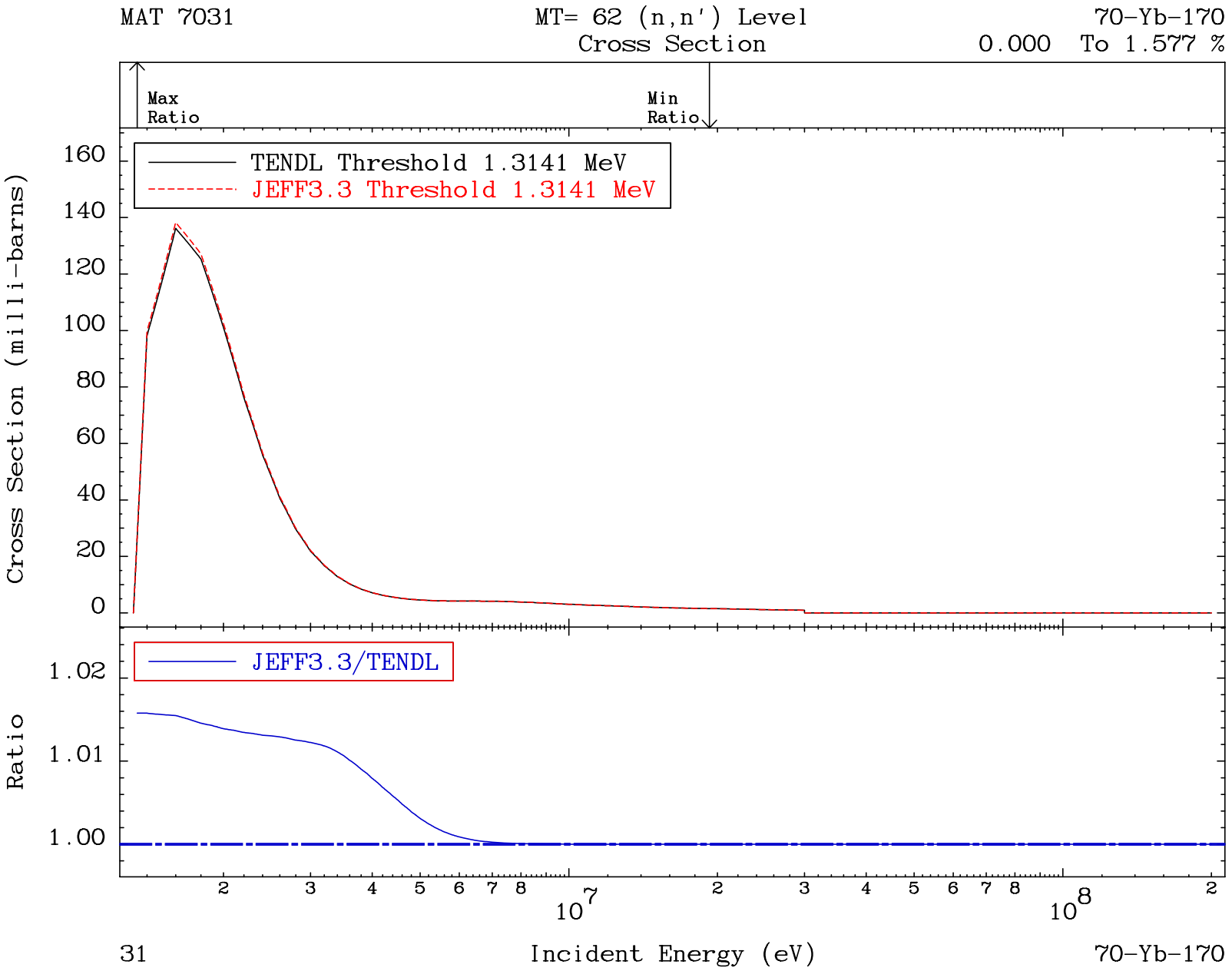

MAT 7031
MT= 57 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.588 %
Max Ratio
Min Ratio
TENDL Threshold 1.1525 MeV
JEFF3.3 Threshold 1.1525 MeV
Cross Section (milli-barns)
200
150
100
50
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
26
Incident Energy (eV)
70-Yb-170

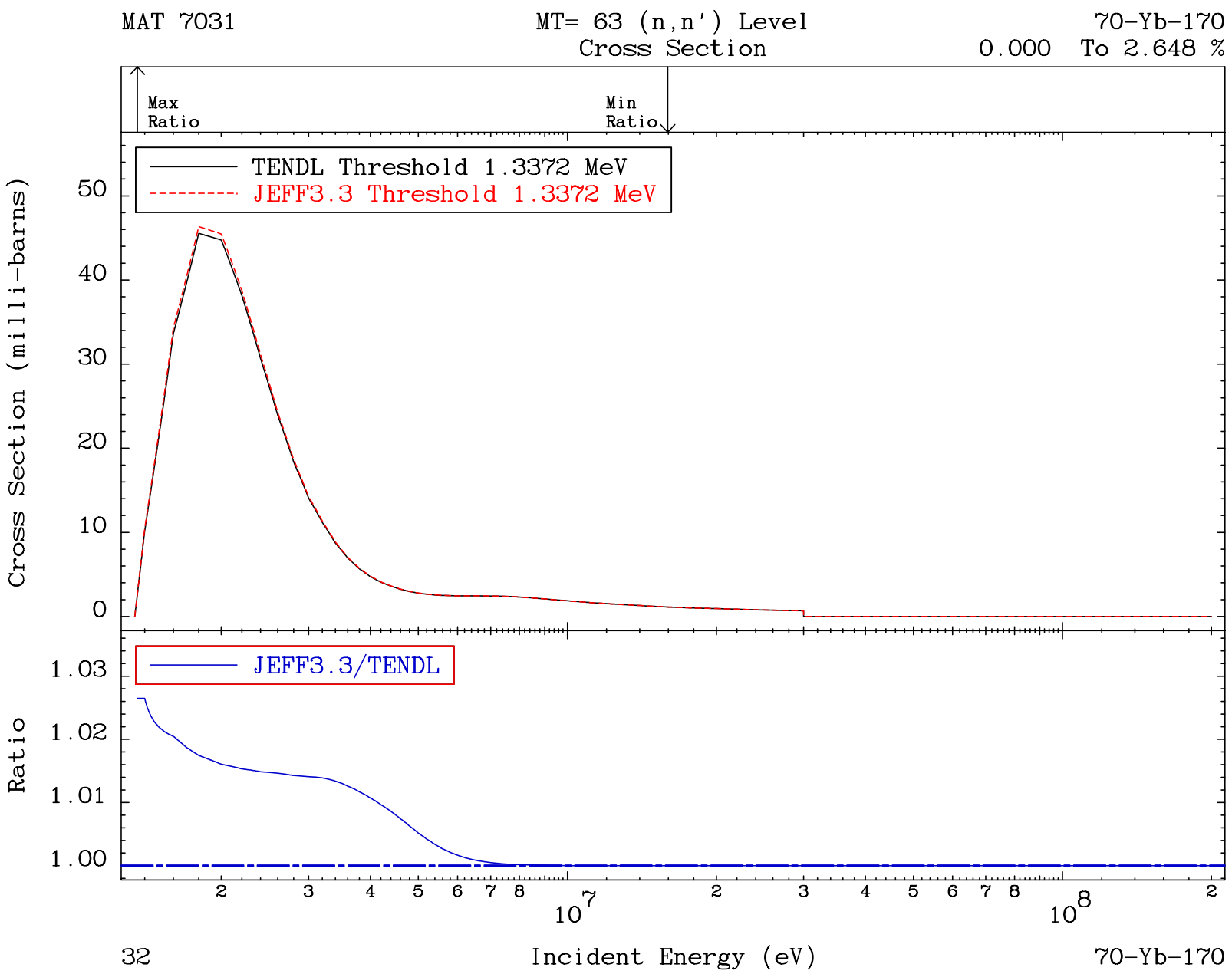

MAT 7031
MT= 58 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.09 %
Max Ratio
Min Ratio
TENDL Threshold 1.2326 MeV
JEFF3.3 Threshold 1.2326 MeV
Cross Section (milli-barns)
140
120
100
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
27
Incident Energy (eV)
70-Yb-170

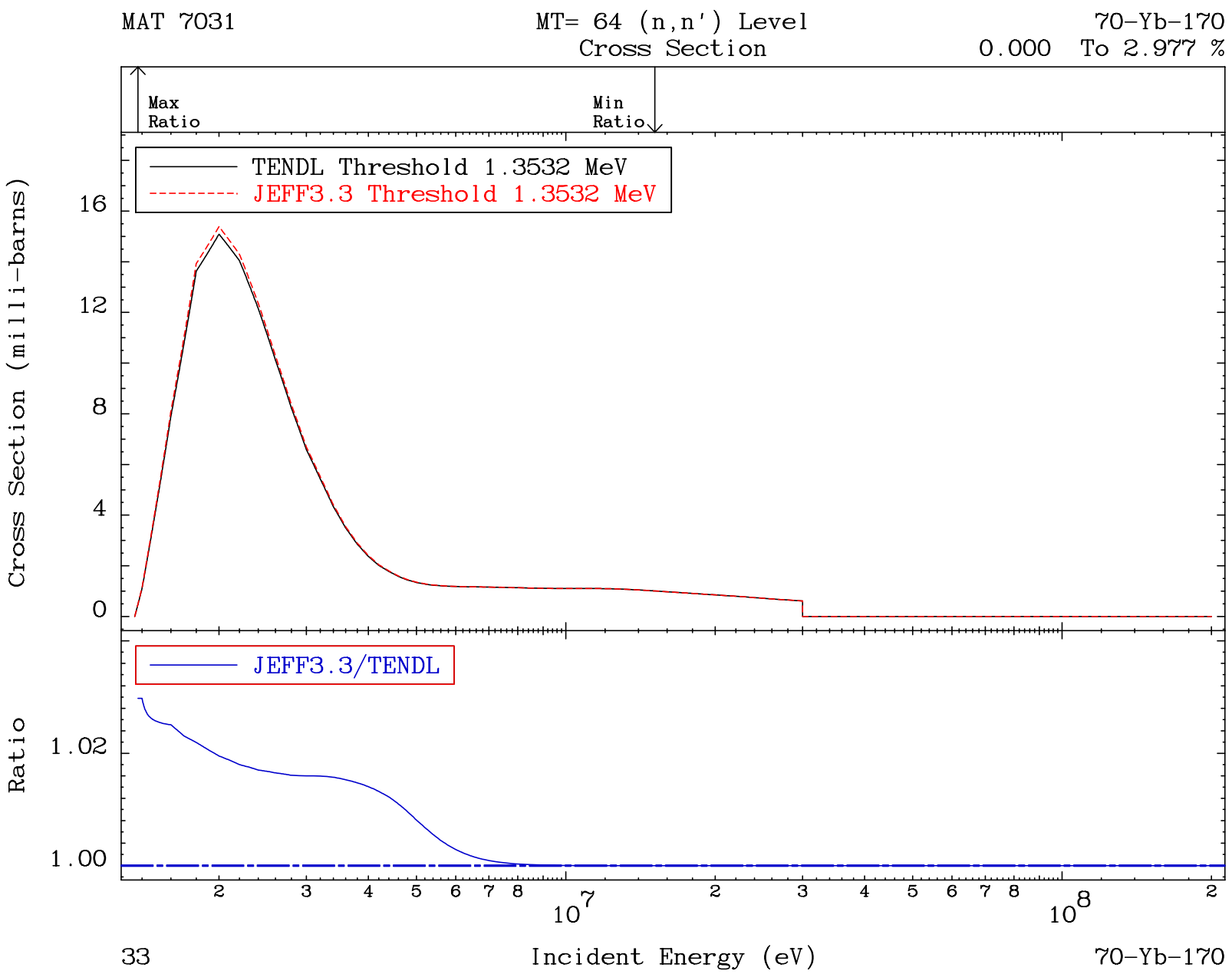

MAT 7031
MT= 59 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.10 %
Max Ratio
Min Ratio
TENDL Threshold 1.2361 MeV
JEFF3.3 Threshold 1.2361 MeV
Cross Section (milli-barns)
70
60
50
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
28
Incident Energy (eV)
70-Yb-170

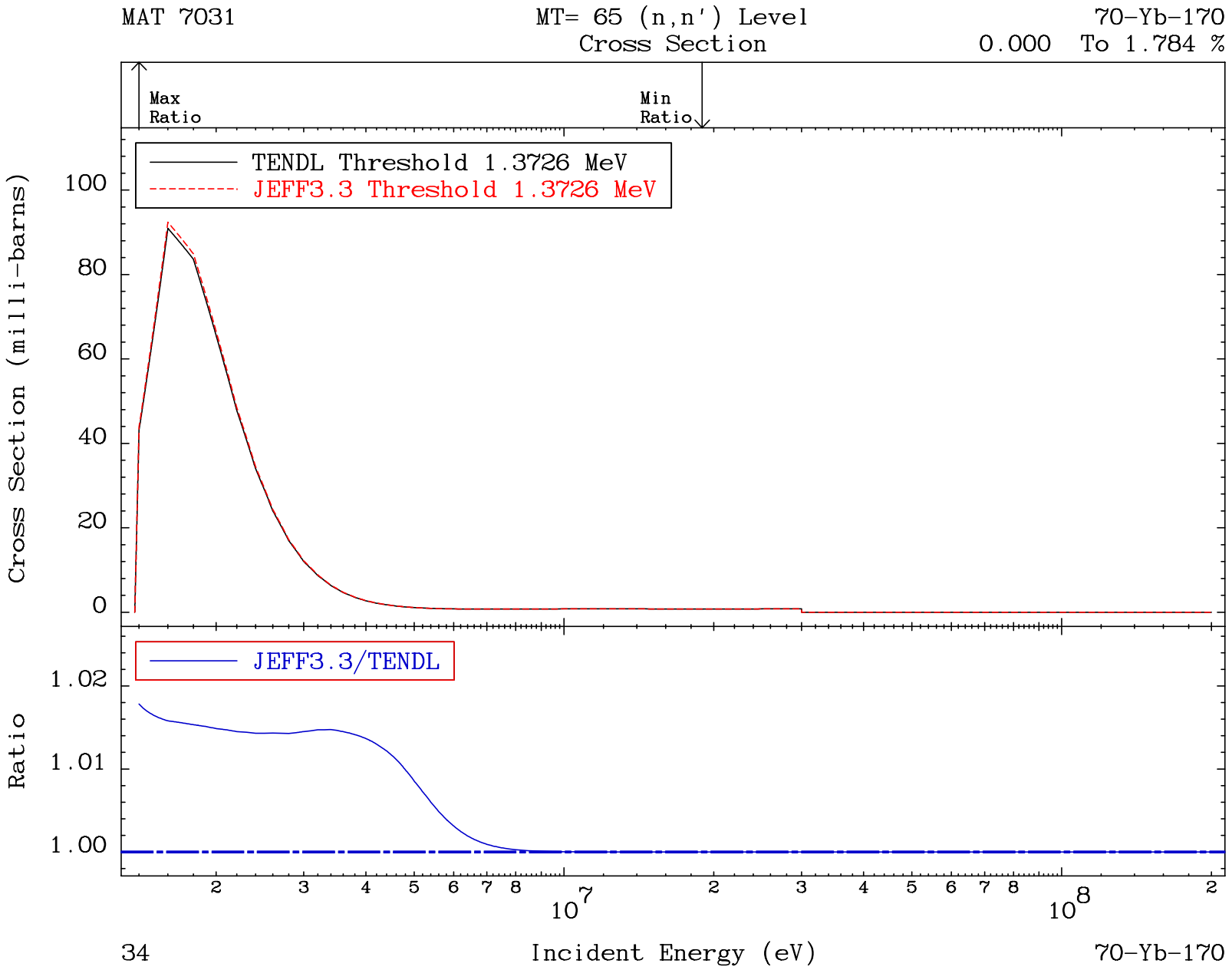

MAT 7031
MT= 60 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.08 %
Max Ratio
Min Ratio
TENDL Threshold 1.2659 MeV
JEFF3.3 Threshold 1.2659 MeV
Cross Section (milli-barns)
60
50
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
29
Incident Energy (eV)
70-Yb-170

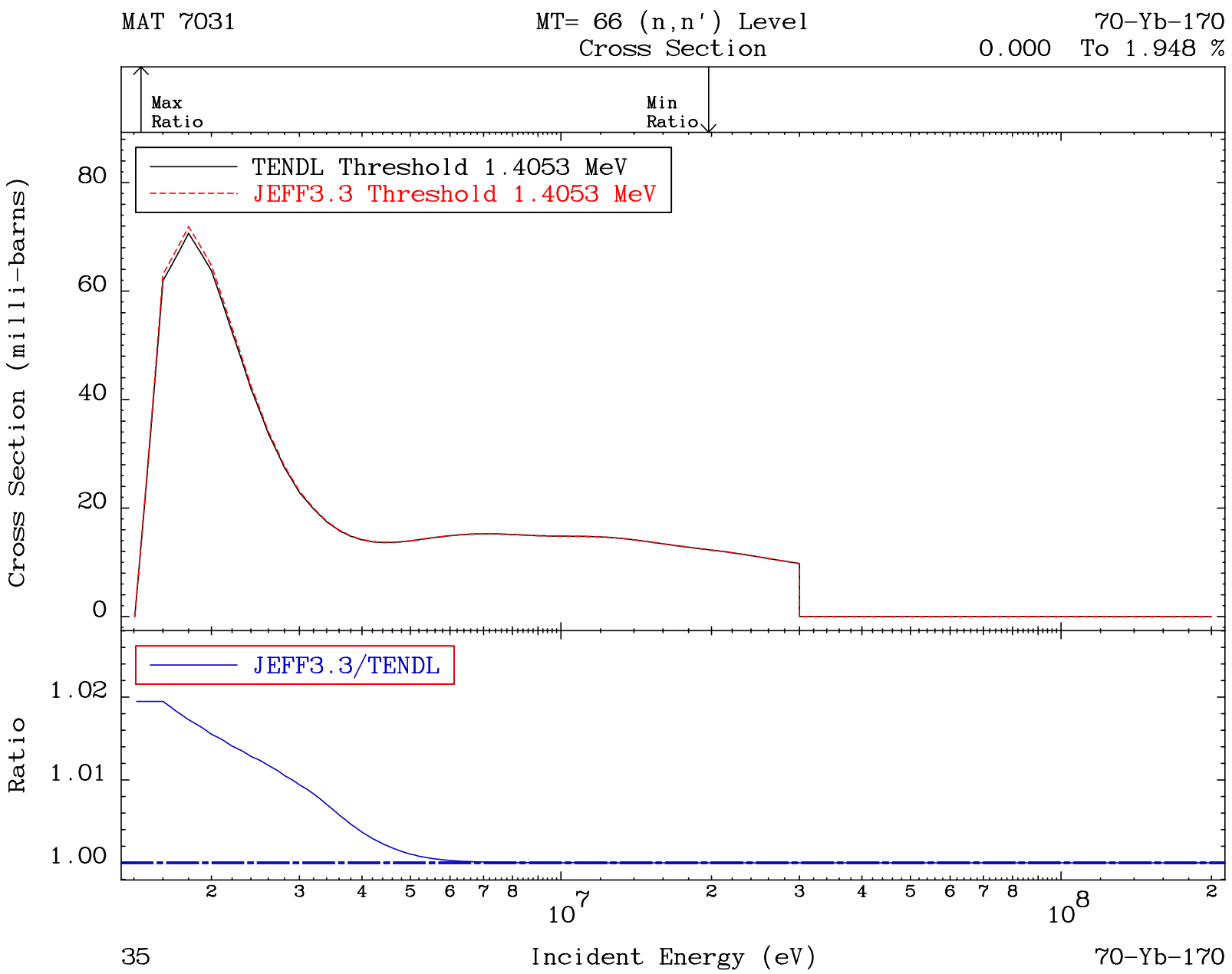

MAT 7031
MT= 61 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.636 %
Max Ratio
Min Ratio
TENDL Threshold 1.3001 MeV
JEFF3.3 Threshold 1.3001 MeV
Cross Section (milli-barns)
60
50
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.03
1.02
1.01
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
30
Incident Energy (eV)
70-Yb-170

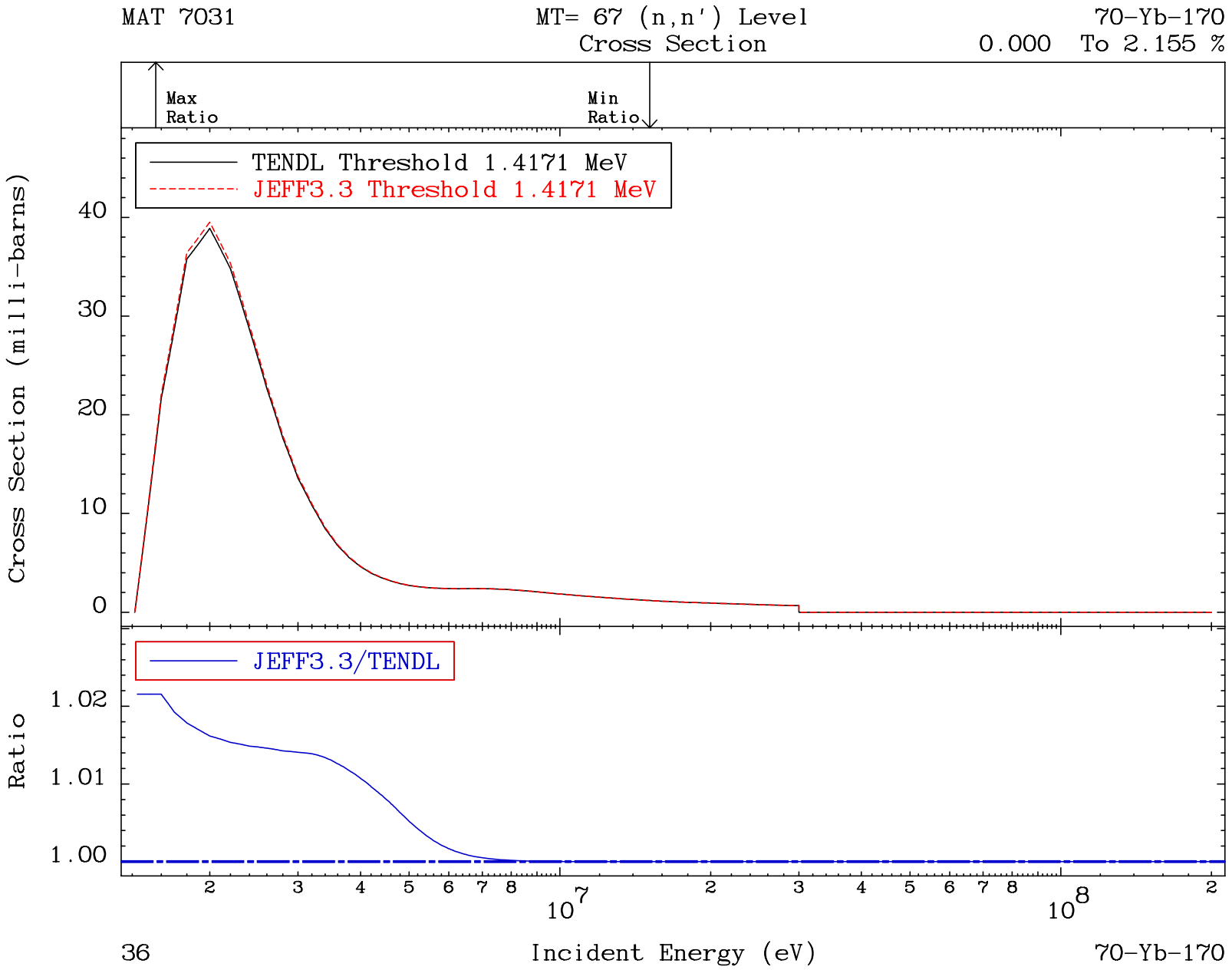

MAT 7031
MT= 62 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.577 %
Max
Ratio
Min
Ratio
TENDL Threshold 1.3141 MeV
JEFF3.3 Threshold 1.3141 MeV
Cross Section (milli-barns)
160
140
120
100
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
31
Incident Energy (eV)
70-Yb-170

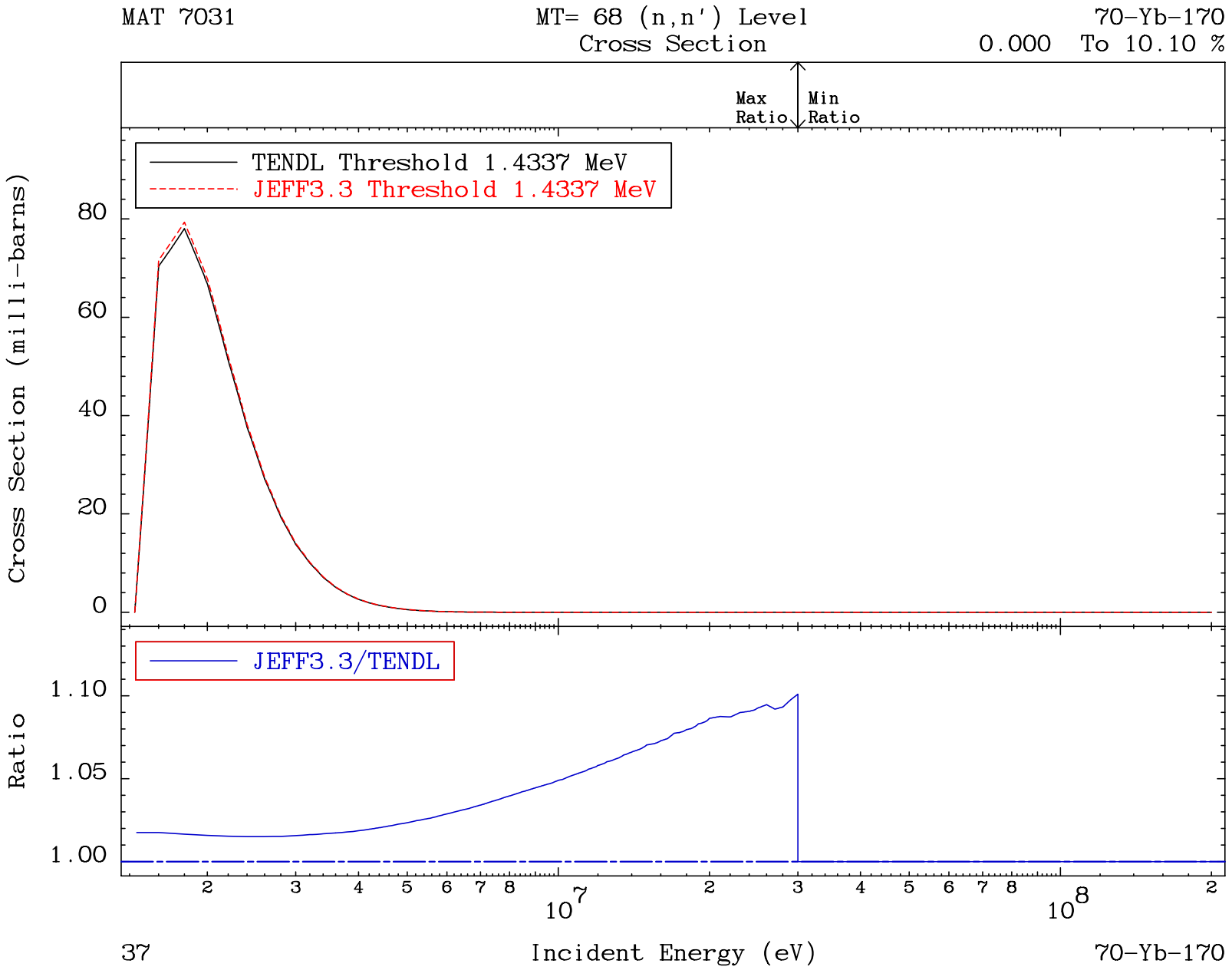

MAT 7031
MT= 63 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.648 %
Max Ratio
Min Ratio
TENDL Threshold 1.3372 MeV
JEFF3.3 Threshold 1.3372 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.03
1.02
1.01
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
32
Incident Energy (eV)
70-Yb-170

