

**ENGINEERING EXHIBIT  
IN SUPPORT OF AN APPLICATION FOR  
CONSTRUCTION PERMIT FOR  
OPERATION AT THE EMPIRE STATE BUILDING  
WABC-DT – NEW YORK, NEW YORK  
CHANNEL 45 – 219 KW – 397 M HAAT**

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**ENGINEERING STATEMENT  
IN SUPPORT OF AN APPLICATION FOR  
CONSTRUCTION PERMIT FOR  
AUXILIARY OPERATION AT  
THE EMPIRE STATE BUILDING  
WABC-DT – NEW YORK, NEW YORK  
CHANNEL 45 – 219 KW – 397 M HAAT**

Permittee: American Broadcasting Companies, Inc

I am a consulting engineer, an employee of the Carl T. Jones Corporation, with offices in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission. I am a Registered Professional Engineer in the Commonwealth of Pennsylvania, Registration Number PE-027589E.

American Broadcasting Companies, Inc., permittee of DTV station WABC-DT, channel 45, New York, New York, has authorized this office to prepare this statement, the FCC Form 301, and associated exhibits in support of a request to improve DTV transmission by initiating operation from the Empire State Building. This Application for Auxiliary Antenna Construction Permit seeks authority to operate from the existing Harris TAD-16UDASP-4/32 antenna, and through appropriate combining facilities, to share this UHF antenna with several other stations. WABC-DT once held a construction permit for this antenna. This prior construction permit bears FCC File Number BPCDT-980803KJ. This permit was modified to specify the World Trade Center site in the outstanding Construction

Permit, BMPCDT-20000508AAS. The Empire State Building bears Antenna Structure Registration Number 1007048.

WABC-DT was authorized an initial allotment of 164 KW at 491 Meters HAAT at the World Trade Center. WABC-DT commenced operation of DTV facilities at the World Trade Center and filed an Application for License to cover the Construction Permit BMPCDT-20000508AAS, which specified operation with 182.4 KW and an HAAT of 448.0 meters. These facilities were destroyed in the events of September 11, 2001.

Through this request, WABC-DT seeks authority to establish auxiliary DTV operation with an ERP of 219 KW and an HAAT of 397 meters from the Empire State Building. The Empire State Building is 4.67 kilometers distant from the reference coordinates in the WABC-DT initial allotment. As such, it meets the distance requirements for a checklist application.

Several stations presently share the UHF antenna installed at the Empire State Building. WABC-DT proposes to operate with the Harris TAD-16UDASP-4/32 non-directional antenna, which has been installed with a center of radiation of 395.0 meters above ground level, which is equal to 410.0 meters AMSL. At this location, the proposed antenna is 397 meters above average terrain.

WABC-DT has been working with other broadcasters and the Empire State Building to develop an infrastructure to support operation of additional stations in a combined UHF facility, and the proposed WABC-DT auxiliary facilities are now part of the overall plan at Empire.

The proposed DTV Auxiliary operation meets all the requirements of Section 73.622 of the Rules, and each of the responses in Section III-D – DTV Engineering – of FCC Form 301 is answered in the affirmative. The facilities proposed in this Application for Construction Permit qualify as a ‘Checklist’ application.

All pertinent technical parameters are shown in the attached FCC Form 301 ‘Tech Box’ entries and the details of the antenna elevation pattern are shown in the attached exhibits. Compliance with the Commission’s principal community coverage requirement is shown in the attached exhibit 2. Exhibit 1 is a figure that shows the proposed facility operating with 219 KW ERP and an HAAT of 397.0 meters is in compliance with the FCC’s DTV rules and policies and that the predicted coverage which results does not, in any direction, exceed that resulting from WABC-DT’s allotted parameters. As such, this application meets the criteria to be acceptable for filing as defined in the Public Notice of August 3, 2004.

Exhibit 1 shows the predicted 41 dBu contours from the proposed operation and the Initial Allotment. The predicted 41 dBu contour, which results from the proposed operation specified in this Application for Construction Permit, is fully subsumed within the predicted 41 dBu contour of the WABC-DT Initial Allotment.