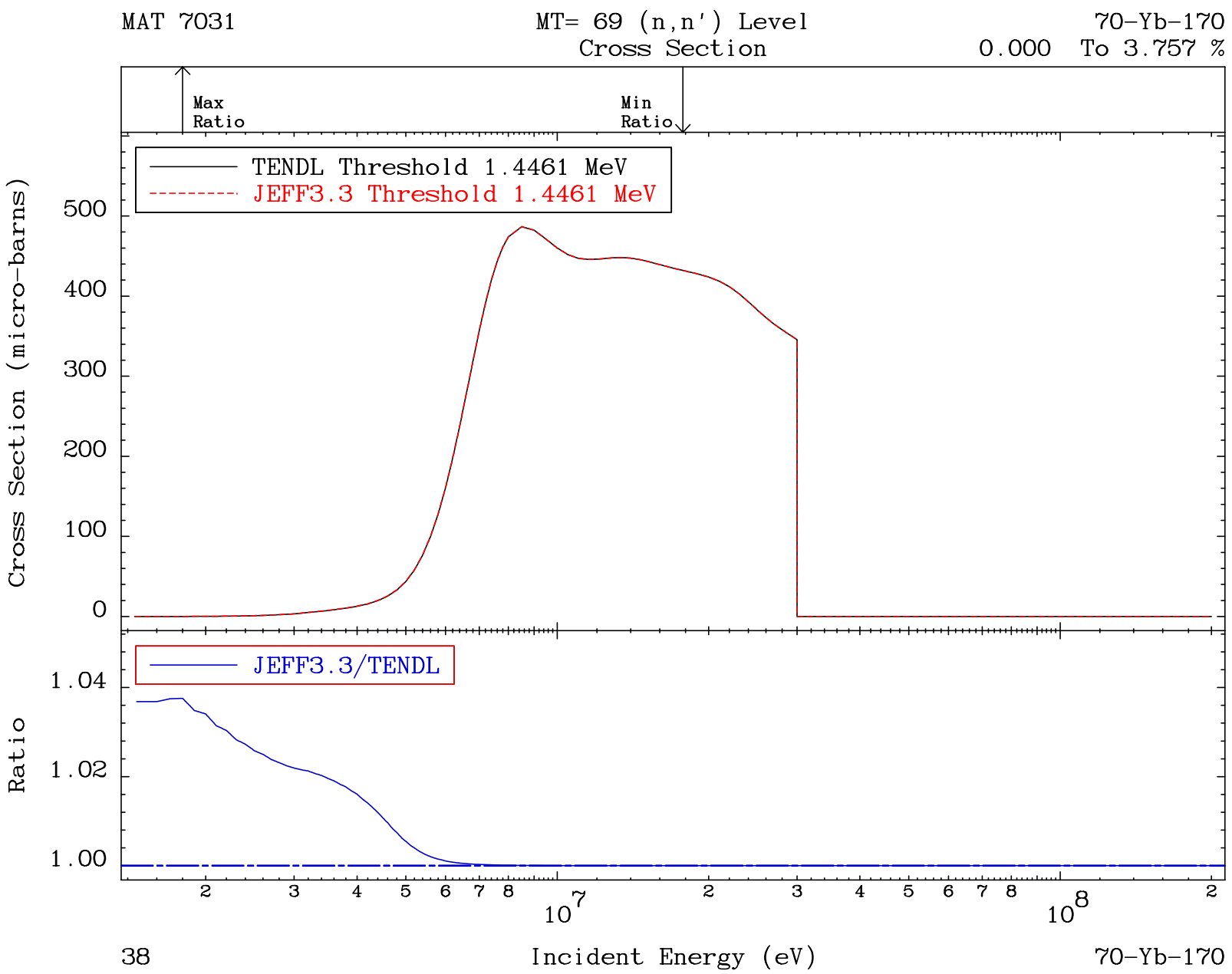

MAT 7031
MT= 64 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.977 %
Max Ratio
Min Ratio
TENDL Threshold 1.3532 MeV
JEFF3.3 Threshold 1.3532 MeV
Cross Section (milli-barns)
16
12
8
4
0
JEFF3.3/TENDL
Ratio
1.02
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
33
Incident Energy (eV)
70-Yb-170

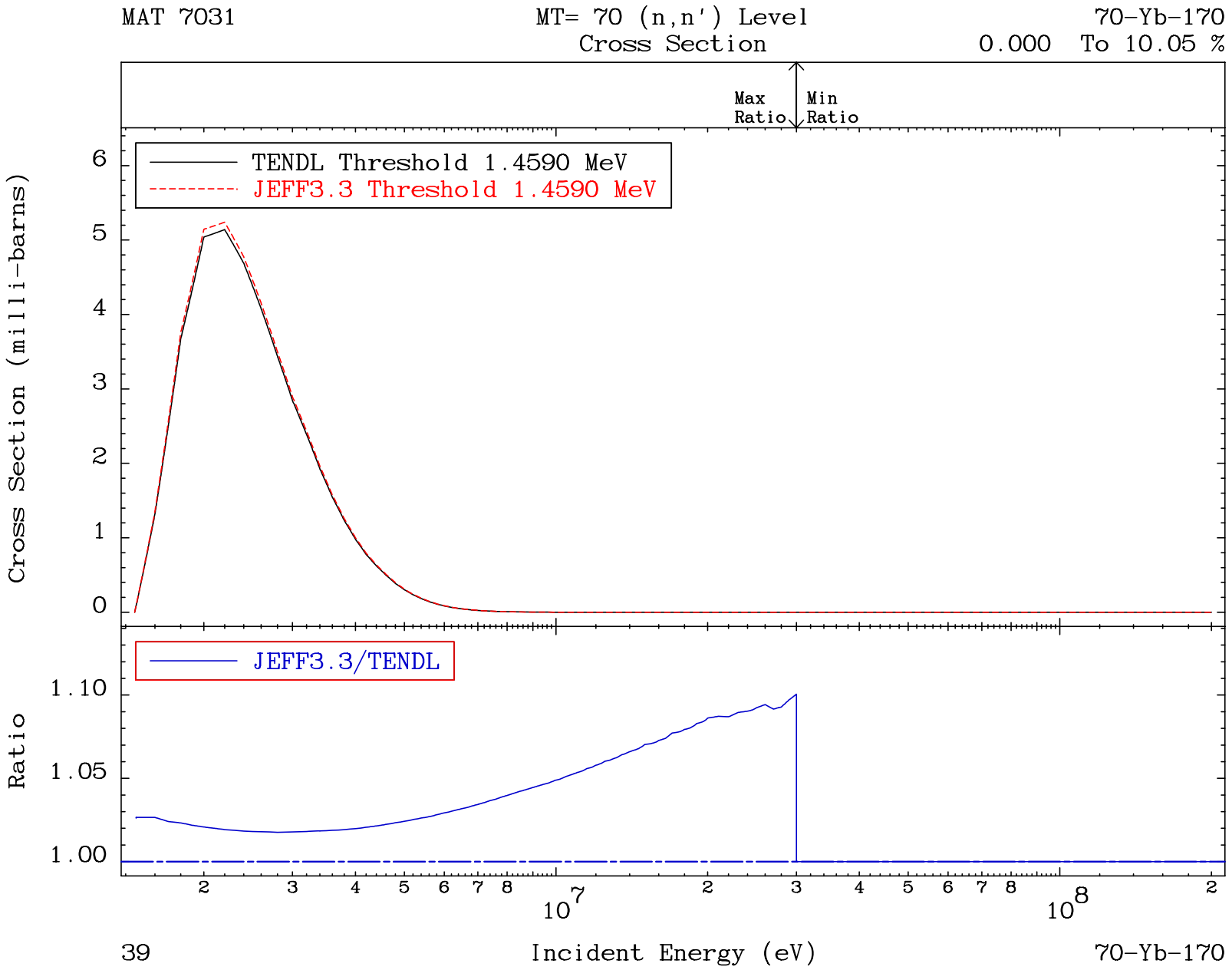

MAT 7031
MT= 65 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.784 %
Max Ratio
Min Ratio
TENDL Threshold 1.3726 MeV
JEFF3.3 Threshold 1.3726 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
34
Incident Energy (eV)
70-Yb-170

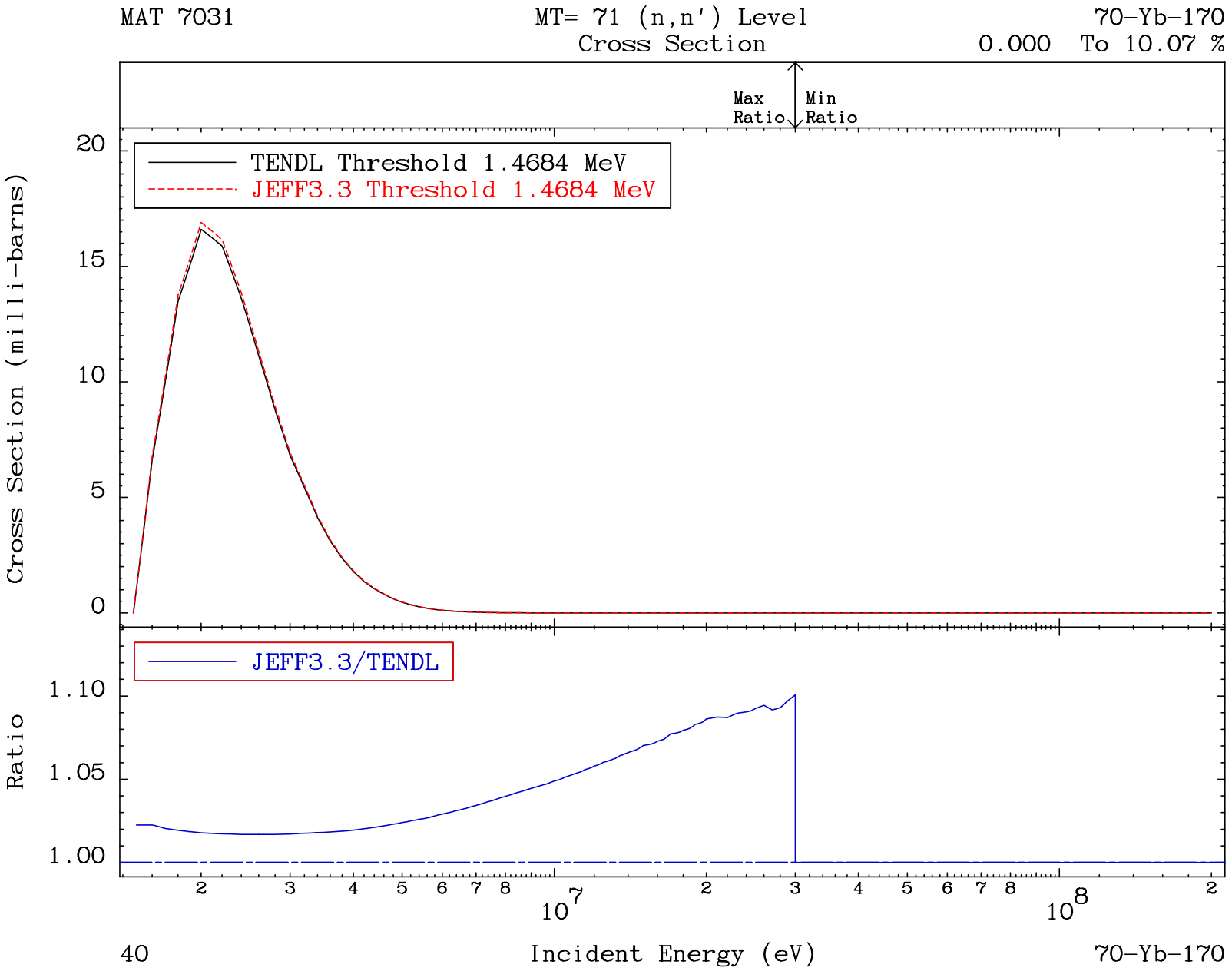

MAT 7031
MT= 66 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.948 %
Max
Ratio
Min
Ratio
TENDL Threshold 1.4053 MeV
JEFF3.3 Threshold 1.4053 MeV
Cross Section (milli-barns)
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
35
Incident Energy (eV)
70-Yb-170

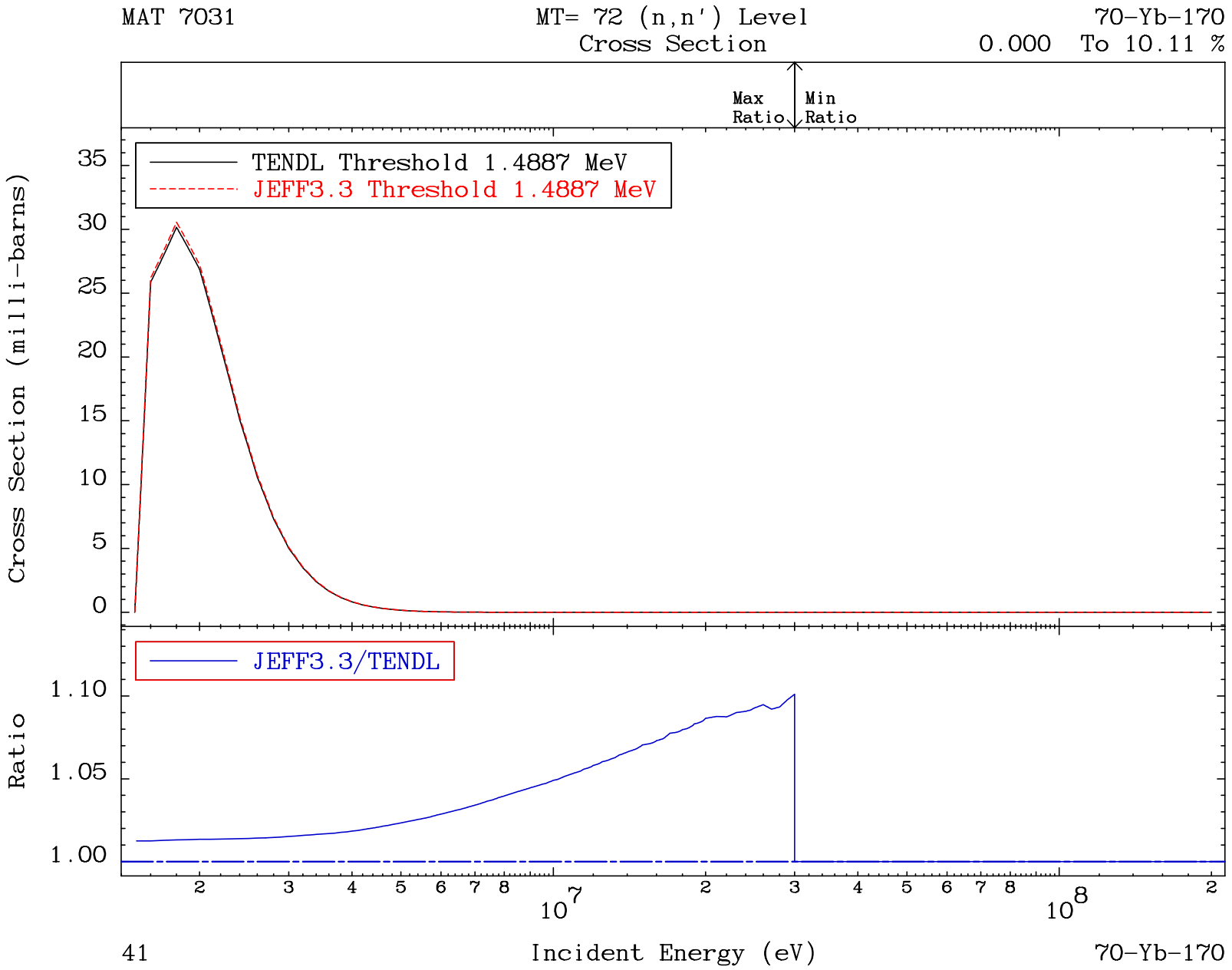

MAT 7031
MT= 67 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.155 %
Max
Ratio
Min
Ratio
TENDL Threshold 1.4171 MeV
JEFF3.3 Threshold 1.4171 MeV
Cross Section (milli-barns)
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
36
Incident Energy (eV)
70-Yb-170

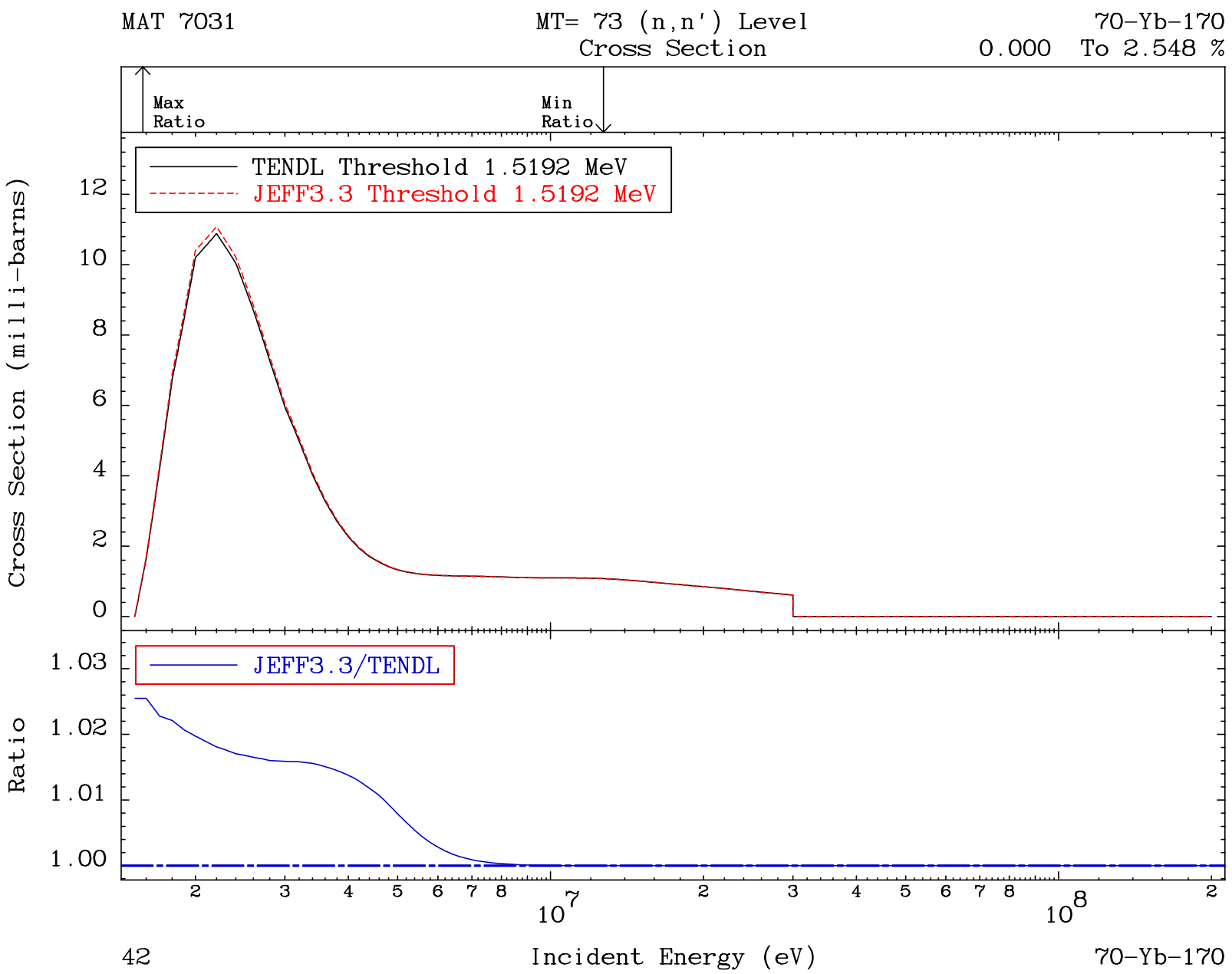

MAT 7031
MT= 68 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.10 %
Max Ratio
Min Ratio
TENDL Threshold 1.4337 MeV
JEFF3.3 Threshold 1.4337 MeV
Cross Section (milli-barns)
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
37
Incident Energy (eV)
70-Yb-170

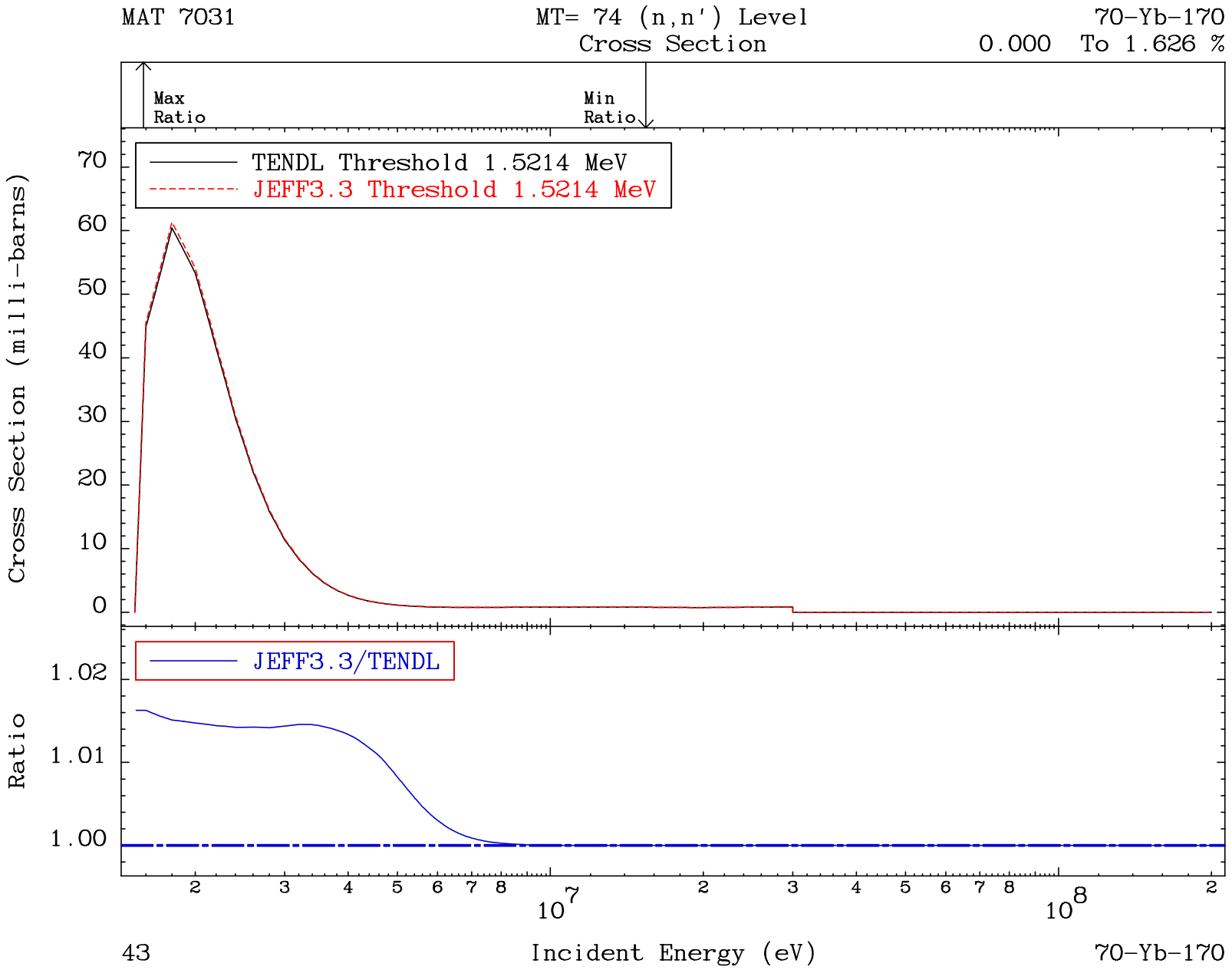

MAT 7031
MT= 69 (n,n') Level
Cross Section
70-Yb-170
0.000 To 3.757 %
Max Ratio
Min Ratio
TENDL Threshold 1.4461 MeV
JEFF3.3 Threshold 1.4461 MeV
Cross Section (micro-barns)
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
1.04
1.02
1.00
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
38
Incident Energy (eV)
70-Yb-170

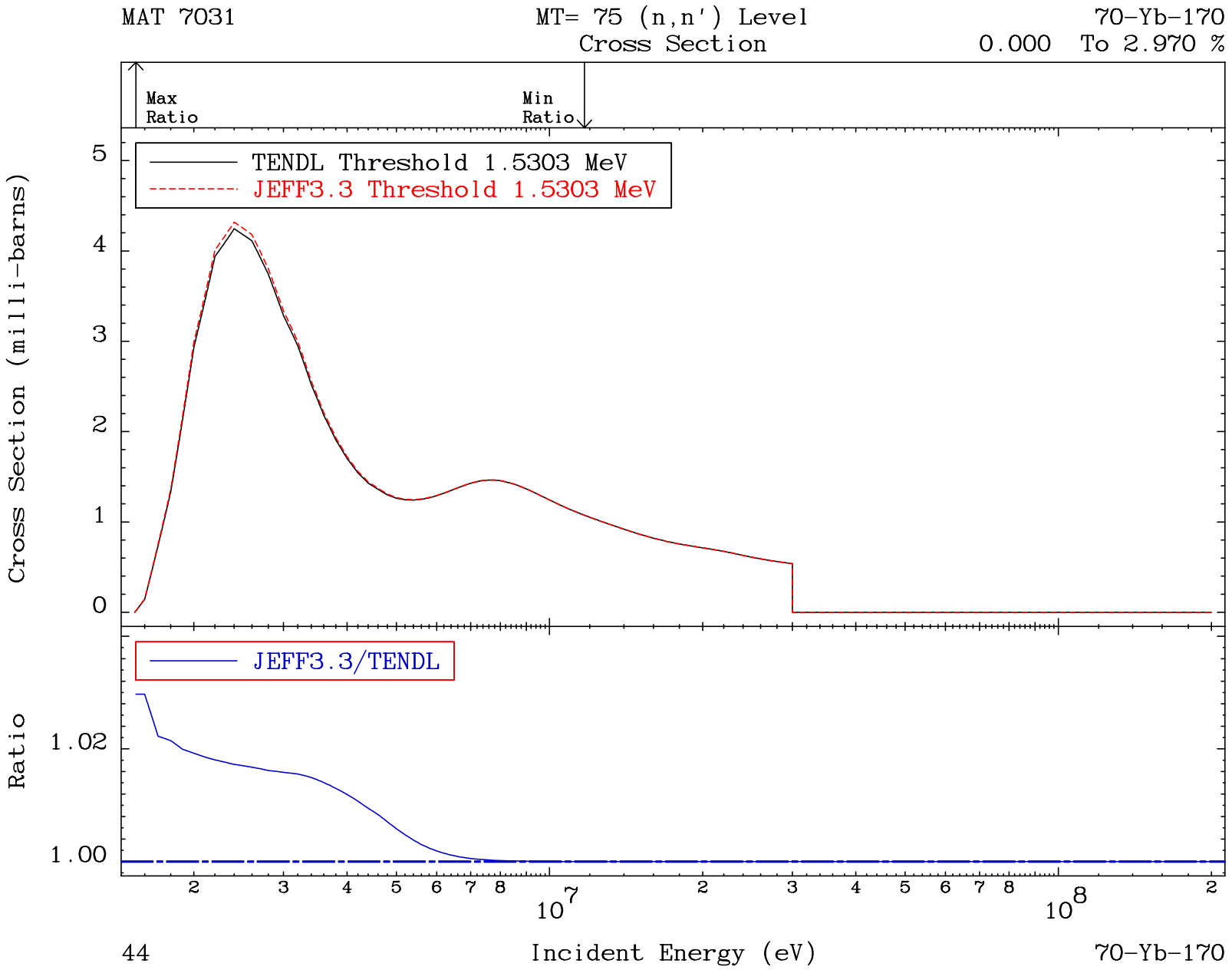

MAT 7031
MT= 70 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.05 %
Max Ratio
Min Ratio
TENDL Threshold 1.4590 MeV
JEFF3.3 Threshold 1.4590 MeV
Cross Section (milli-barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
39
70-Yb-170

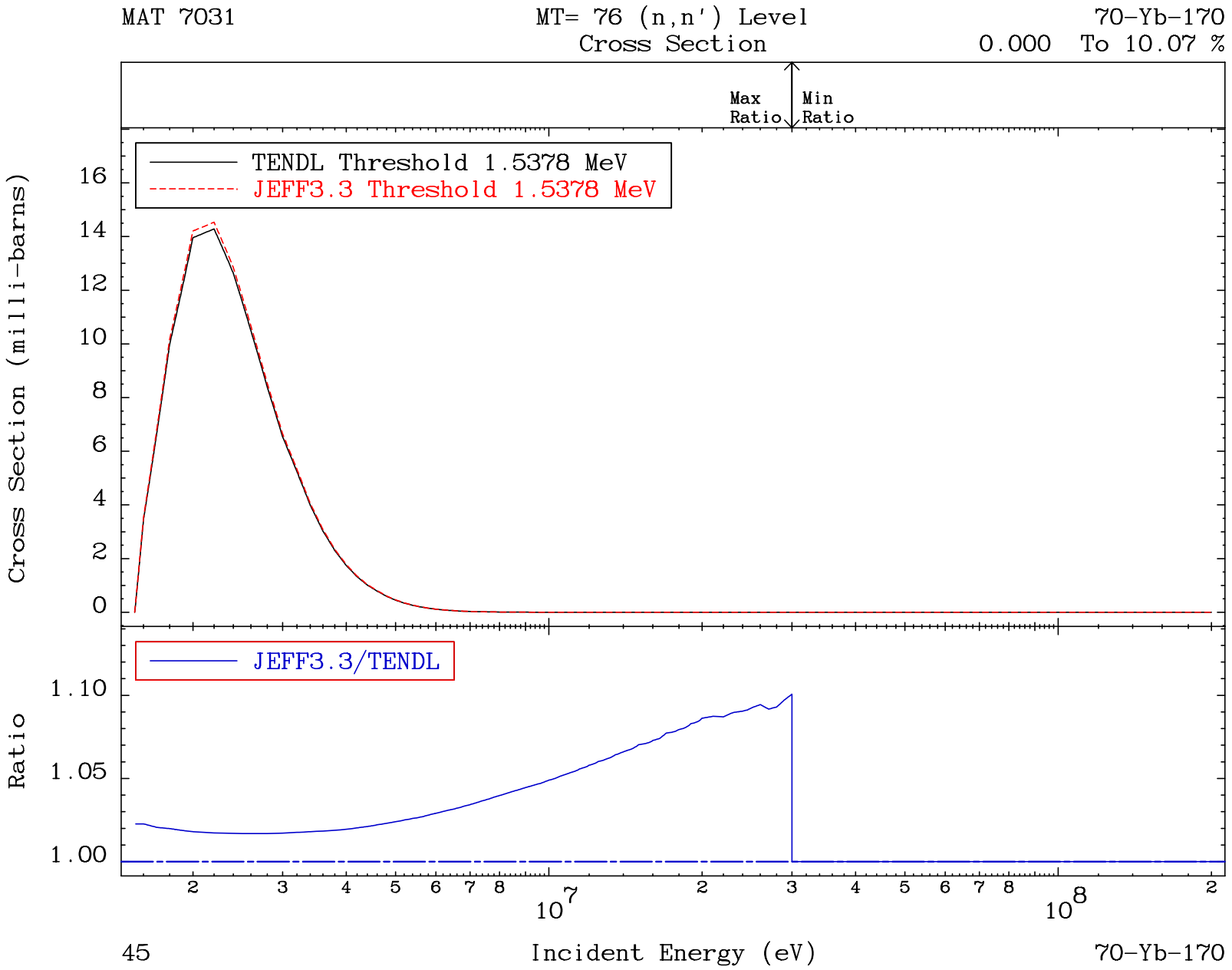

MAT 7031
MT= 71 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.07 %
Max Ratio
Min Ratio
TENDL Threshold 1.4684 MeV
JEFF3.3 Threshold 1.4684 MeV
Cross Section (milli-barns)
20
15
10
5
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
40
Incident Energy (eV)
70-Yb-170

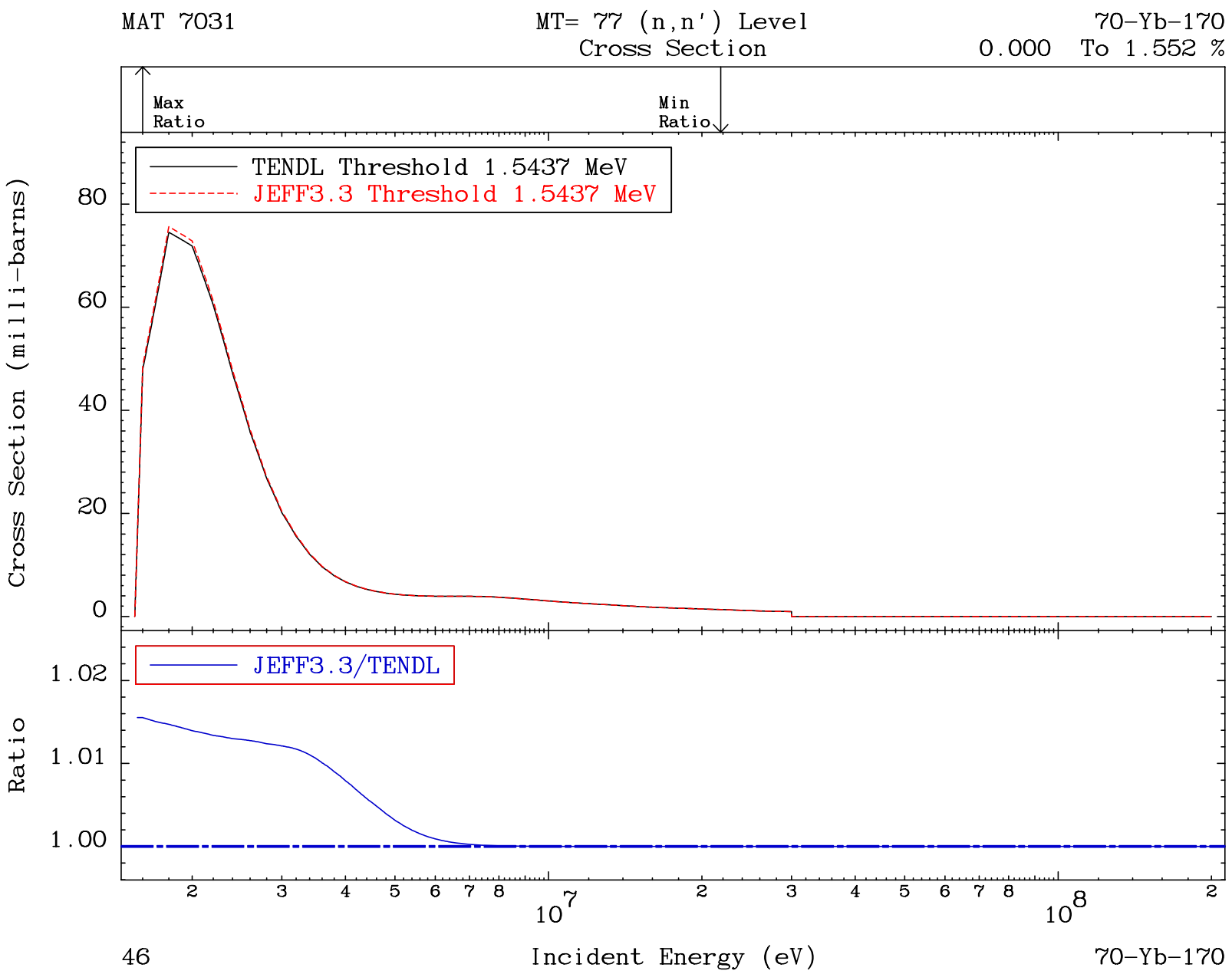

MAT 7031
MT= 72 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.11 %
Max Ratio
Min Ratio
TENDL Threshold 1.4887 MeV
JEFF3.3 Threshold 1.4887 MeV
Cross Section (milli-barns)
35
30
25
20
15
10
5
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
41
Incident Energy (eV)
70-Yb-170

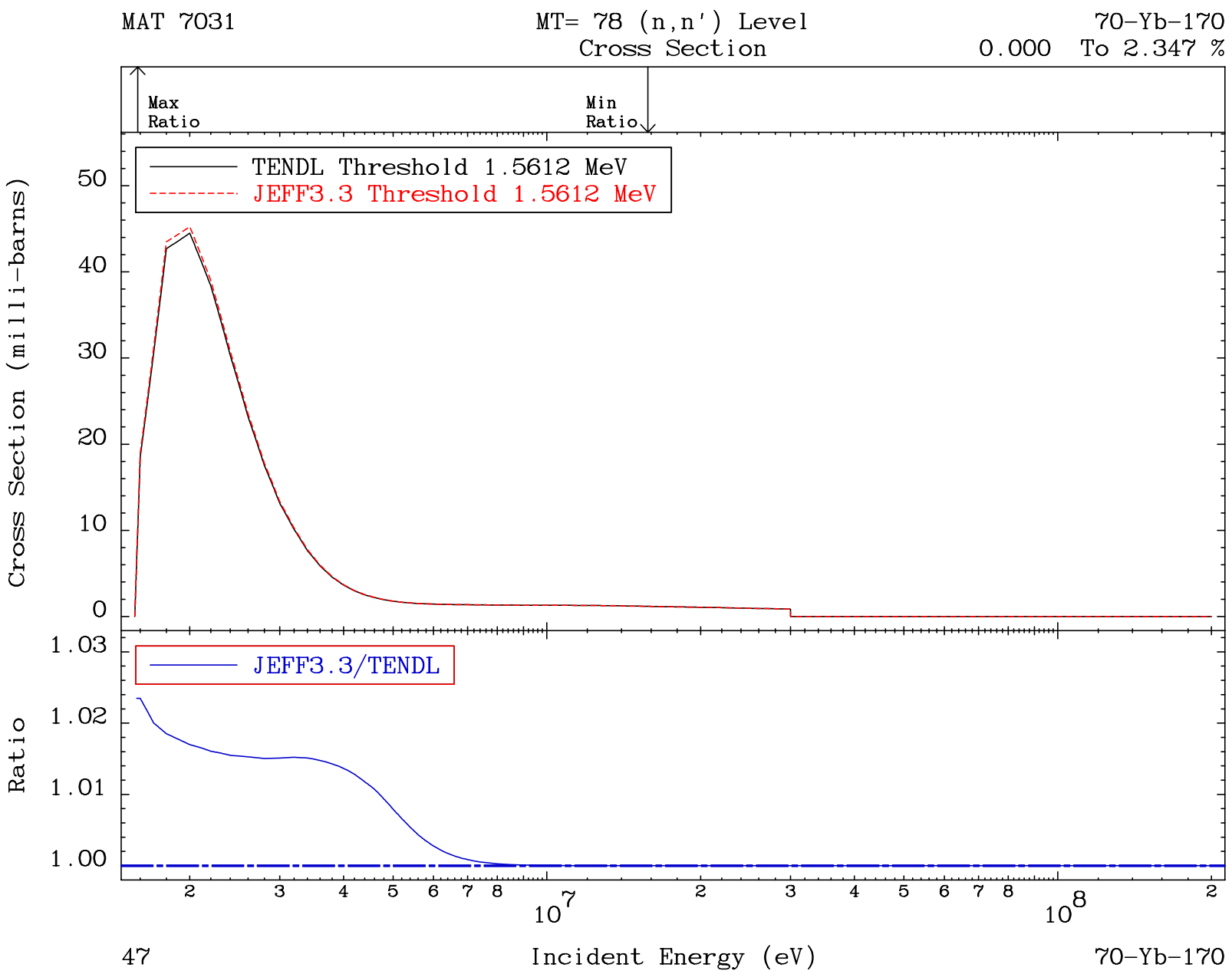

MAT 7031
MT= 73 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.548 %
Max Ratio
Min Ratio
TENDL Threshold 1.5192 MeV
JEFF3.3 Threshold 1.5192 MeV
Cross Section (milli-barns)
0
2
4
6
8
10
12
JEFF3.3/TENDL
Ratio
1.00
1.01
1.02
1.03
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
42
Incident Energy (eV)
70-Yb-170

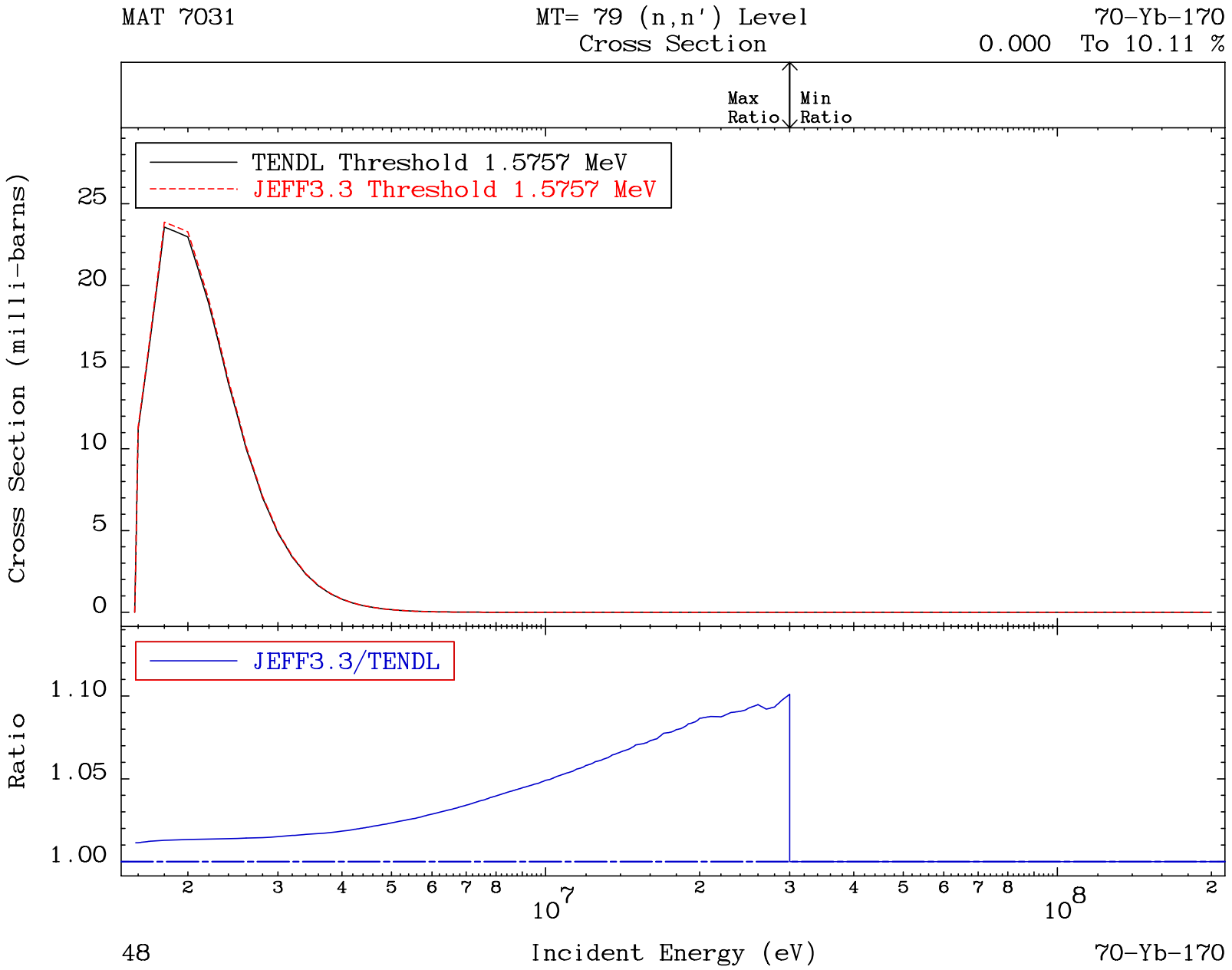

MAT 7031
MT= 74 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.626 %
Max Ratio
Min Ratio
TENDL Threshold 1.5214 MeV
JEFF3.3 Threshold 1.5214 MeV
Cross Section (milli-barns)
70
60
50
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
43
Incident Energy (eV)
70-Yb-170

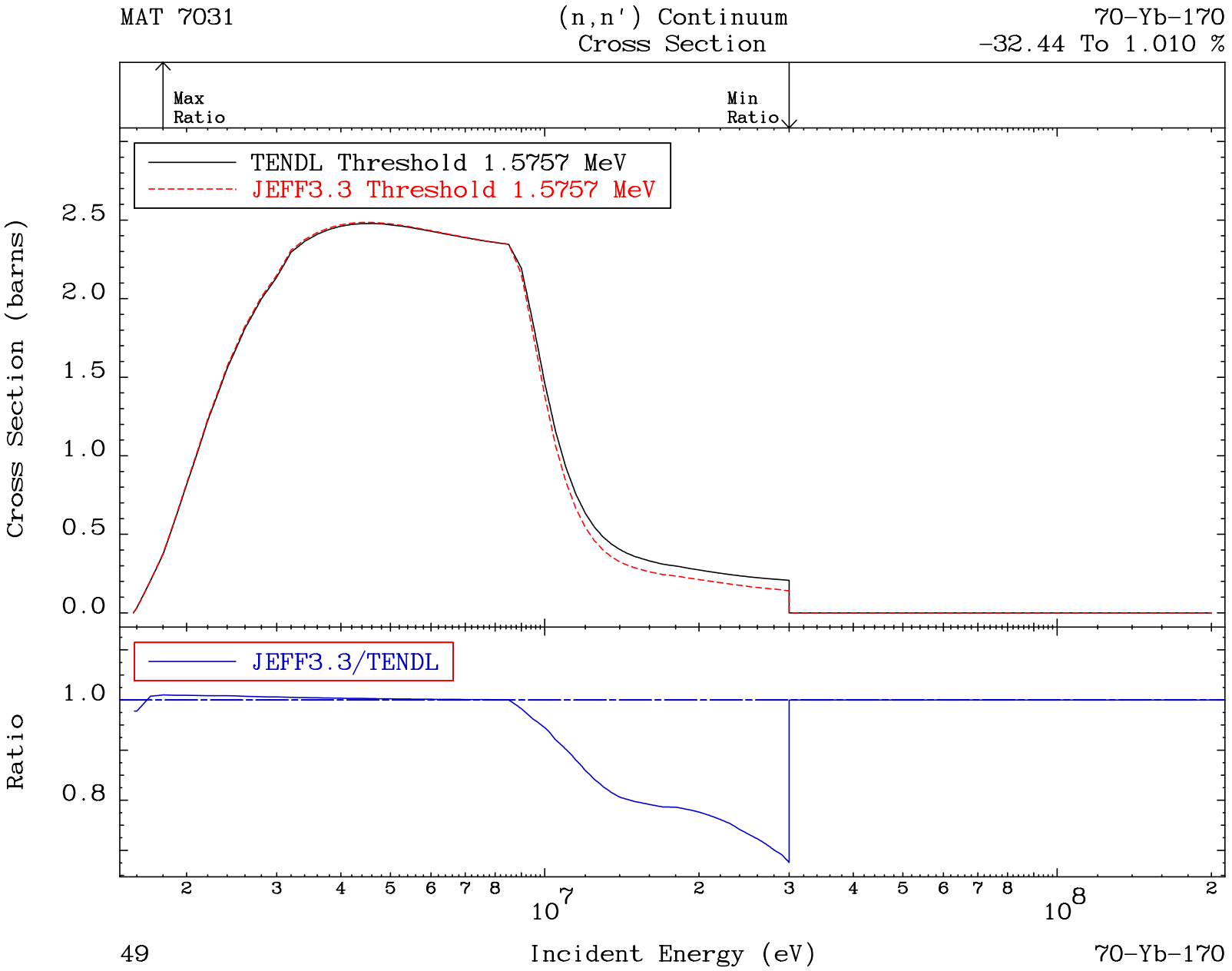

MAT 7031
MT= 75 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.970 %
Max Ratio
Min Ratio
TENDL Threshold 1.5303 MeV
JEFF3.3 Threshold 1.5303 MeV
Cross Section (milli-barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
44
70-Yb-170

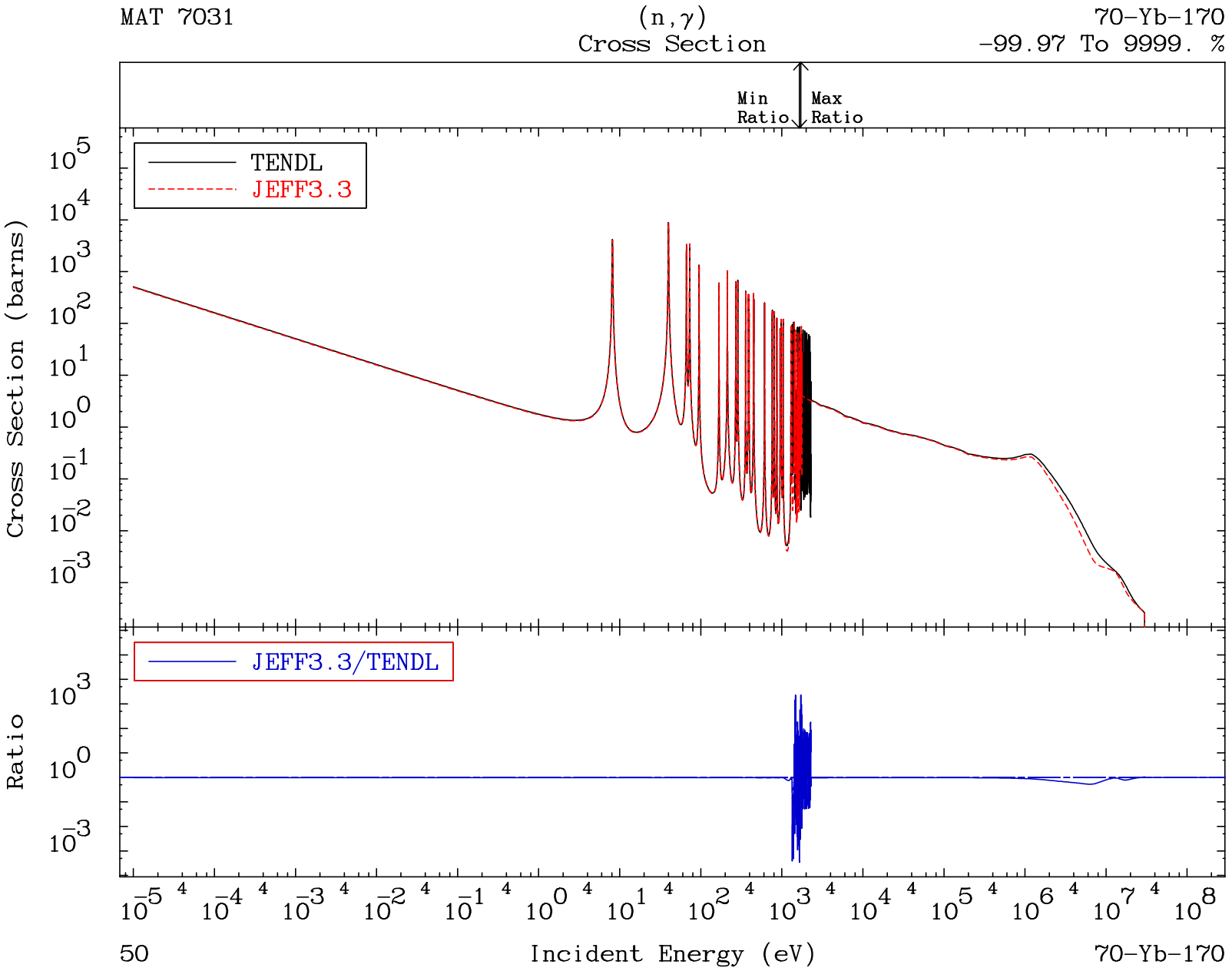

MAT 7031
MT= 76 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.07 %
Max Ratio
Min Ratio
TENDL Threshold 1.5378 MeV
JEFF3.3 Threshold 1.5378 MeV
Cross Section (milli-barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
45
70-Yb-170

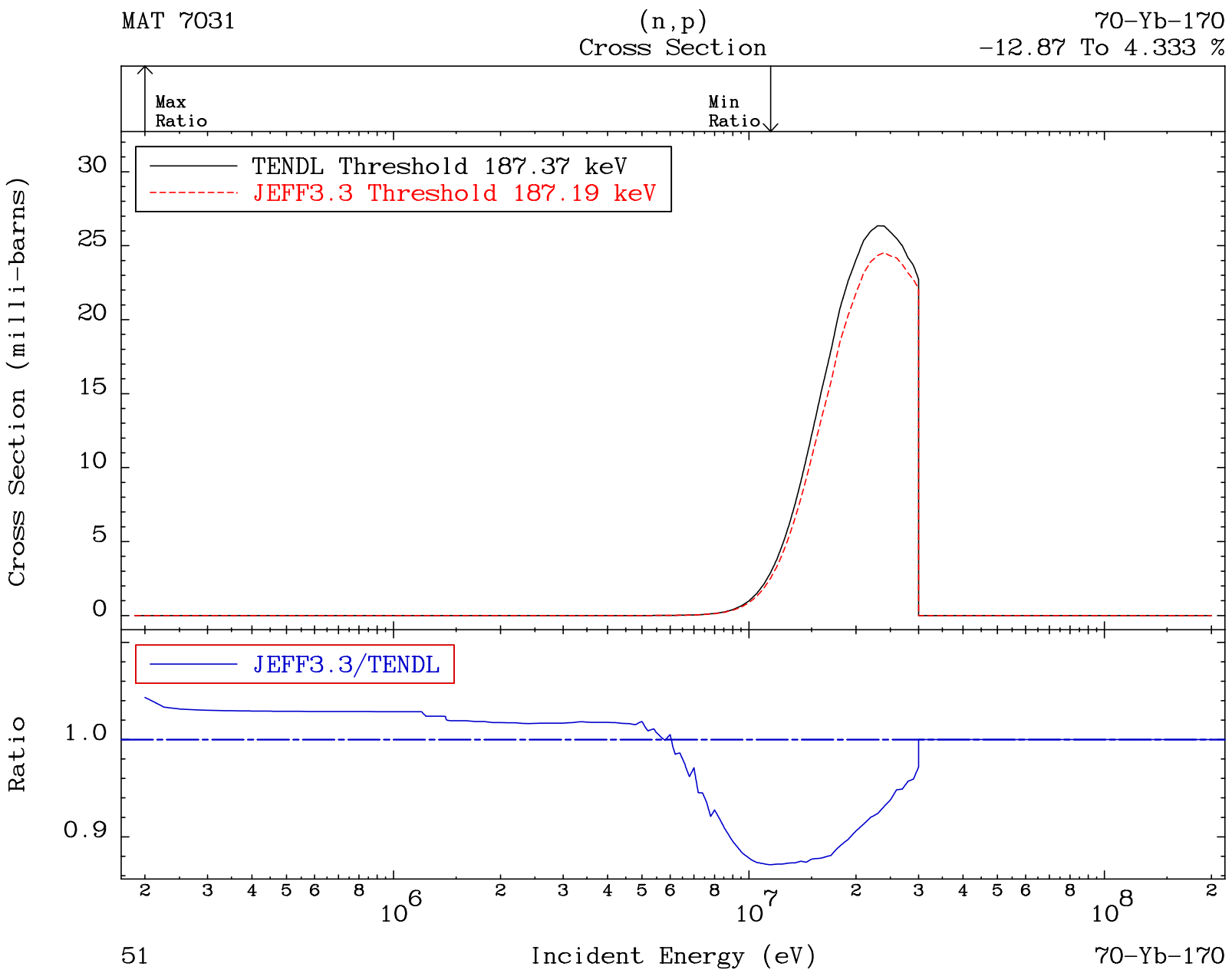

MAT 7031
MT= 77 (n,n') Level
Cross Section
70-Yb-170
0.000 To 1.552 %
Max Ratio
Min Ratio
TENDL Threshold 1.5437 MeV
JEFF3.3 Threshold 1.5437 MeV
Cross Section (milli-barns)
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.02
1.01
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
46
Incident Energy (eV)
70-Yb-170

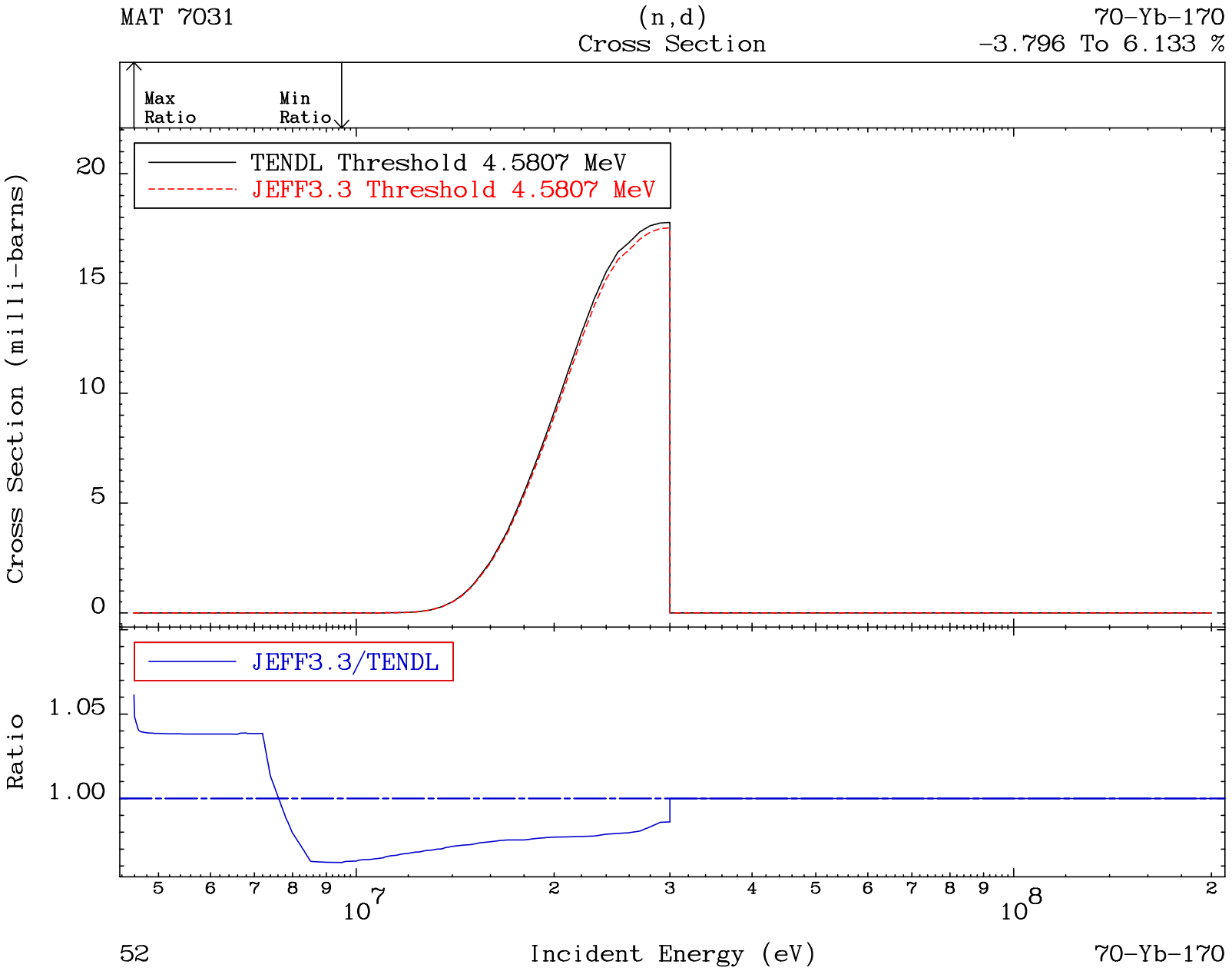

MAT 7031
MT= 78 (n,n') Level
Cross Section
70-Yb-170
0.000 To 2.347 %
Max
Ratio
Min
Ratio
TENDL Threshold 1.5612 MeV
JEFF3.3 Threshold 1.5612 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
JEFF3.3/TENDL
Ratio
1.03
1.02
1.01
1.00
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
47
Incident Energy (eV)
70-Yb-170

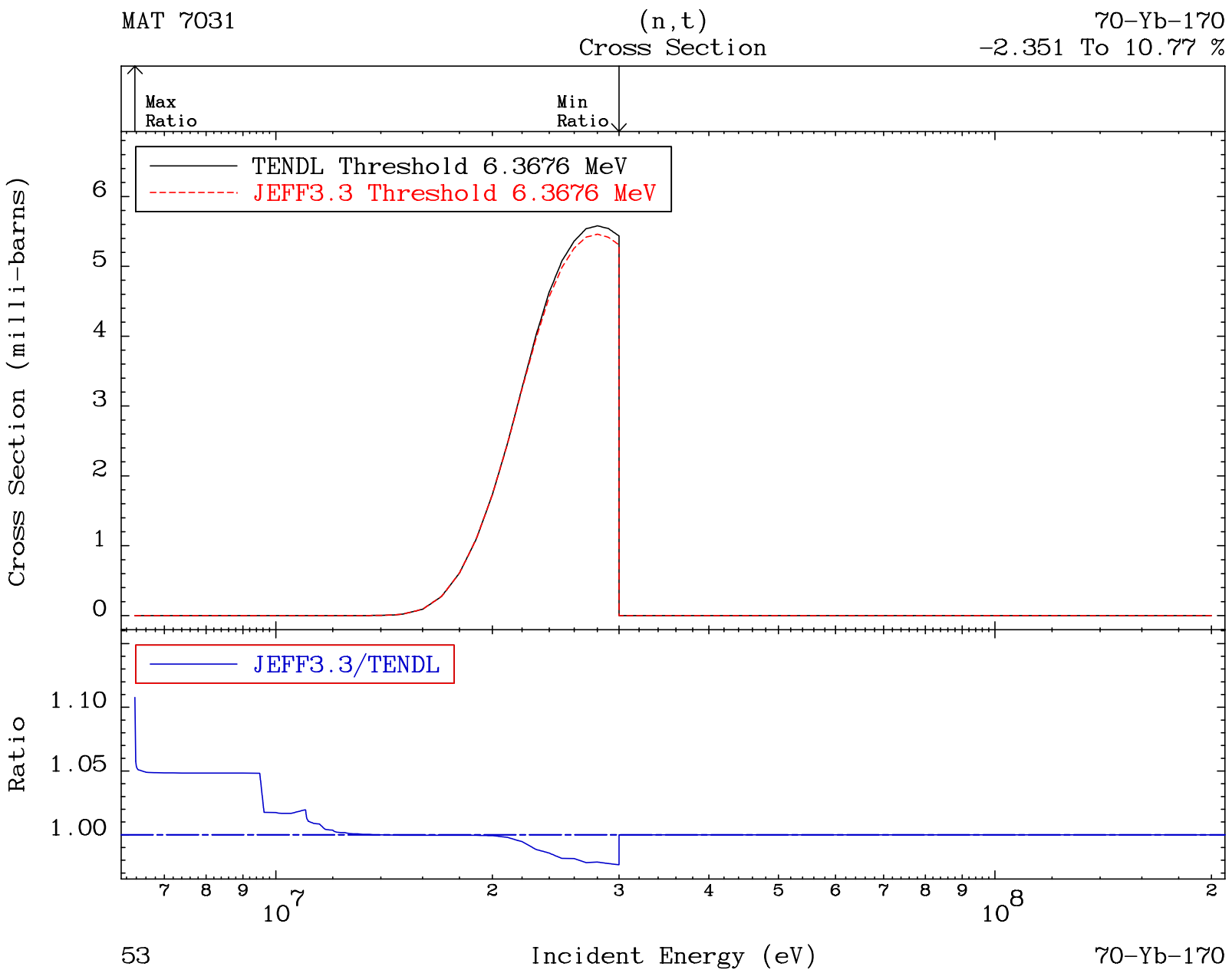

MAT 7031
MT= 79 (n,n') Level
Cross Section
70-Yb-170
0.000 To 10.11 %
Max Ratio
Min Ratio
TENDL Threshold 1.5757 MeV
JEFF3.3 Threshold 1.5757 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
48
Incident Energy (eV)
70-Yb-170

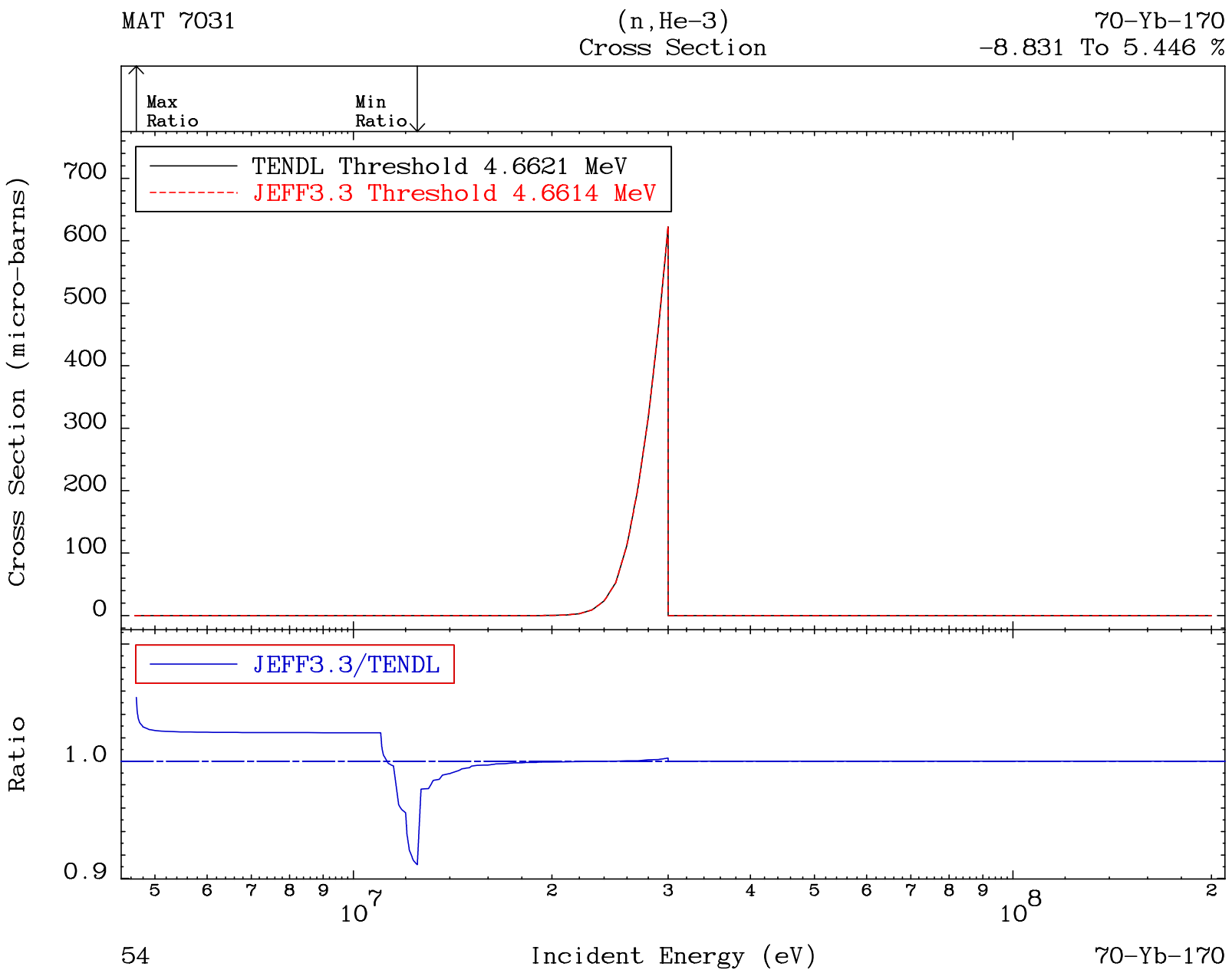

MAT 7031
(n,n') Continuum
Cross Section
70-Yb-170
-32.44 To 1.010 %
Max
Ratio
Min
Ratio
TENDL Threshold 1.5757 MeV
JEFF3.3 Threshold 1.5757 MeV
Cross Section (barns)
2.5
2.0
1.5
1.0
0.5
0.0
JEFF3.3/TENDL
Ratio
1.0
0.8
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
49
Incident Energy (eV)
70-Yb-170

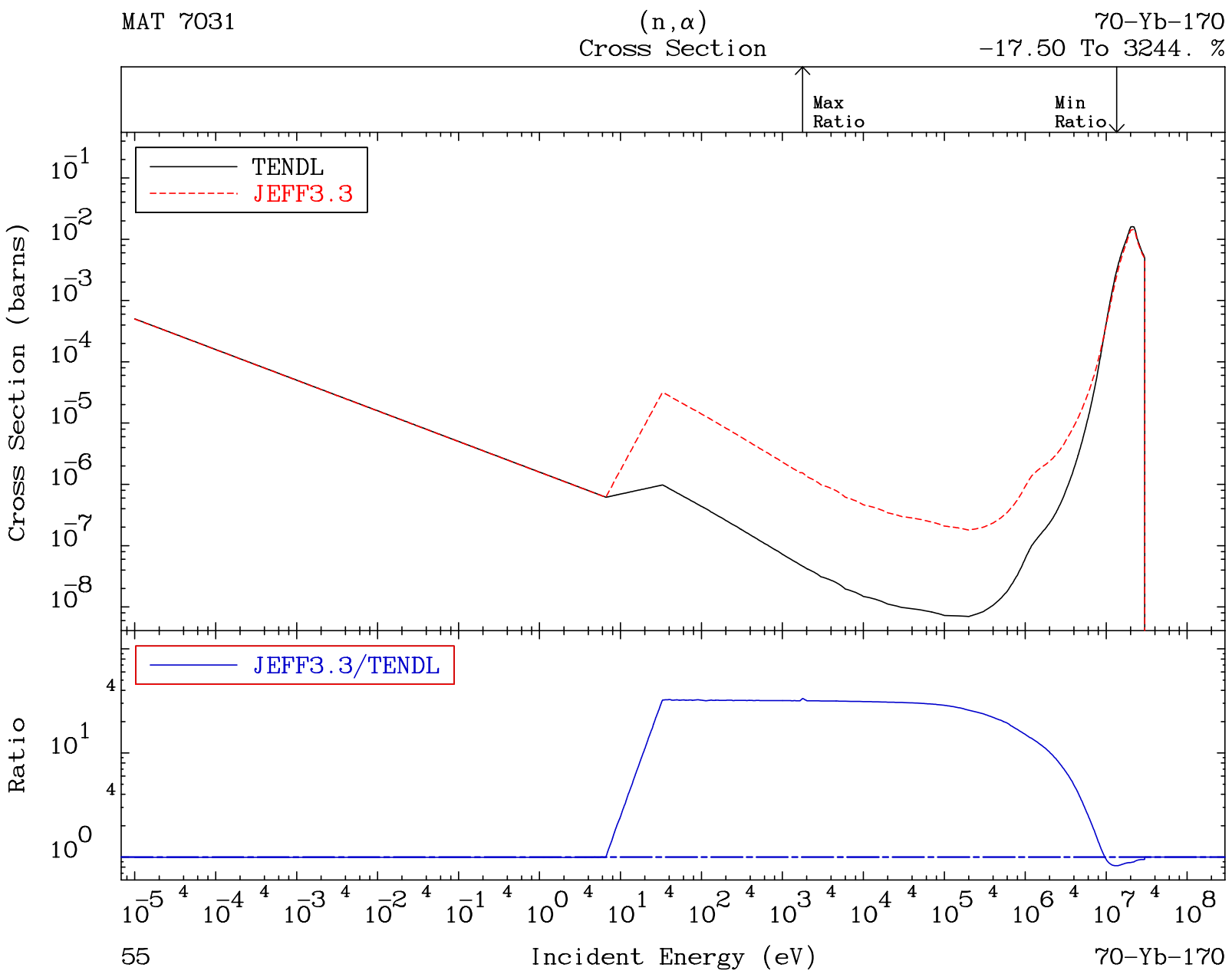

MAT 7031
(n,γ)
Cross Section
70-Yb-170
-99.97 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
50
70-Yb-170

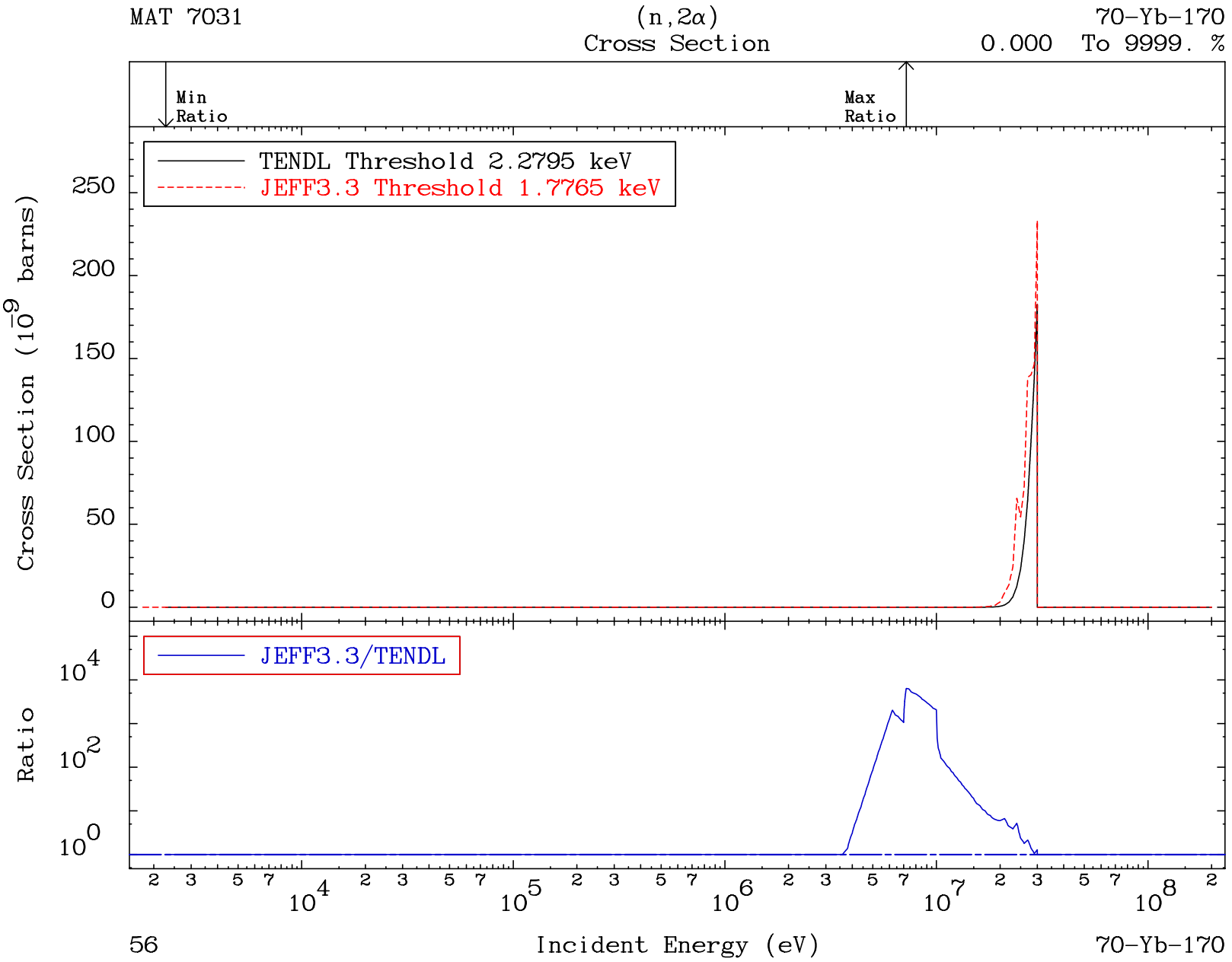

MAT 7031
(n,p)
Cross Section
70-Yb-170
-12.87 To 4.333 %
Max Ratio
Min Ratio
TENDL Threshold 187.37 keV
JEFF3.3 Threshold 187.19 keV
Cross Section (milli-barns)
30
25
20
15
10
5
0
JEFF3.3/TENDL
Ratio
1.0
0.9
2 3 4 5 6 8 10^6 2 3 4 5 6 8 10^7 2 3 4 5 6 8 10^8 2
51
Incident Energy (eV)
70-Yb-170

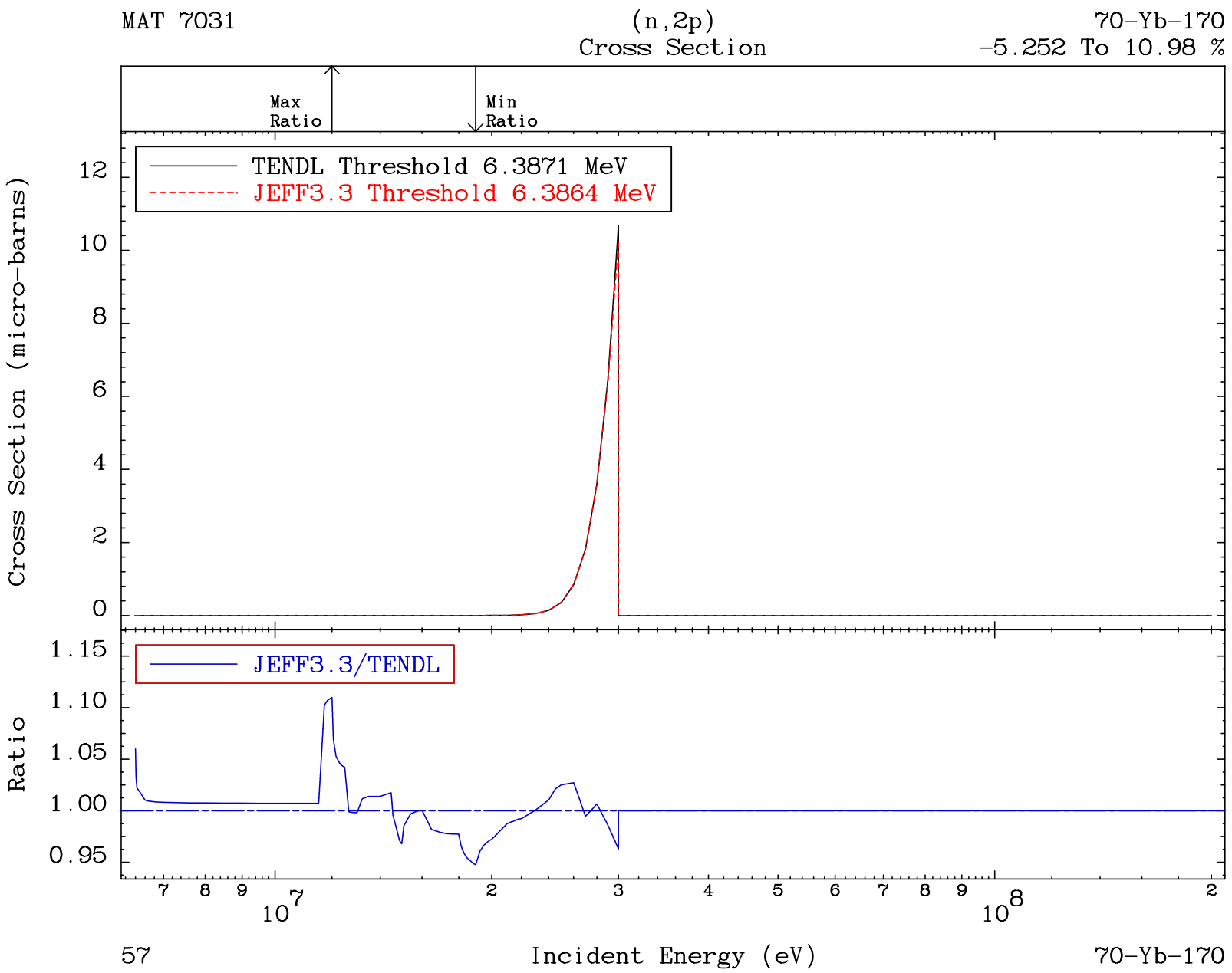

MAT 7031
(n,d)
Cross Section
70-Yb-170
-3.796 To 6.133 %
Max Ratio
Min Ratio
TENDL Threshold 4.5807 MeV
JEFF3.3 Threshold 4.5807 MeV
Cross Section (milli-barns)
20
15
10
5
0
JEFF3.3/TENDL
Ratio
1.05
1.00
5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
52
Incident Energy (eV)
70-Yb-170

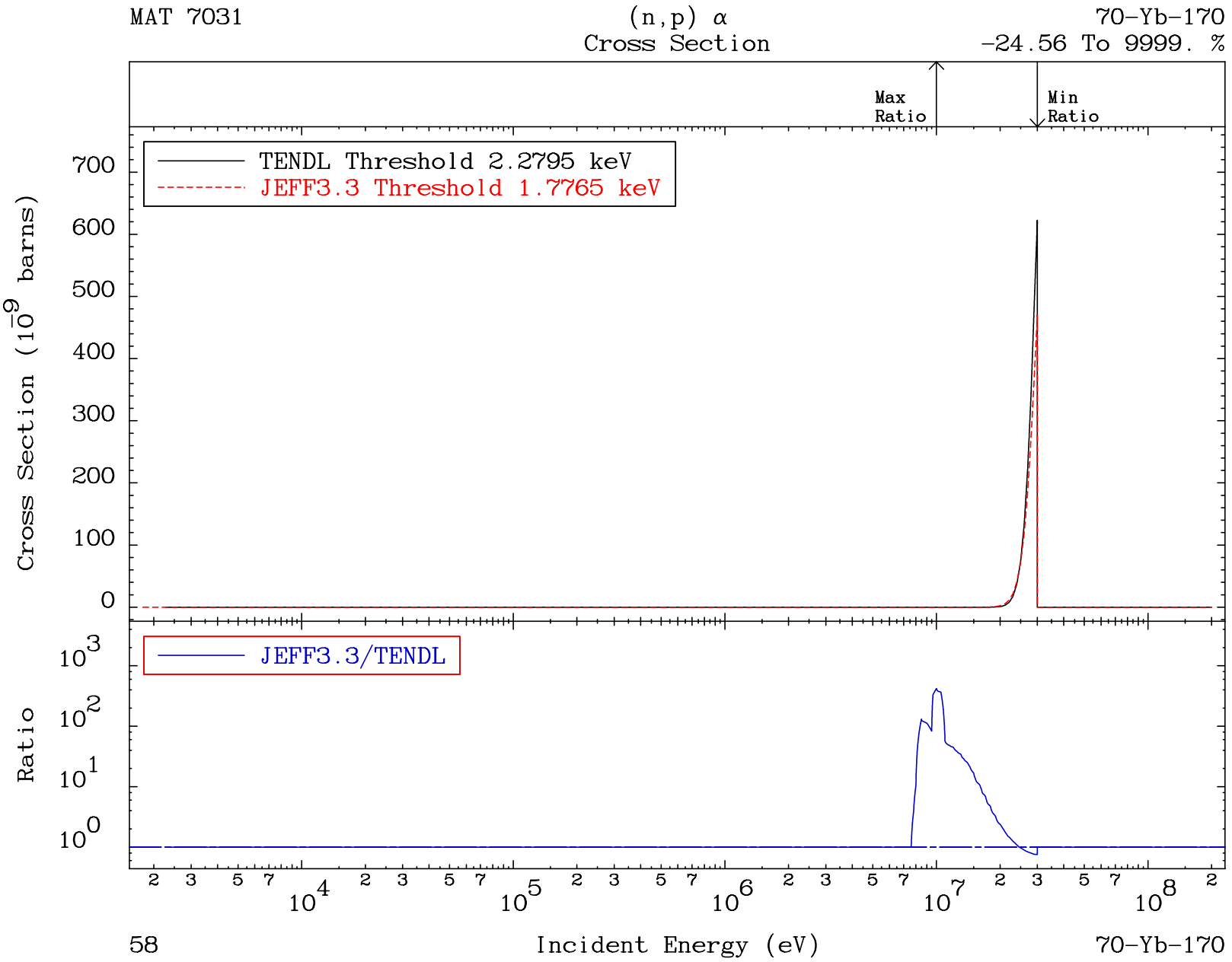

MAT 7031
(n,t)
Cross Section
70-Yb-170
-2.351 To 10.77 %
Max Ratio
Min Ratio
TENDL Threshold 6.3676 MeV
JEFF3.3 Threshold 6.3676 MeV
Cross Section (milli-barns)
0
1
2
3
4
5
6
JEFF3.3/TENDL
Ratio
1.10
1.05
1.00
7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
53
Incident Energy (eV)
70-Yb-170

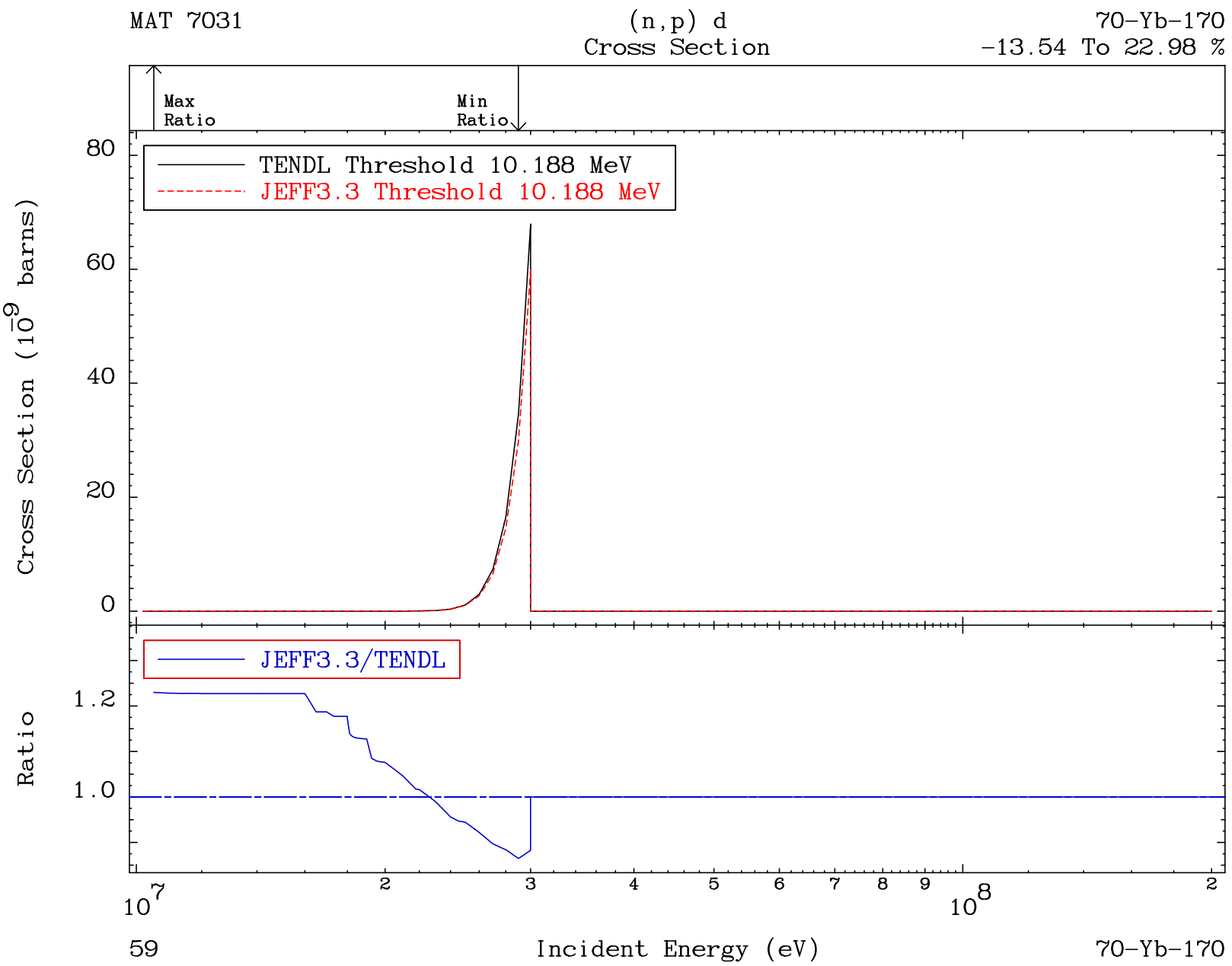

MAT 7031
(n,He-3)
Cross Section
70-Yb-170
-8.831 To 5.446 %
Max Ratio
Min Ratio
TENDL Threshold 4.6621 MeV
JEFF3.3 Threshold 4.6614 MeV
Cross Section (micro-barns)
700
600
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
1.0
0.9
5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
54
Incident Energy (eV)
70-Yb-170

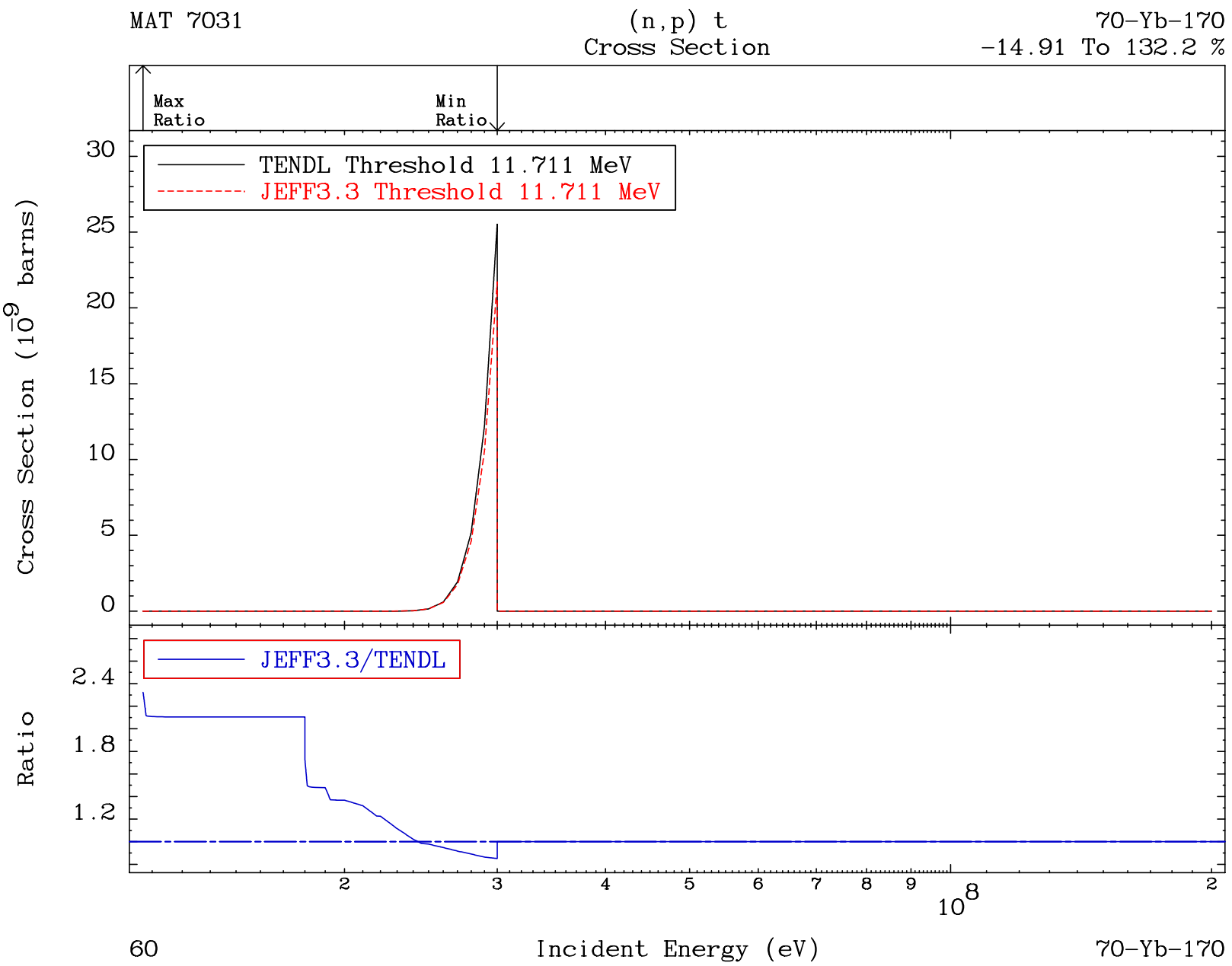

MAT 7031
(n,α)
Cross Section
70-Yb-170
-17.50 To 3244. %
Max Ratio
Min Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
55
70-Yb-170

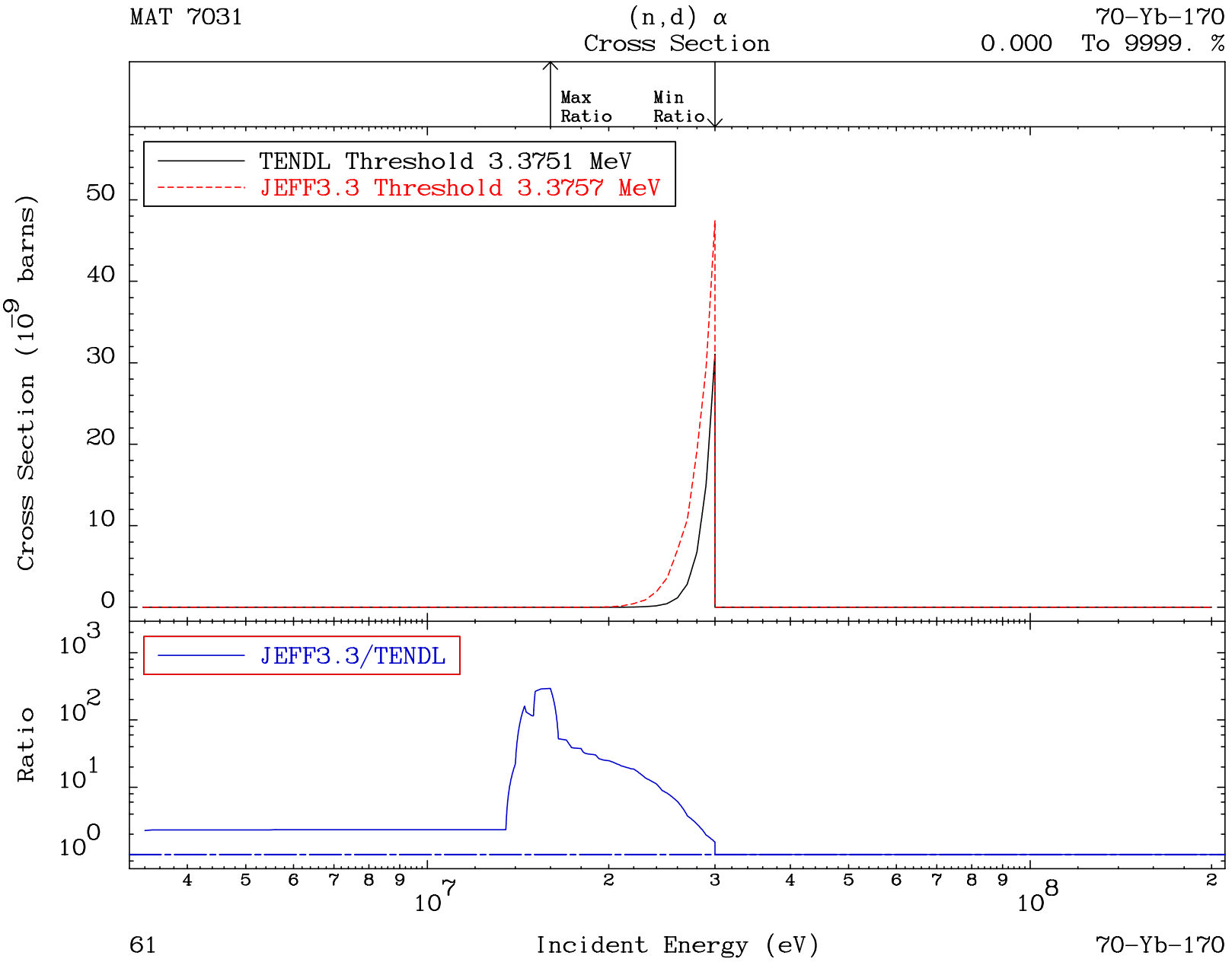

MAT 7031
(n,2α)
Cross Section
70-Yb-170
0.000 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 2.2795 keV
JEFF3.3 Threshold 1.7765 keV
Cross Section (10^{-9} barns)
250
200
150
100
50
0
JEFF3.3/TENDL
Ratio
10^4
10^2
10^0
2 3 5 7 10^4 2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
56
Incident Energy (eV)
70-Yb-170

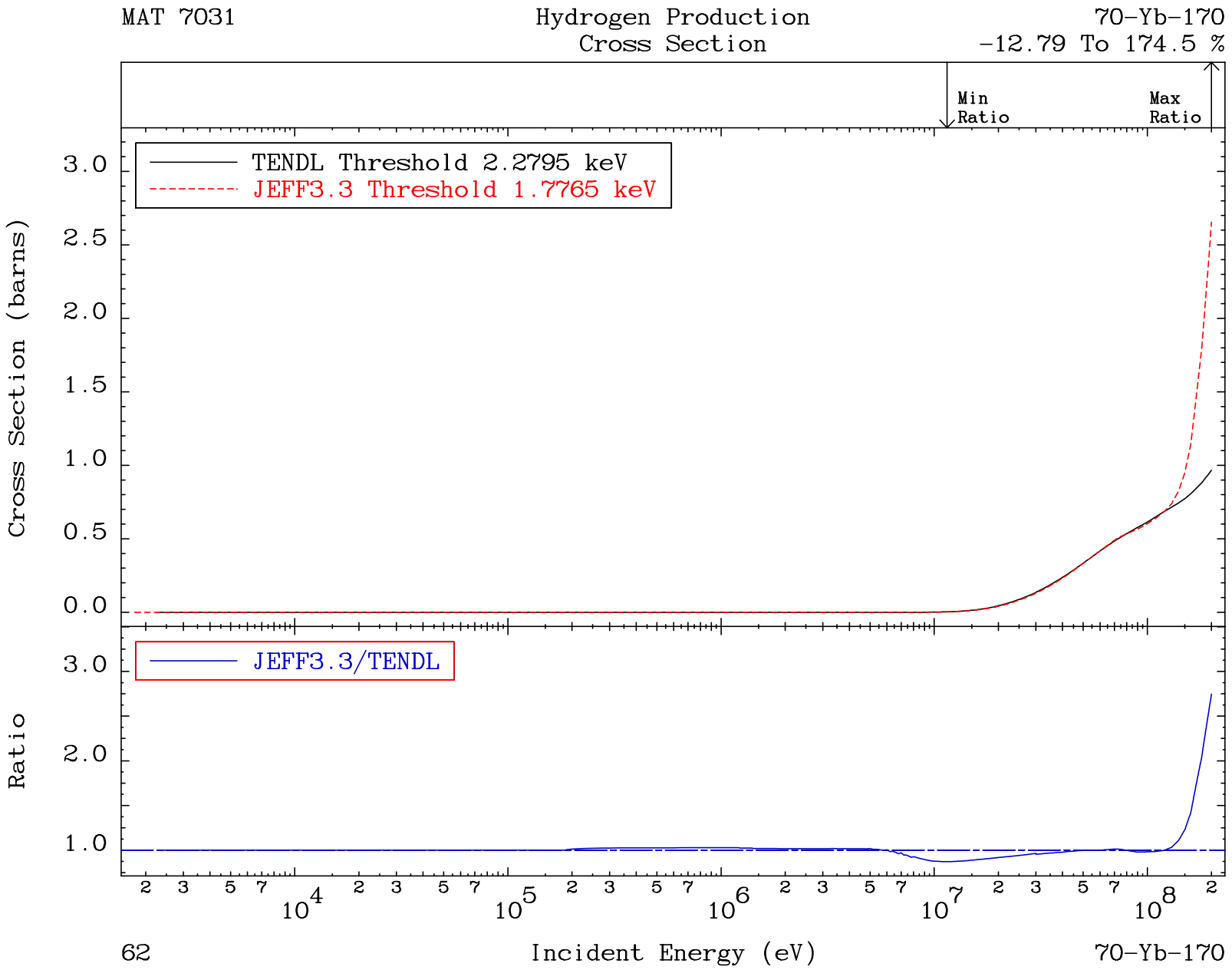

MAT 7031
(n,2p)
Cross Section
70-Yb-170
-5.252 To 10.98 %
Max Ratio
Min Ratio
TENDL Threshold 6.3871 MeV
JEFF3.3 Threshold 6.3864 MeV
Cross Section (micro-barns)
12
10
8
6
4
2
0
JEFF3.3/TENDL
Ratio
1.15
1.10
1.05
1.00
0.95
7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
57
Incident Energy (eV)
70-Yb-170

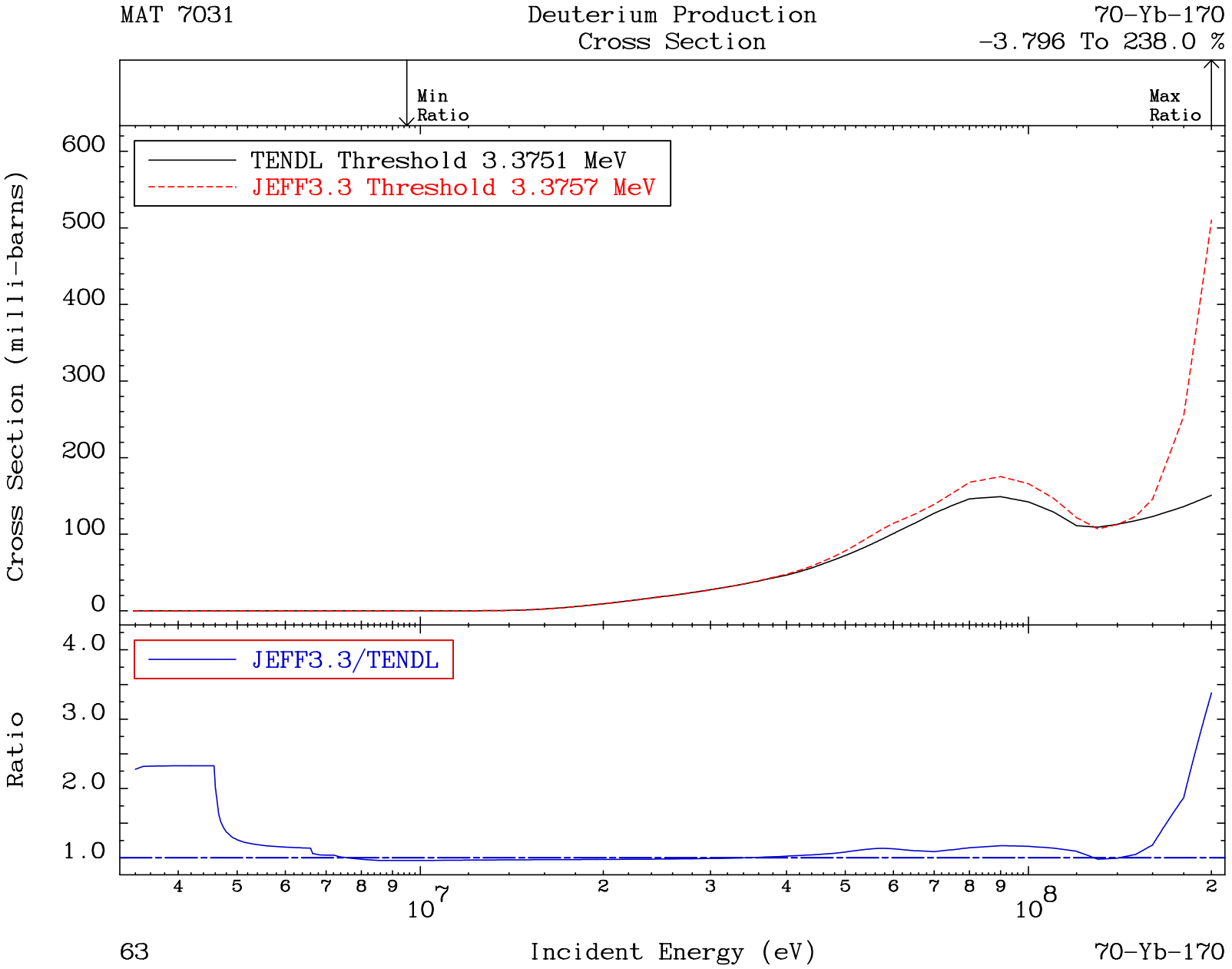

MAT 7031
(n,p) α
Cross Section
70-Yb-170
-24.56 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 2.2795 keV
JEFF3.3 Threshold 1.7765 keV
Cross Section (10^{-9} barns)
700
600
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
10^3
10^2
10^1
10^0
2 3 5 7 10^4 2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
58
Incident Energy (eV)
70-Yb-170

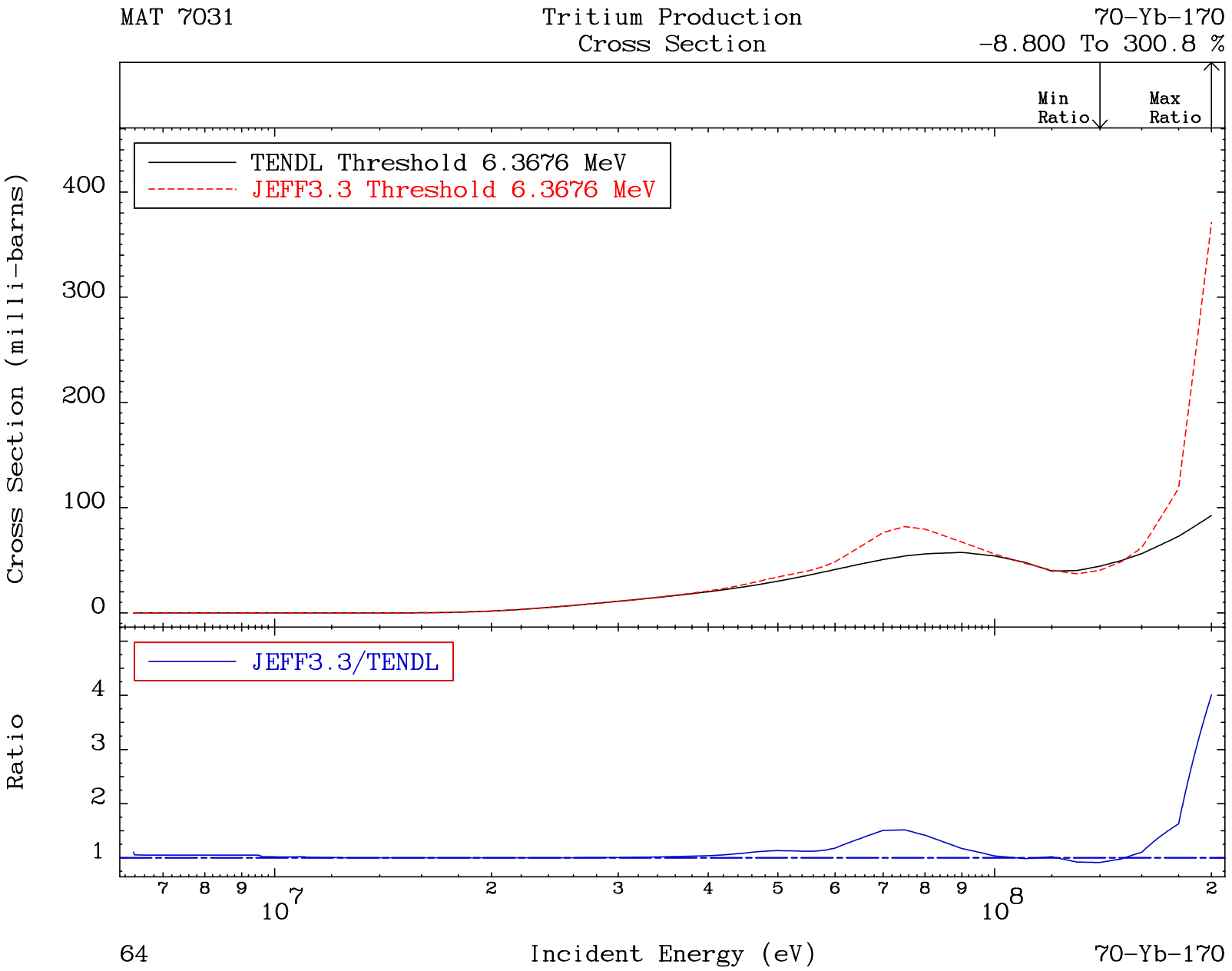

MAT 7031
(n,p) d
Cross Section
70-Yb-170
-13.54 To 22.98 %
Max Ratio
Min Ratio
TENDL Threshold 10.188 MeV
JEFF3.3 Threshold 10.188 MeV
Cross Section (10^{-9} barns)
80
60
40
20
0
JEFF3.3/TENDL
Ratio
1.2
1.0
10^{7}
2
3
4
5
6
7
8
9
10^{8}
2
59
Incident Energy (eV)
70-Yb-170

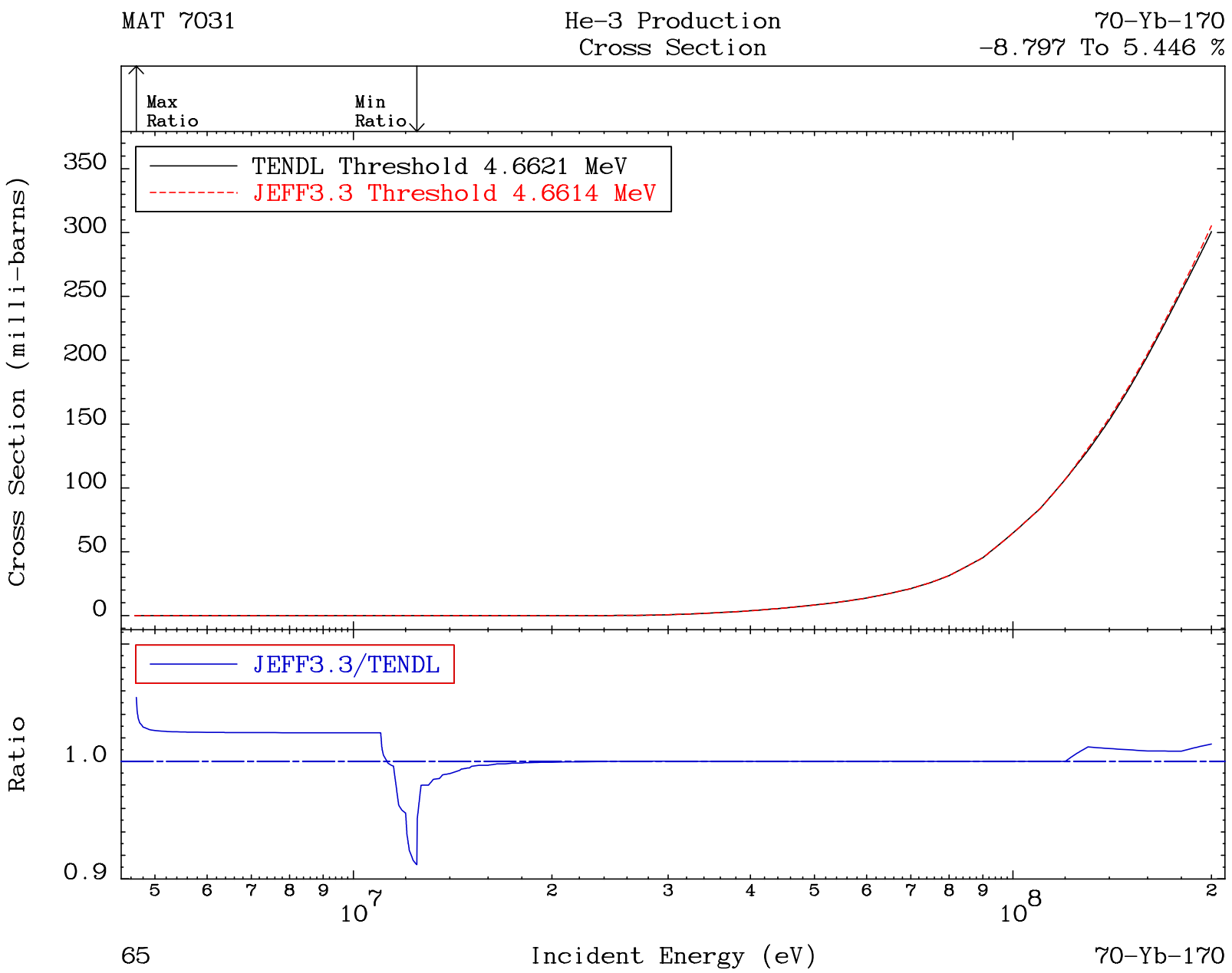

MAT 7031
(n,p) t
Cross Section
70-Yb-170
-14.91 To 132.2 %
Max Ratio
Min Ratio
TENDL Threshold 11.711 MeV
JEFF3.3 Threshold 11.711 MeV
Cross Section (10^{-9} barns)
30
25
20
15
10
5
0
JEFF3.3/TENDL
Ratio
2.4
1.8
1.2
2
3
4
5
6
7
8
9
10^8
2
60
Incident Energy (eV)
70-Yb-170

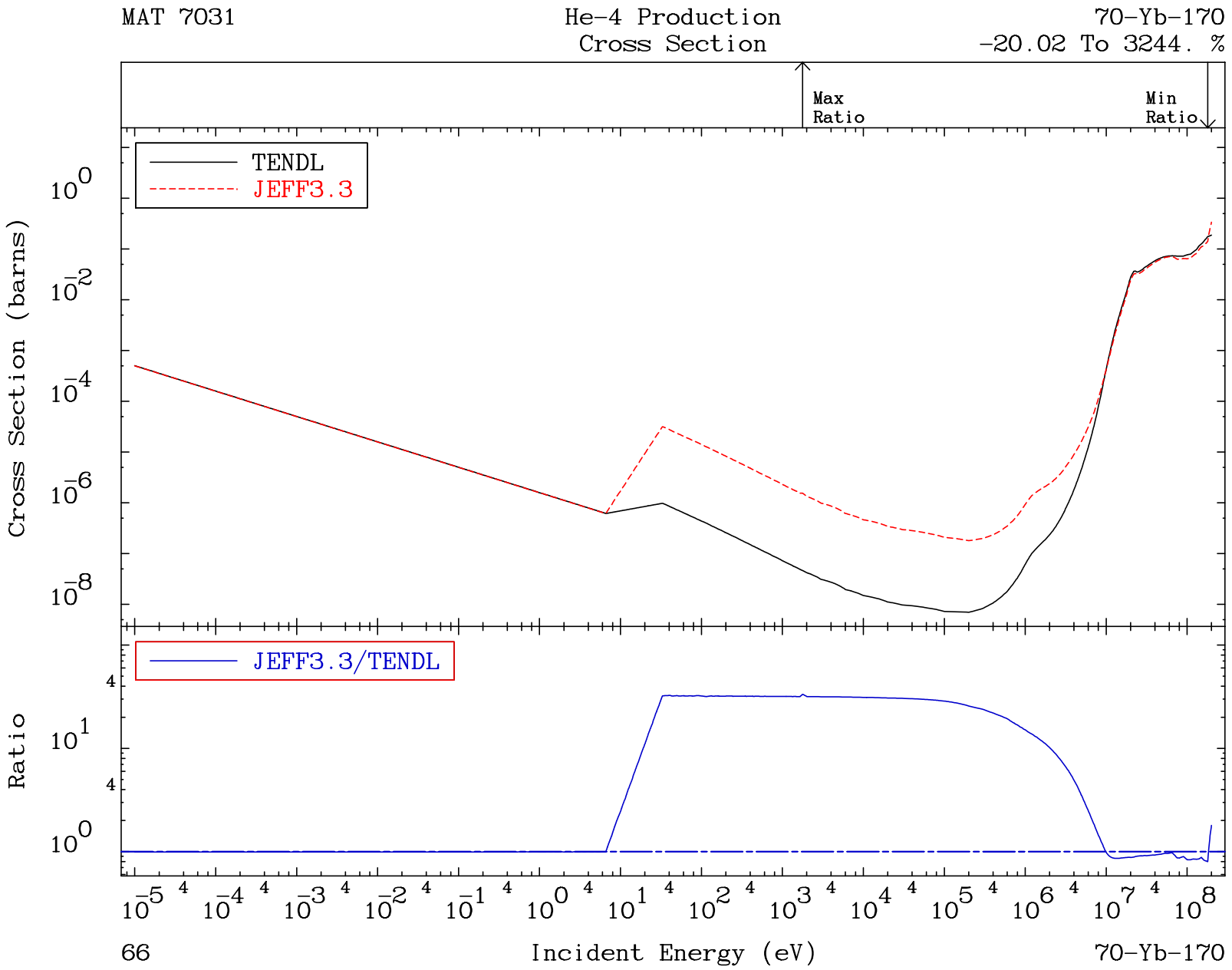

MAT 7031
(n,d) α
Cross Section
70-Yb-170
0.000 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 3.3751 MeV
JEFF3.3 Threshold 3.3757 MeV
Cross Section (10^{-9} barns)
50
40
30
20
10
0
JEFF3.3/TENDL
Ratio
10^3
10^2
10^1
10^0
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
61
Incident Energy (eV)
70-Yb-170

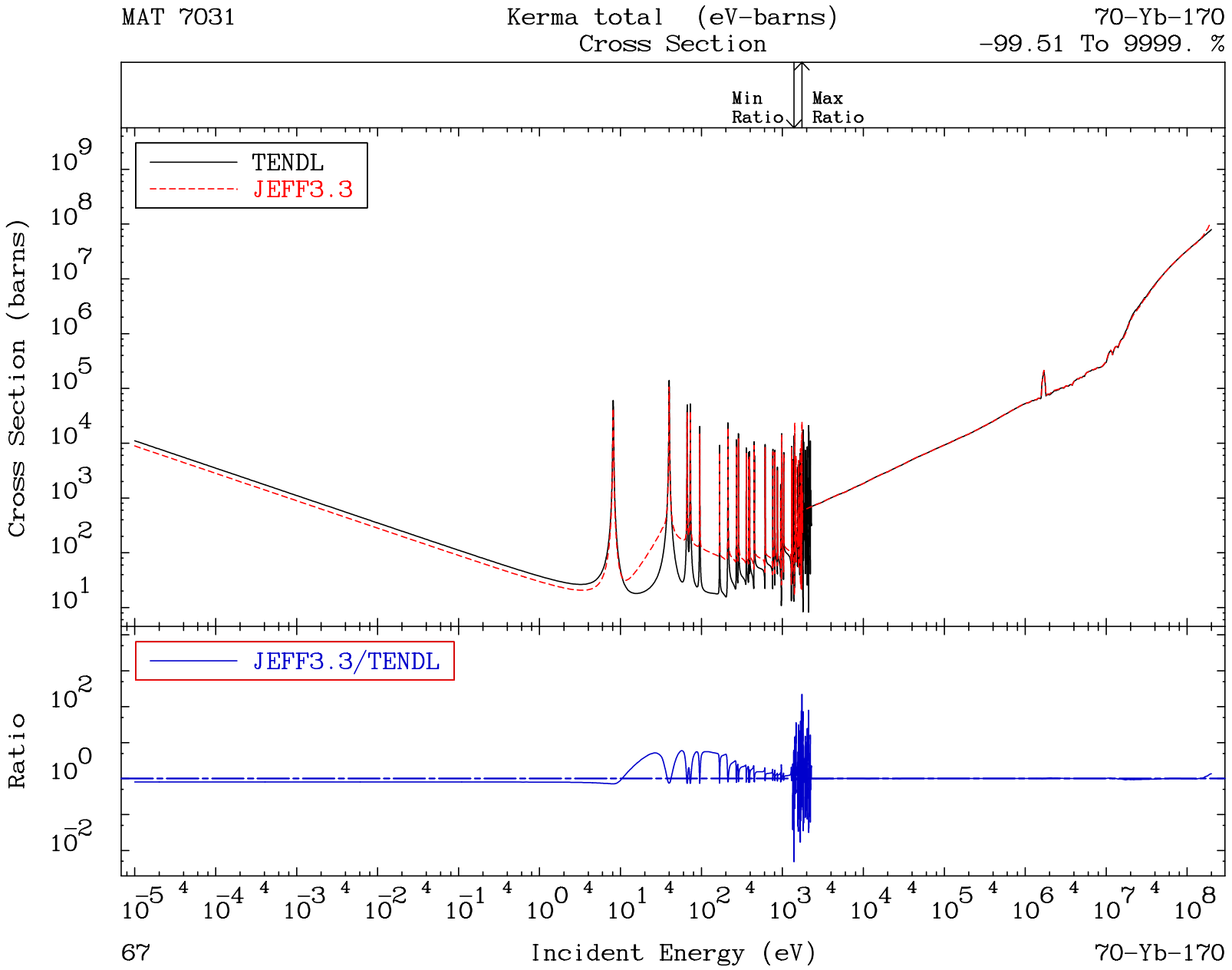

MAT 7031
Hydrogen Production
Cross Section
70-Yb-170
-12.79 To 174.5 %
Min Ratio
Max Ratio
TENDL Threshold 2.2795 keV
JEFF3.3 Threshold 1.7765 keV
Cross Section (barns)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
JEFF3.3/TENDL
Ratio
3.0
2.0
1.0
2 3 5 7 10^4 2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
62
Incident Energy (eV)
70-Yb-170

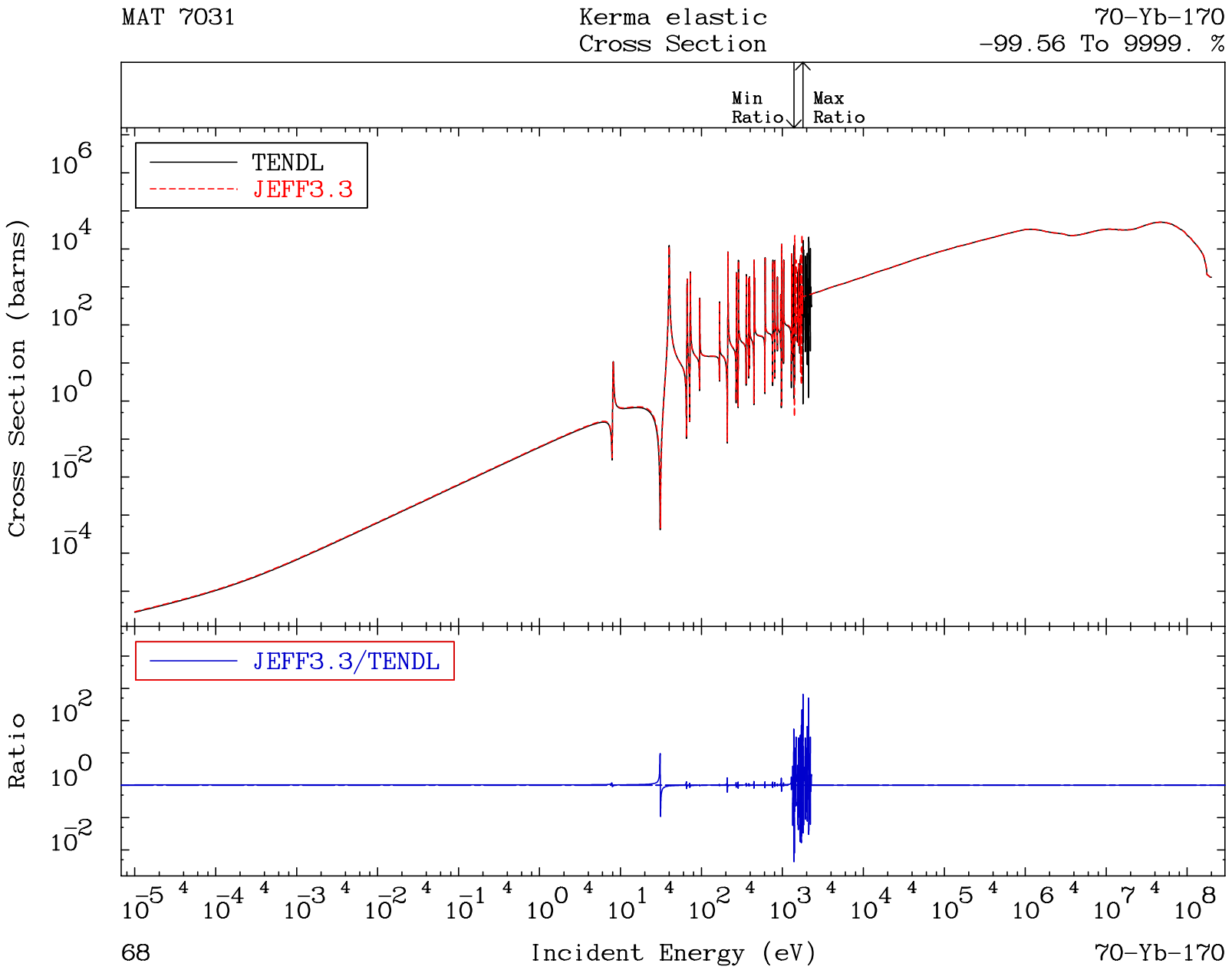

MAT 7031
Deuterium Production
Cross Section
70-Yb-170
-3.796 To 238.0 %
Min
Ratio
Max
Ratio
TENDL Threshold 3.3751 MeV
JEFF3.3 Threshold 3.3757 MeV
Cross Section (milli-barns)
600
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
4.0
3.0
2.0
1.0
4
5
6
7
8
9
10^7
2
3
4
5
6
7
8
9
10^8
2
63
Incident Energy (eV)
70-Yb-170

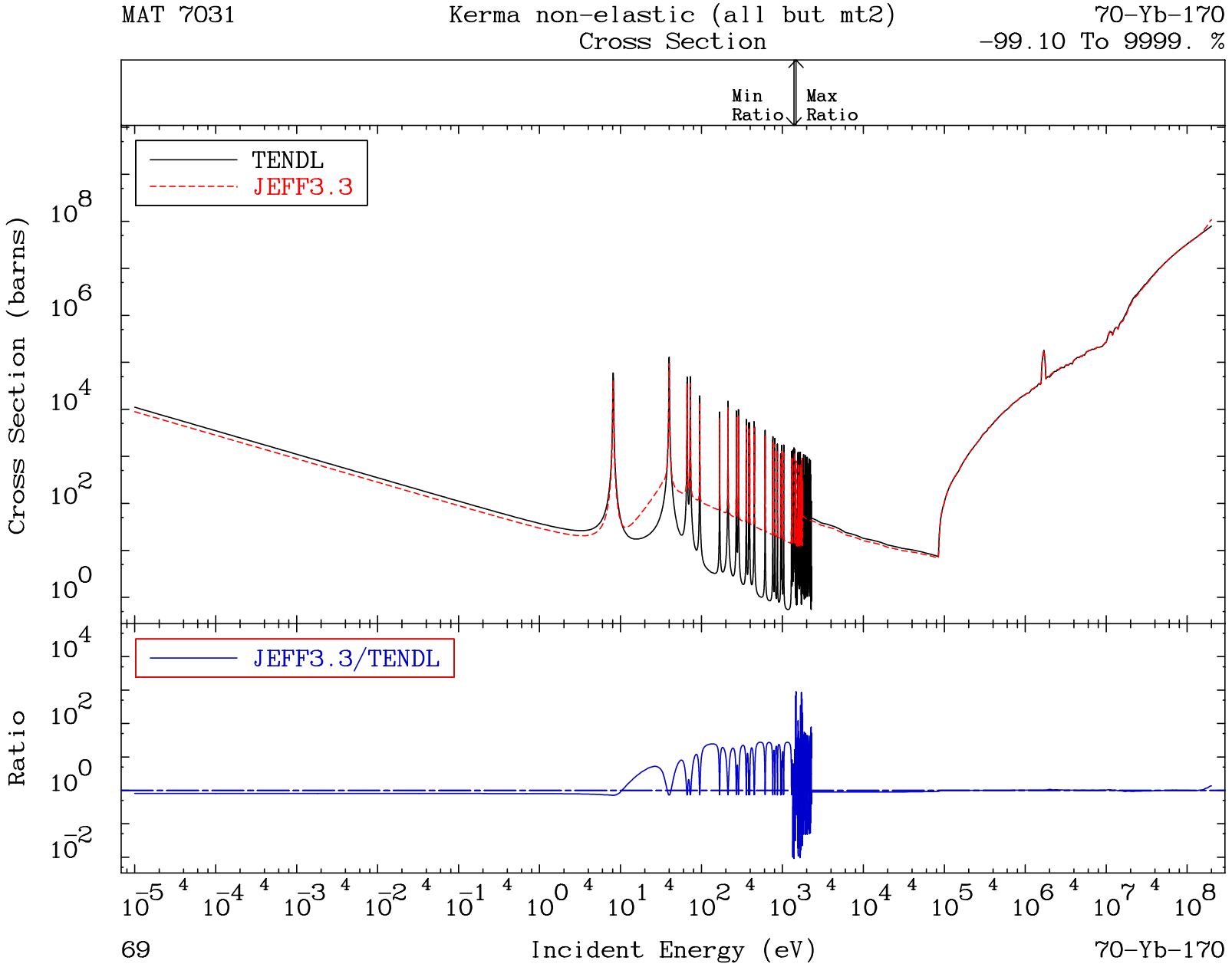

MAT 7031
Tritium Production
Cross Section
70-Yb-170
-8.800 To 300.8 %
Min Ratio
Max Ratio
TENDL Threshold 6.3676 MeV
JEFF3.3 Threshold 6.3676 MeV
Cross Section (milli-barns)
400
300
200
100
0
JEFF3.3/TENDL
Ratio
4
3
2
1
7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
64
Incident Energy (eV)
70-Yb-170

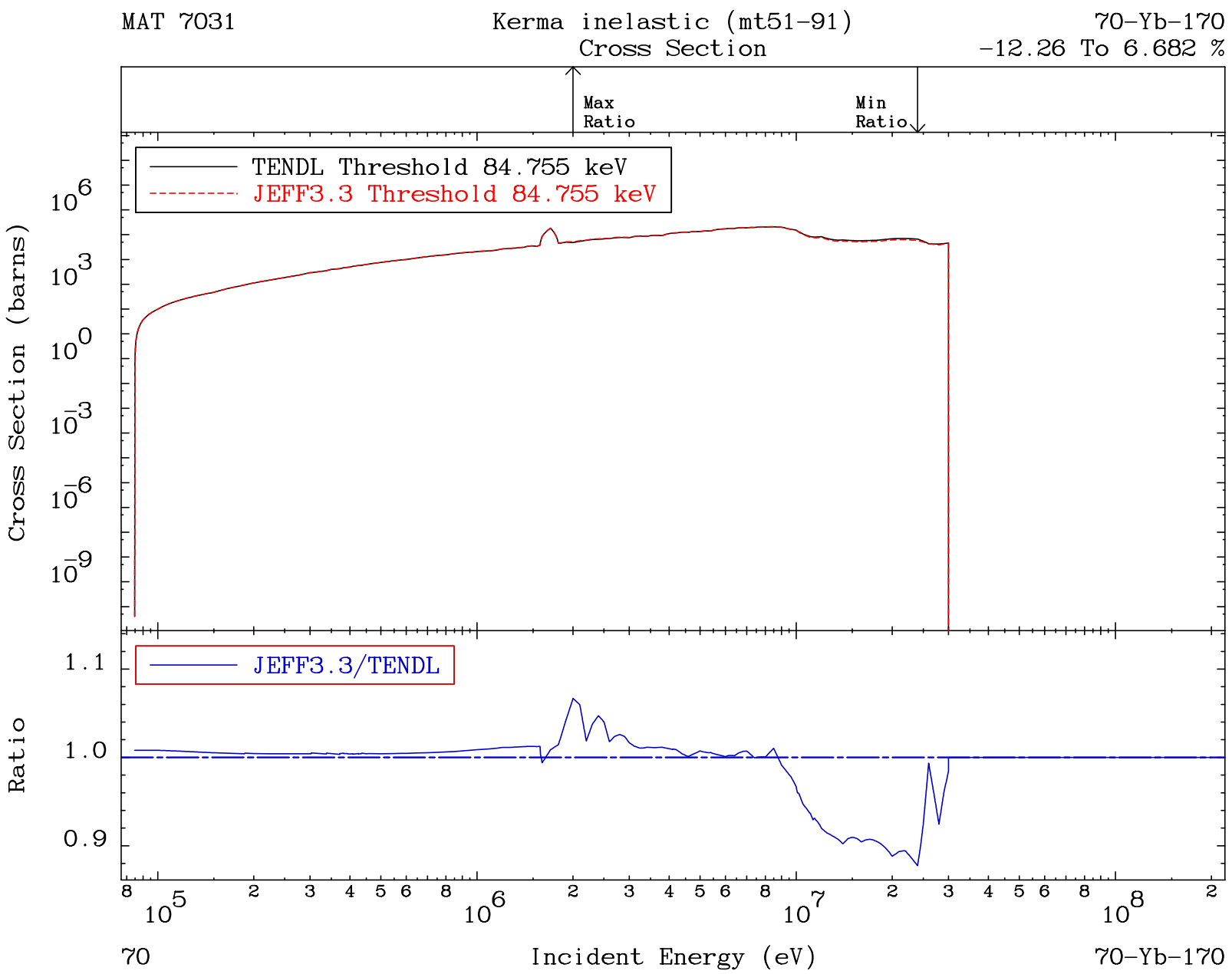

MAT 7031
He-3 Production
Cross Section
70-Yb-170
-8.797 To 5.446 %
Max Ratio
Min Ratio
TENDL Threshold 4.6621 MeV
JEFF3.3 Threshold 4.6614 MeV
Cross Section (milli-barns)
350
300
250
200
150
100
50
0
JEFF3.3/TENDL
Ratio
1.0
0.9
5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
65
Incident Energy (eV)
70-Yb-170

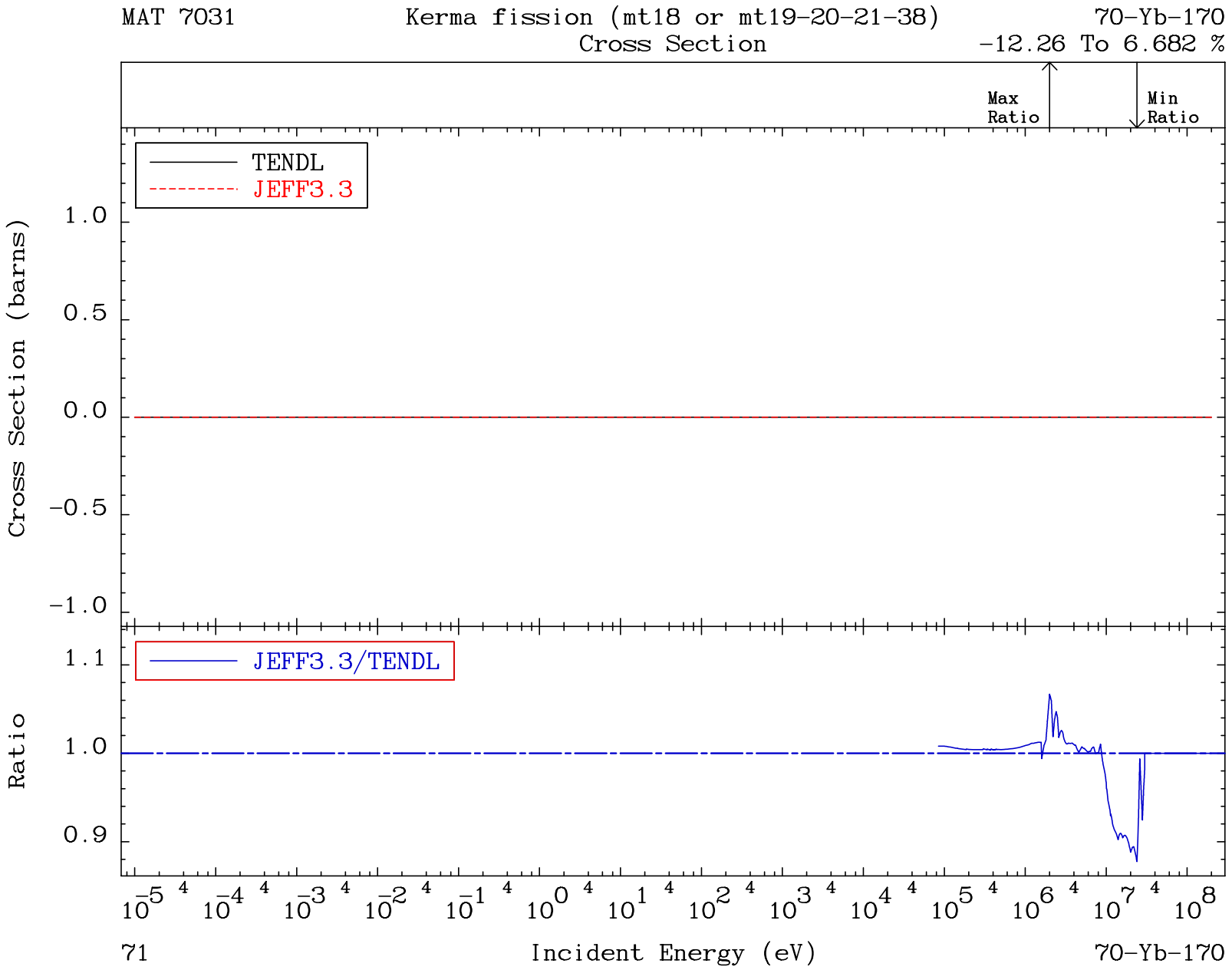

MAT 7031
He-4 Production
Cross Section
70-Yb-170
-20.02 To 3244. %
Max
Ratio
Min
Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
66
70-Yb-170

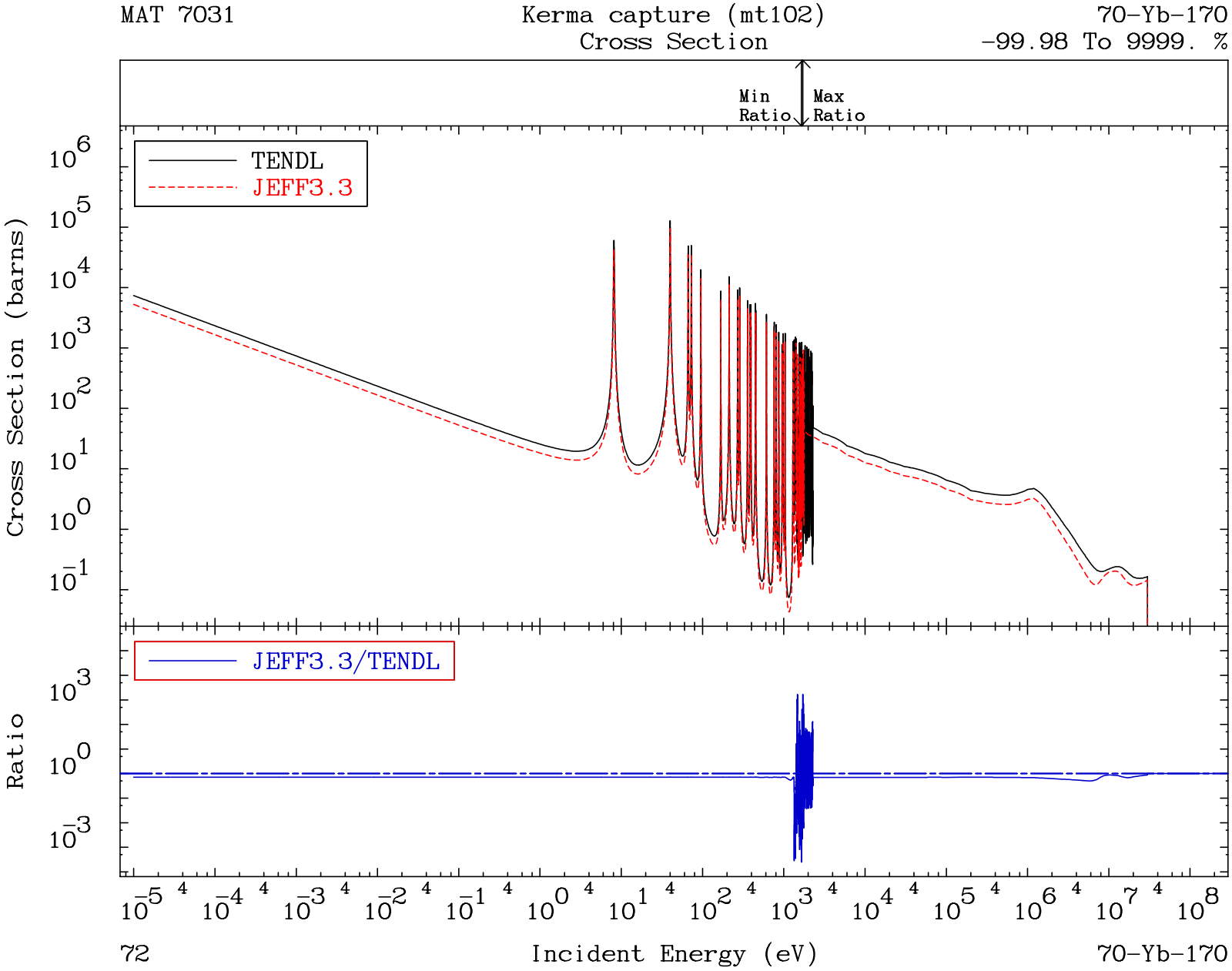

MAT 7031
Kerma total (eV-barns)
Cross Section
70-Yb-170
-99.51 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
67
70-Yb-170

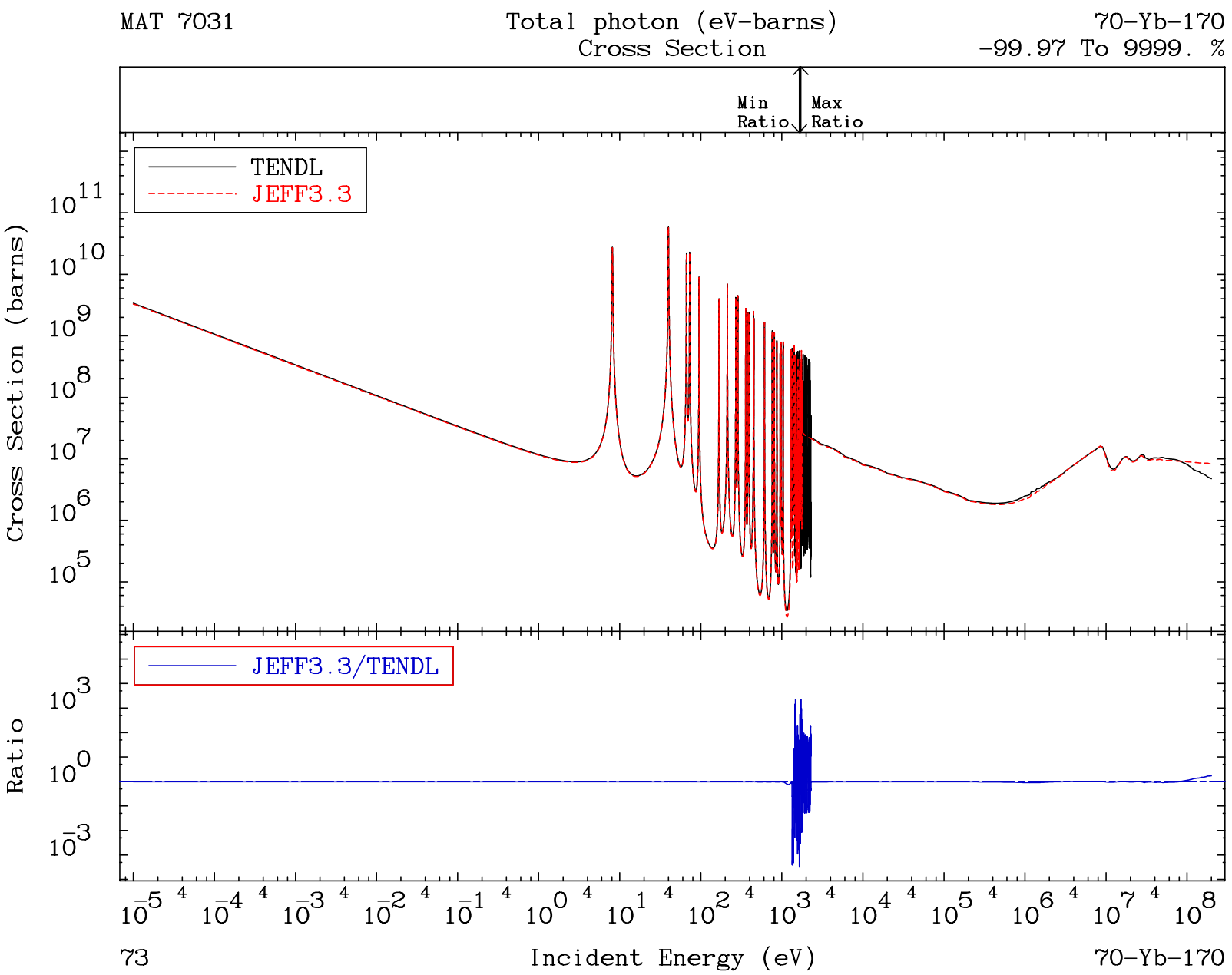

MAT 7031
Kerma elastic
Cross Section
70-Yb-170
-99.56 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
68
70-Yb-170

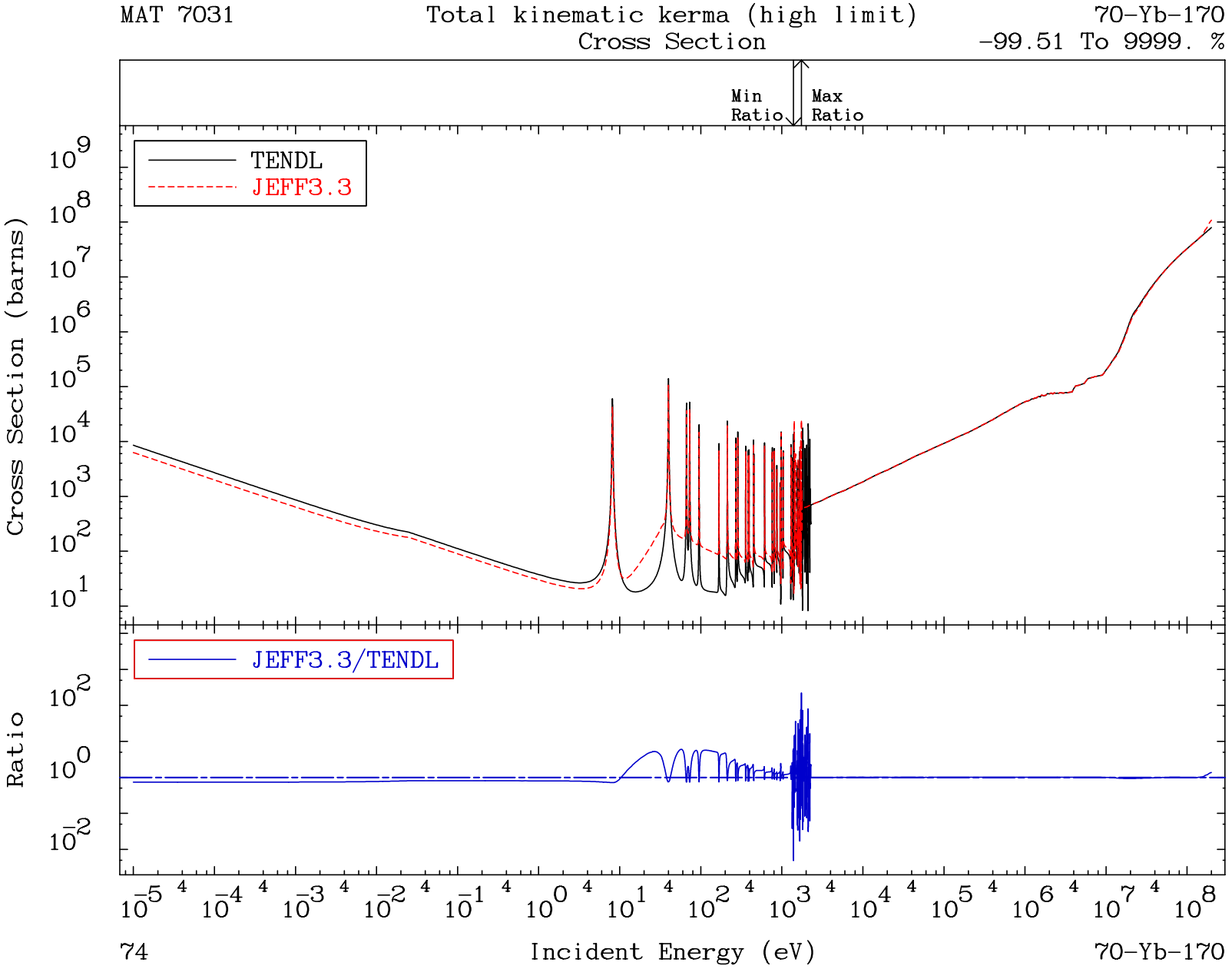

MAT 7031
Kerma non-elastic (all but mt2)
Cross Section
70-Yb-170
-99.10 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
69
70-Yb-170

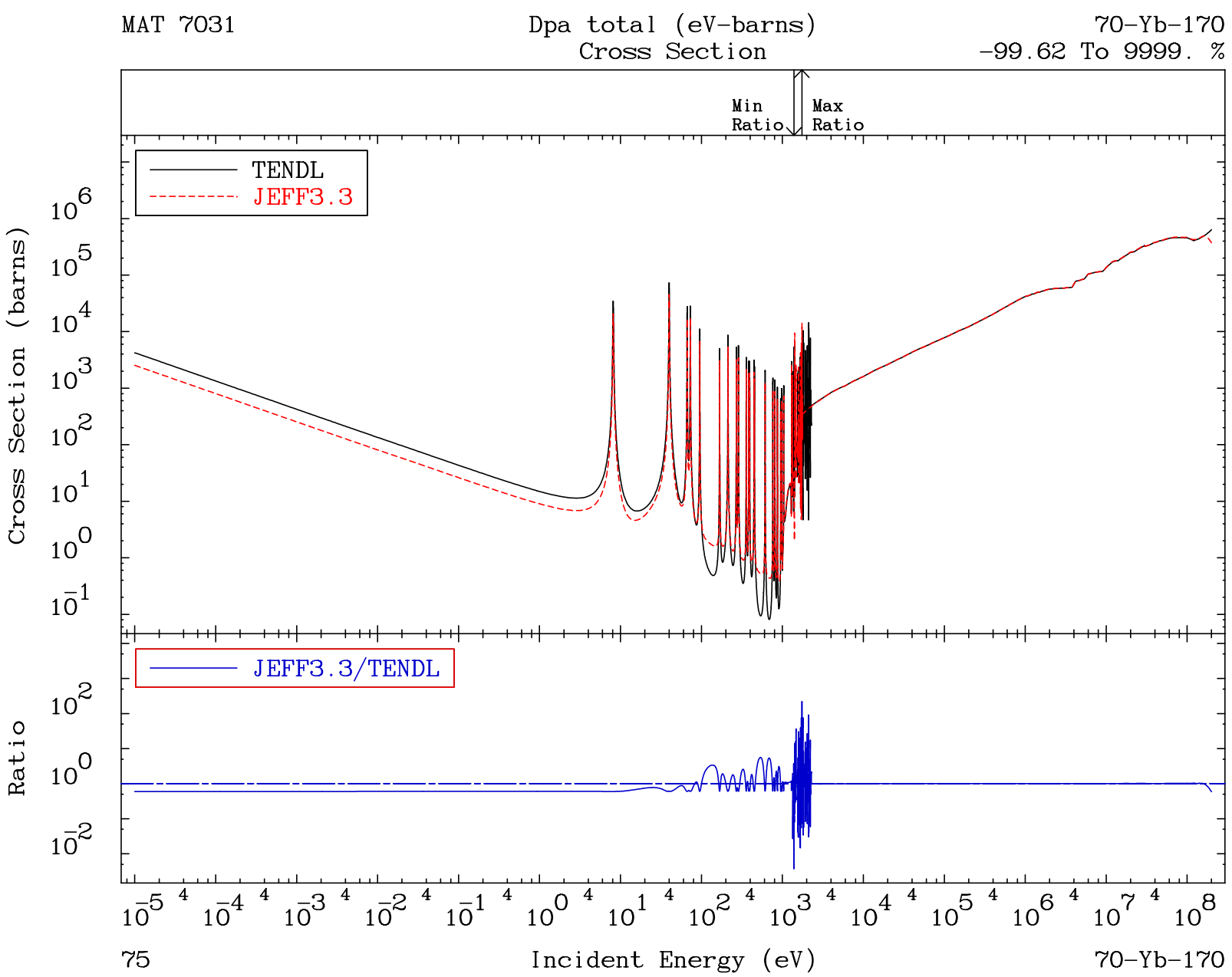

MAT 7031
Kerma inelastic (mt51-91)
Cross Section
70-Yb-170
-12.26 To 6.682 %
Max Ratio
Min Ratio
TENDL Threshold 84.755 keV
JEFF3.3 Threshold 84.755 keV
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
70
70-Yb-170

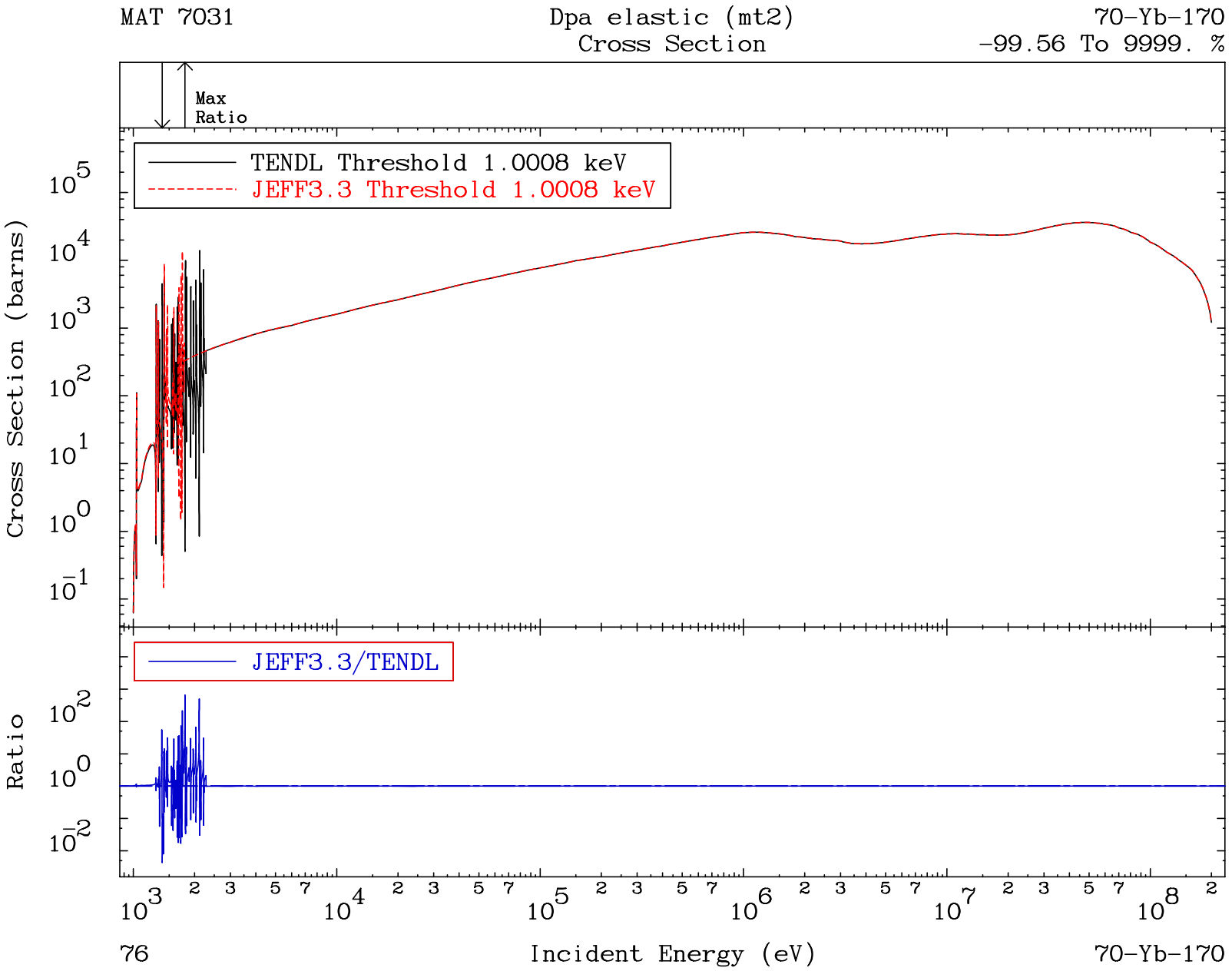

MAT 7031
Kerma fission (mt18 or mt19-20-21-38)
Cross Section
70-Yb-170
-12.26 To 6.682 %
Max Ratio
Min Ratio
TENDL
JEFF3.3
Cross Section (barns)
1.0
0.5
0.0
-0.5
-1.0
JEFF3.3/TENDL
Ratio
1.1
1.0
0.9
10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3} 10^{4} 10^{5} 10^{6} 10^{7} 10^{8}
71
Incident Energy (eV)
70-Yb-170

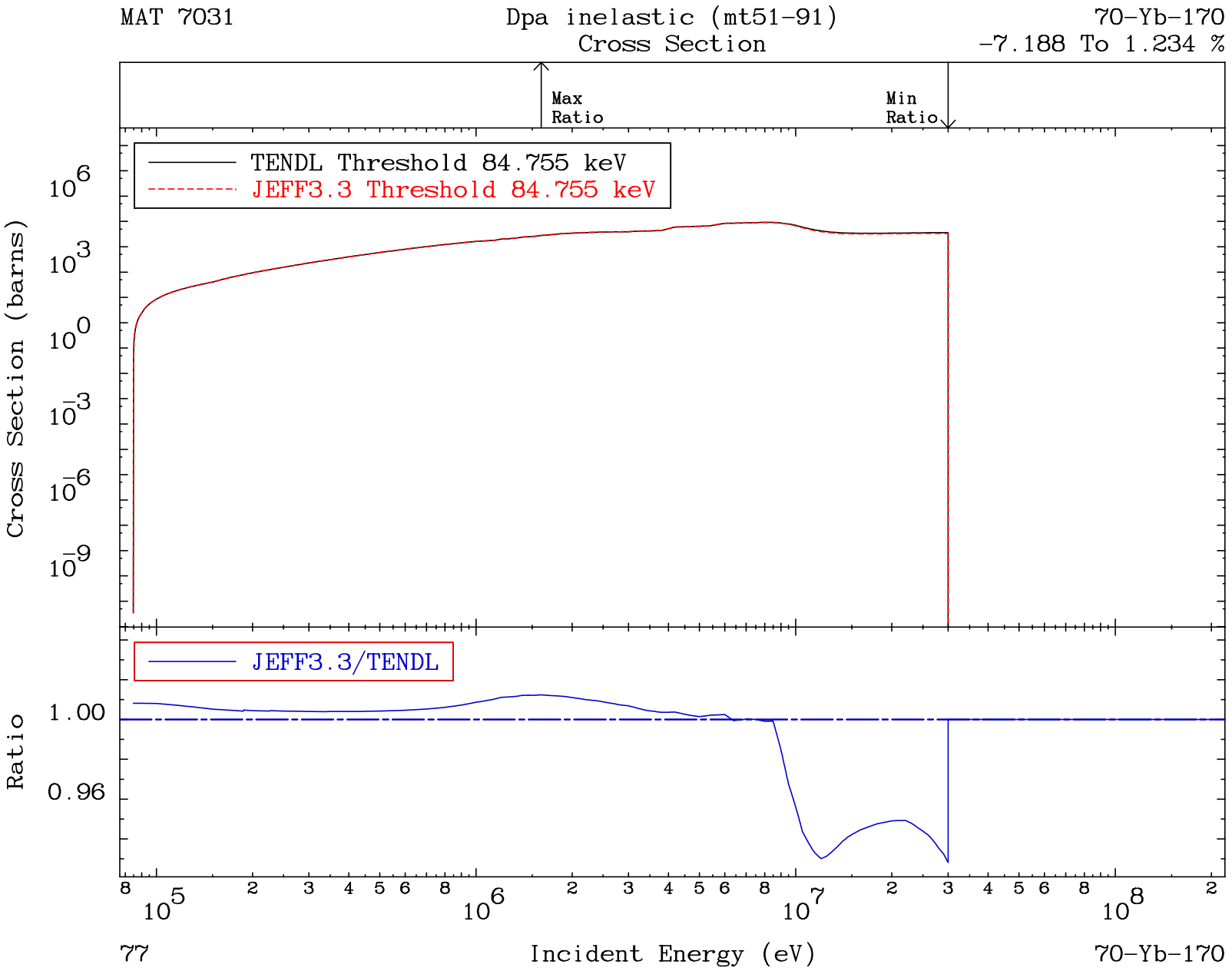

MAT 7031
Kerma capture (mt102)
Cross Section
70-Yb-170
-99.98 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
72
70-Yb-170

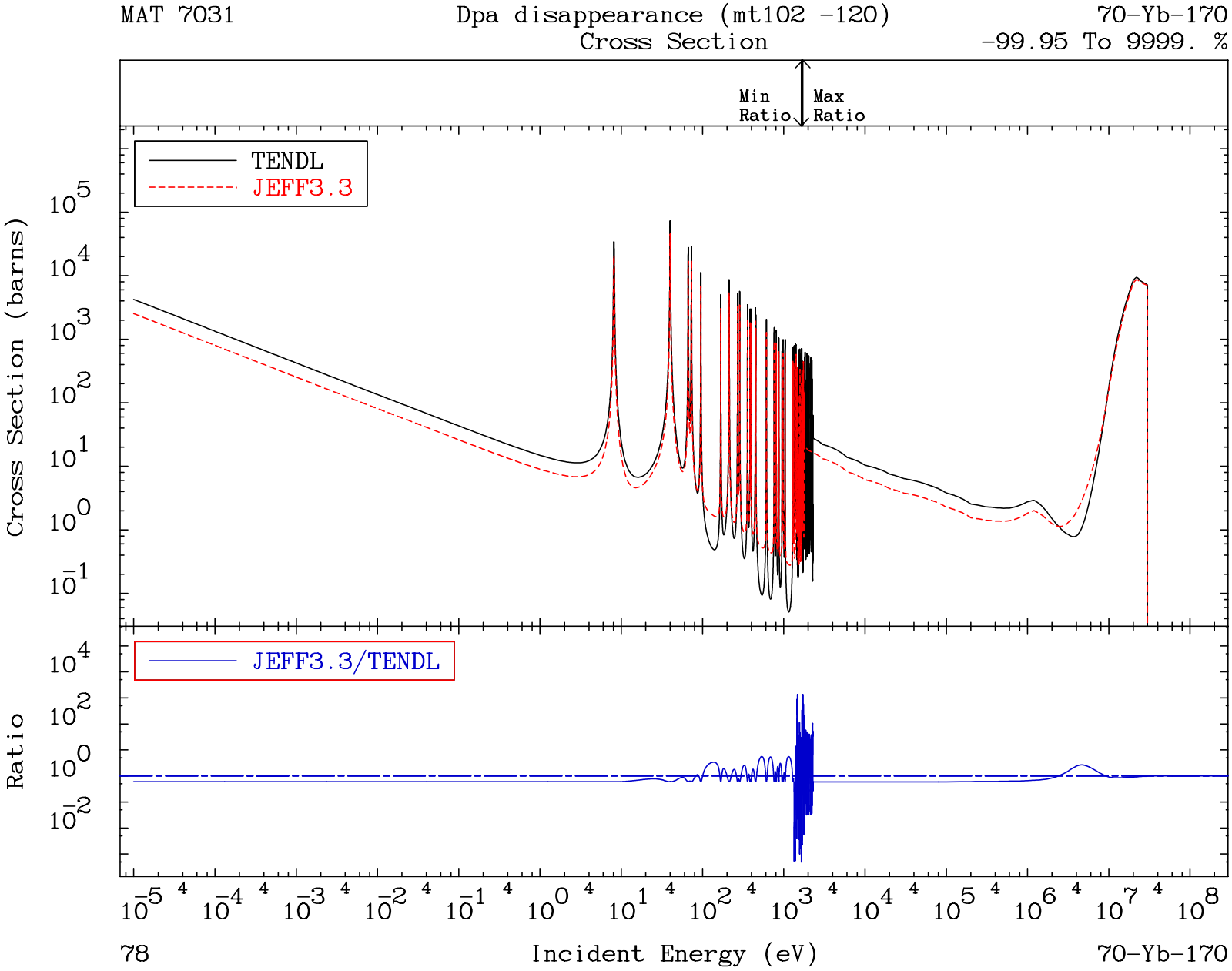

MAT 7031
Total photon (eV-barns)
Cross Section
70-Yb-170
-99.97 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
73
70-Yb-170

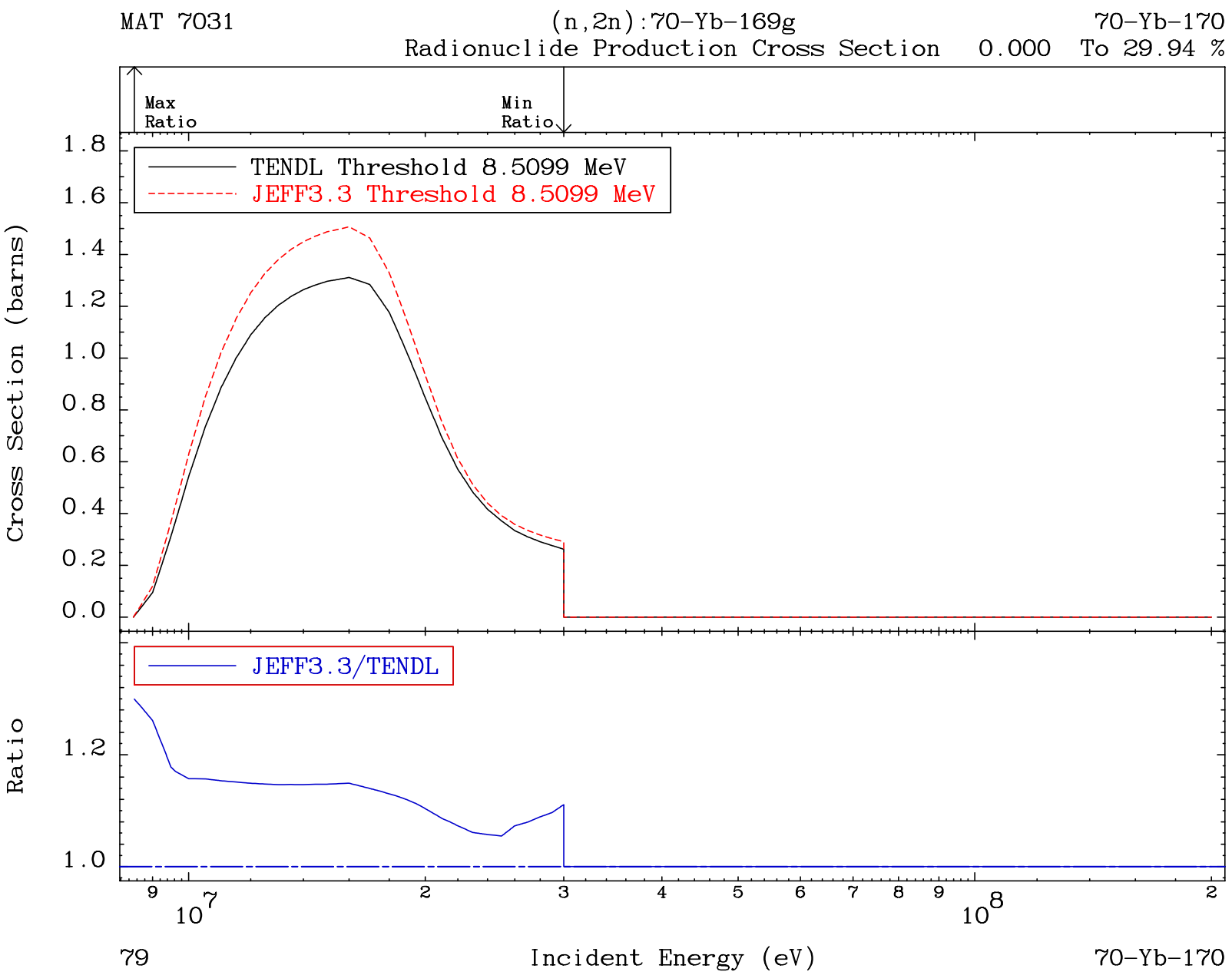

MAT 7031
Total kinematic kerma (high limit)
Cross Section
70-Yb-170
-99.51 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
74
70-Yb-170

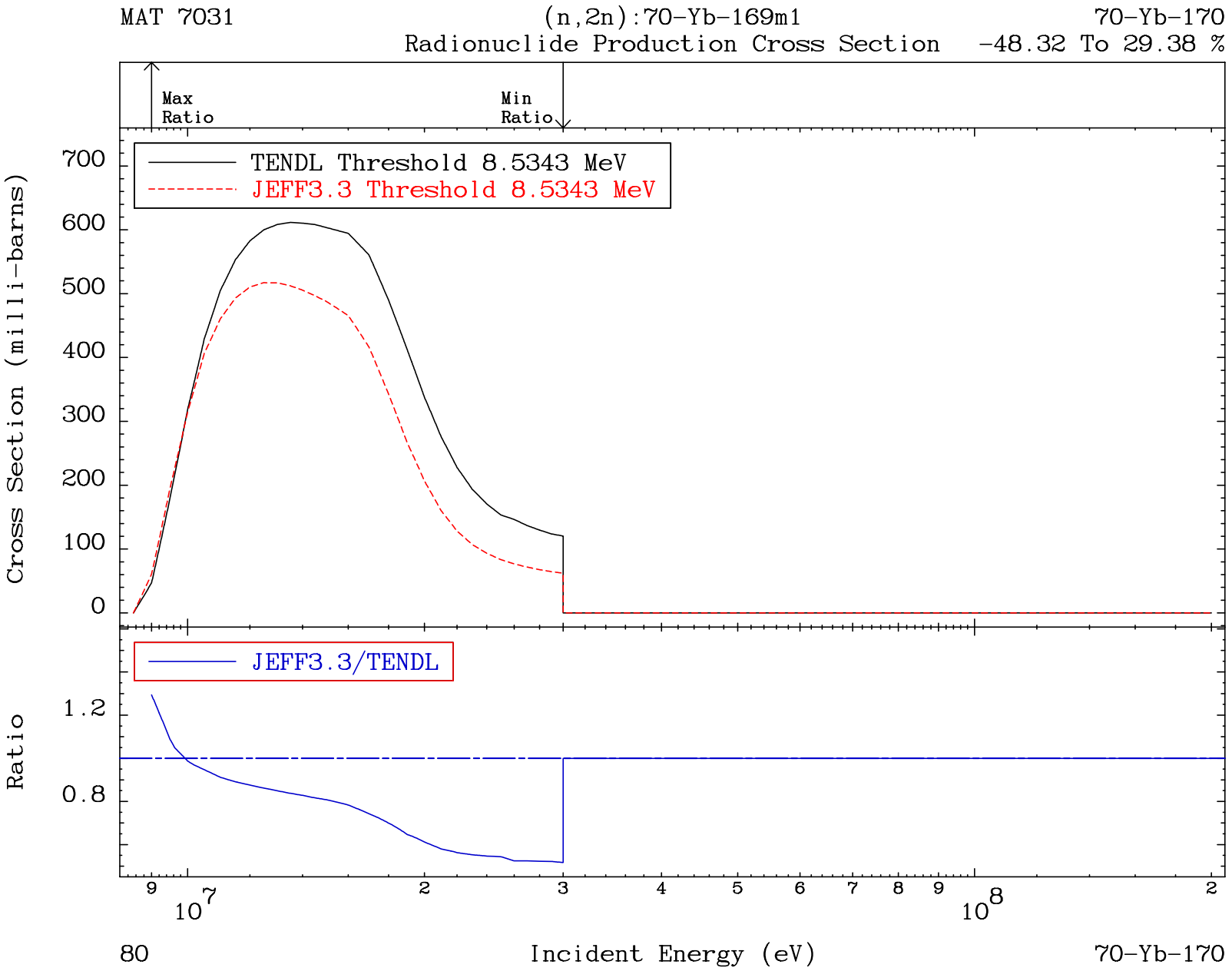

MAT 7031
Dpa total (eV-barns)
Cross Section
70-Yb-170
-99.62 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
75
70-Yb-170

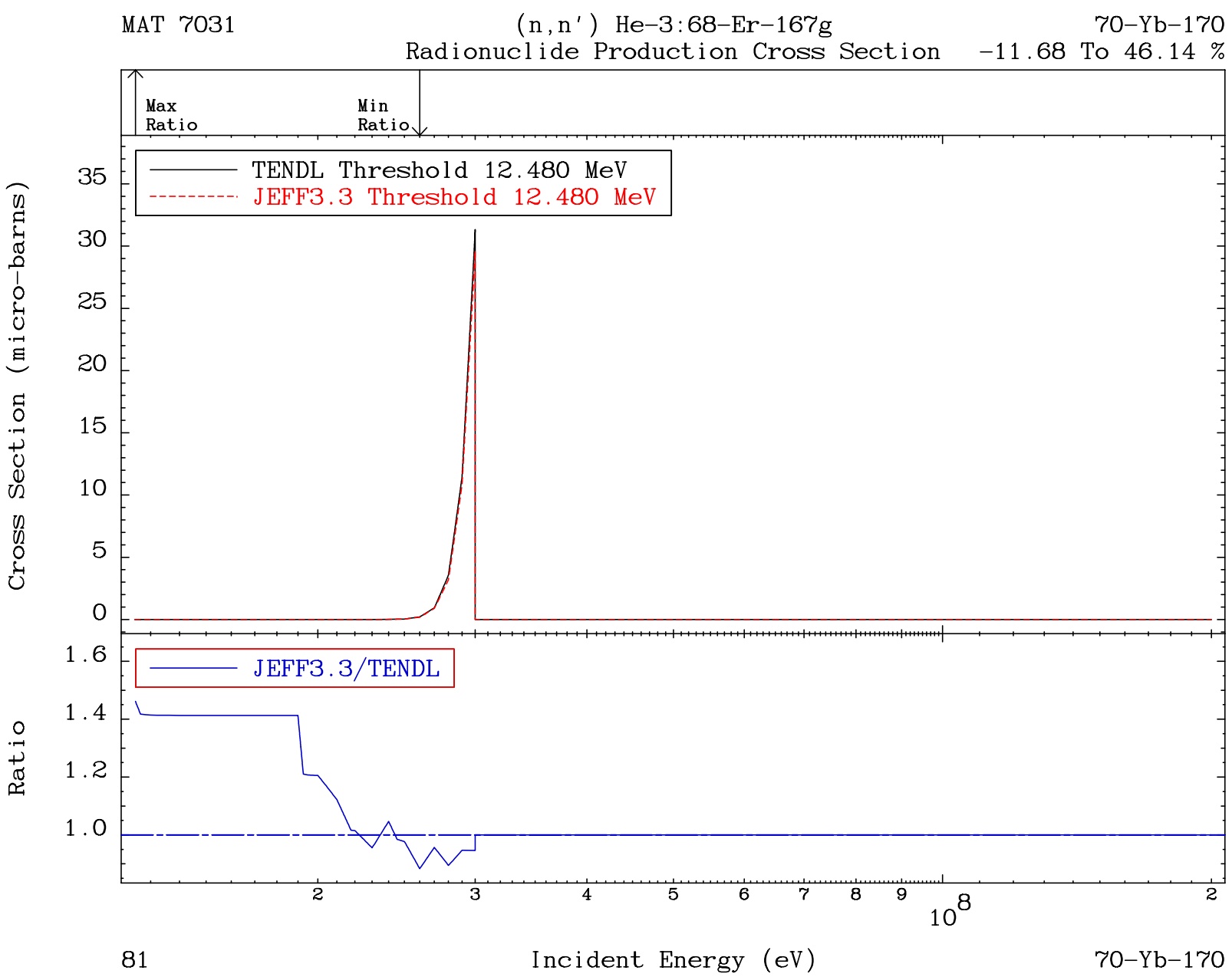

MAT 7031
Dpa elastic (mt2)
Cross Section
70-Yb-170
-99.56 To 9999. %
Max
Ratio
TENDL Threshold 1.0008 keV
JEFF3.3 Threshold 1.0008 keV
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
76
70-Yb-170

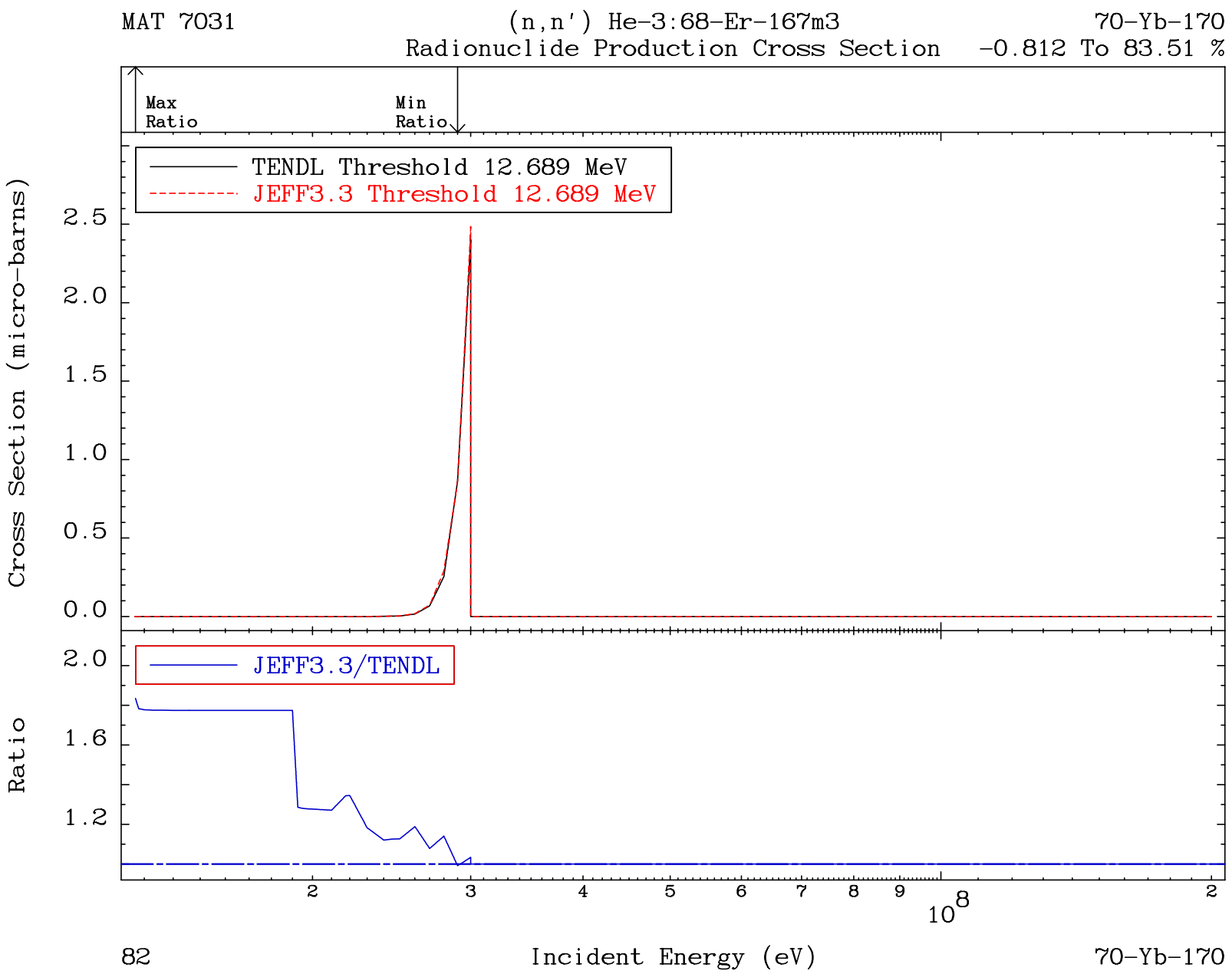

MAT 7031
Dpa inelastic (mt51-91)
Cross Section
70-Yb-170
-7.188 To 1.234 %
Max Ratio
Min Ratio
TENDL Threshold 84.755 keV
JEFF3.3 Threshold 84.755 keV
Cross Section (barns)
JEFF3.3/TENDL
Ratio
1.00
0.96
Incident Energy (eV)
77
70-Yb-170

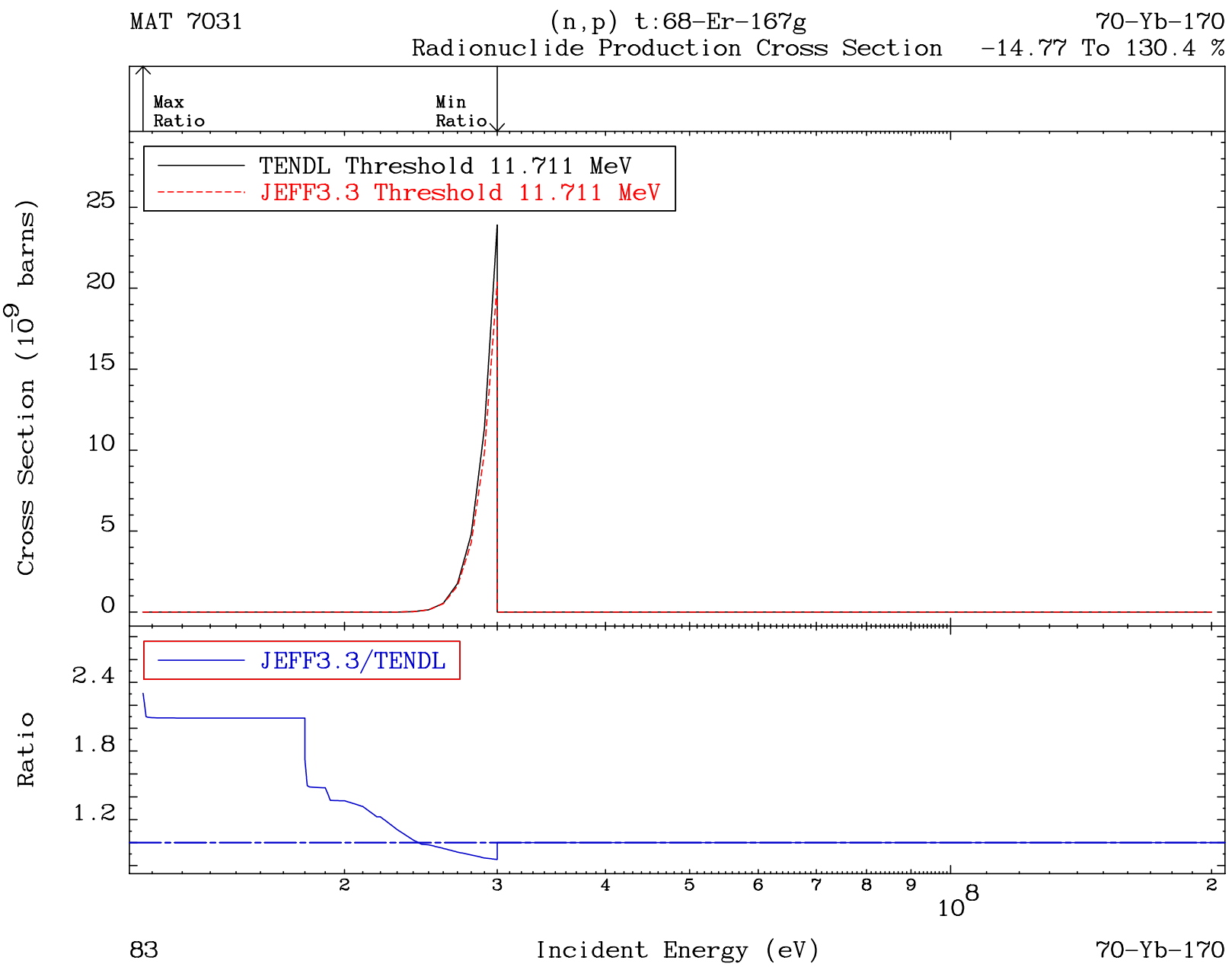

MAT 7031
Dpa disappearance (mt102 -120)
Cross Section
70-Yb-170
-99.95 To 9999. %
Min Ratio
Max Ratio
TENDL
JEFF3.3
Cross Section (barns)
JEFF3.3/TENDL
Ratio
Incident Energy (eV)
78
70-Yb-170

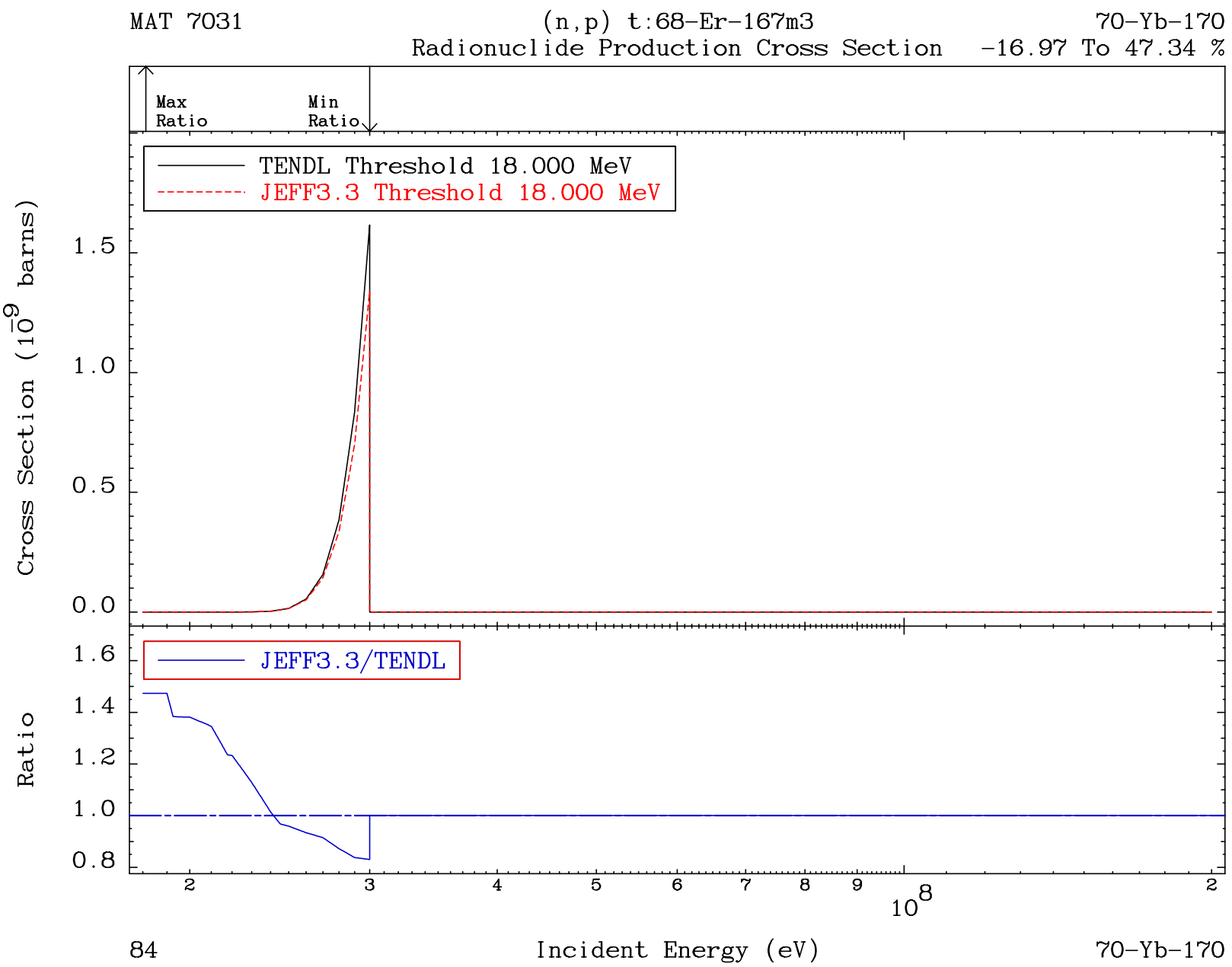

MAT 7031
(n,2n):70-Yb-169g
70-Yb-170
Radionuclide Production Cross Section 0.000 To 29.94 %
Max Ratio
Min Ratio
TENDL Threshold 8.5099 MeV
JEFF3.3 Threshold 8.5099 MeV
Cross Section (barns)
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
JEFF3.3/TENDL
Ratio
1.2
1.0
9
10^7
2
3
4
5
6
7
8
9
10^8
2
79
Incident Energy (eV)
70-Yb-170


MAT 7031
(n,2n):70-Yb-169m1
70-Yb-170
Radionuclide Production Cross Section
-48.32 To 29.38 %
Max Ratio
Min Ratio
TENDL Threshold 8.5343 MeV
JEFF3.3 Threshold 8.5343 MeV
Cross Section (milli-barns)
700
600
500
400
300
200
100
0
JEFF3.3/TENDL
Ratio
1.2
0.8
9
10^7
2
3
4
5
6
7
8
9
10^8
2
80
Incident Energy (eV)
70-Yb-170


MAT 7031
(n,n') He-3:68-Er-167g
70-Yb-170
Radionuclide Production Cross Section
-11.68 To 46.14 %
Max Ratio
Min Ratio
TENDL Threshold 12.480 MeV
JEFF3.3 Threshold 12.480 MeV
Cross Section (micro-barns)
35
30
25
20
15
10
5
0
JEFF3.3/TENDL
Ratio
1.6
1.4
1.2
1.0
2
3
4
5
6
7
8
9
10^8
2
81
Incident Energy (eV)
70-Yb-170


MAT 7031
(n,n') He-3:68-Er-167m3
70-Yb-170
Radionuclide Production Cross Section
-0.812 To 83.51 %
Max Ratio
Min Ratio
TENDL Threshold 12.689 MeV
JEFF3.3 Threshold 12.689 MeV
Cross Section (micro-barns)
2.5
2.0
1.5
1.0
0.5
0.0
JEFF3.3/TENDL
Ratio
2.0
1.6
1.2
2
3
4
5
6
7
8
9
10^8
2
82
Incident Energy (eV)
70-Yb-170


MAT 7031
(n,p) t:68-Er-167g
70-Yb-170
Radionuclide Production Cross Section -14.77 To 130.4 %
Max Ratio
Min Ratio
TENDL Threshold 11.711 MeV
JEFF3.3 Threshold 11.711 MeV
Cross Section (10^{-9} barns)
25
20
15
10
5
0
JEFF3.3/TENDL
Ratio
2.4
1.8
1.2
2
3
4
5
6
7
8
9
10^8
2
83
Incident Energy (eV)
70-Yb-170


MAT 7031
(n,p) t:68-Er-167m3
70-Yb-170
Radionuclide Production Cross Section -16.97 To 47.34 %
Max Ratio
Min Ratio
TENDL Threshold 18.000 MeV
JEFF3.3 Threshold 18.000 MeV
Cross Section (10^{-9} barns)
1.5
1.0
0.5
0.0
JEFF3.3/TENDL
Ratio
1.6
1.4
1.2
1.0
0.8
2
3
4
5
6
7
8
9
10^8
2
84
Incident Energy (eV)
70-Yb-170