Exhibit 2 is a figure that is part of this Engineering Exhibit and shows that the proposed operation provides 48 dBu coverage of the city of license, New York.

Exhibit 3 is a figure containing three sheets, which shows the vertical pattern and also contains a tabulation of the relative field values produced by the proposed antenna.

### **Compliance with Radiofrequency Energy Exposure Limits**

The proposed operation will comply with the FCC's rules and guidelines pertaining to human exposure to electromagnetic energy. The Empire State Building has established policies and procedures and has defined certain areas as controlled areas where access is restricted to all persons unless certain facilities cease operation, change antennas or reduce power. A procedure to notify tenants of a required shutdown has been developed. As a lessee, WABC-DT is subject to the Empire State Building's RF Safety Program, which is currently being revised as modification of facilities occurs. The RF Safety Program is being revised as a collaborative effort between the broadcaster tenants and the building management. Data concerning the proposed WABC-DT operation has been supplied for inclusion in the next revision of the RF Safety Procedures that is in the preparation stages.

The RF Safety Procedures at the Empire State Building include restricted access to areas where calculation or measurement indicate levels of radiofrequency energy in excess of those defined in Section 1.1310 of the Rules may be present during normal broadcast operations. The RF Safety Procedures include restricted access to the tower structure above the mooring mast area during normal broadcast operations, the use of on-site personnel to verify

continuing shutdown of those operations that contribute to fields in areas where workers must be present while work is being done.

Remote control operation is disabled to prevent accidental exposure of personnel from inadvertent activation of transmitters. Each facility is observed to be compliant with procedures to shutdown or operate at reduced power as required by the location of work. These RF Safety Procedures also define the requirement for personnel to use personal RF exposure monitors and participate in appropriate RF safety awareness training. As new licensees begin or change operations on the Empire State Building, the RF Safety Procedures are updated to reflect the current RF exposure levels and define the areas that are restricted to prevent accidental exposure of personnel.

The nearest uncontrolled area is located on Floor 86. The slant distance from the proposed auxiliary antenna and a point approximately two meters above this floor is at least 73.7 meters. The angle below horizontal is approximately 72 degrees or more, and the relative field for angles of depression between 58 and 90 degrees is less than 0.05. Calculations were performed in accordance with OET Bulletin 65, Edition 97-01. The result of these calculations made with Equation 9 predict the contribution from the proposed WABC-DT Auxiliary Antenna operation on the 86<sup>th</sup> floor is less than 0.00337 mW/cm<sup>2</sup> which is less than 0.769 percent of the 0.437 mW/cm<sup>2</sup> limit for uncontrolled areas at the channel 45 frequency of 656 MHz.

**Conclusion**

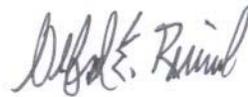
The Empire State Building is uniquely suited as a site for television transmission. WABC-DT has persistently used its best efforts to improve television service to New York through cooperative efforts with the Empire State Building management and their mechanical and electrical engineers, and collaborative efforts with other broadcaster's engineering representatives and equipment manufacturers to optimize DTV service from limited facilities at the Empire State Building.

The facilities represented in this Application for Construction Permit meet all the Commission's requirements for a digital television Checklist application.

The instant application to improve Digital Television Service by WABC-DT complies with all the policies, rules and regulations of the Federal Communications Commission, and a grant of this request would be in the public interest.

This statement, FCC Form 301, and the associated exhibits were prepared by me or under my direct supervision and are believed to be true and correct to the best of my knowledge and belief.

Dated: August 3, 2004



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Alfred E. Resnick, P. E.



— Allotment (164.3 kW 491 m HAAT)  
- - - Aux (219.0 kW 397 m HAAT)

PREDICTED 41dBu F[50:90] CONTOURS  
WABC-DT, NEW YORK, NEW YORK  
CHANNEL 45  
JULY, 2004



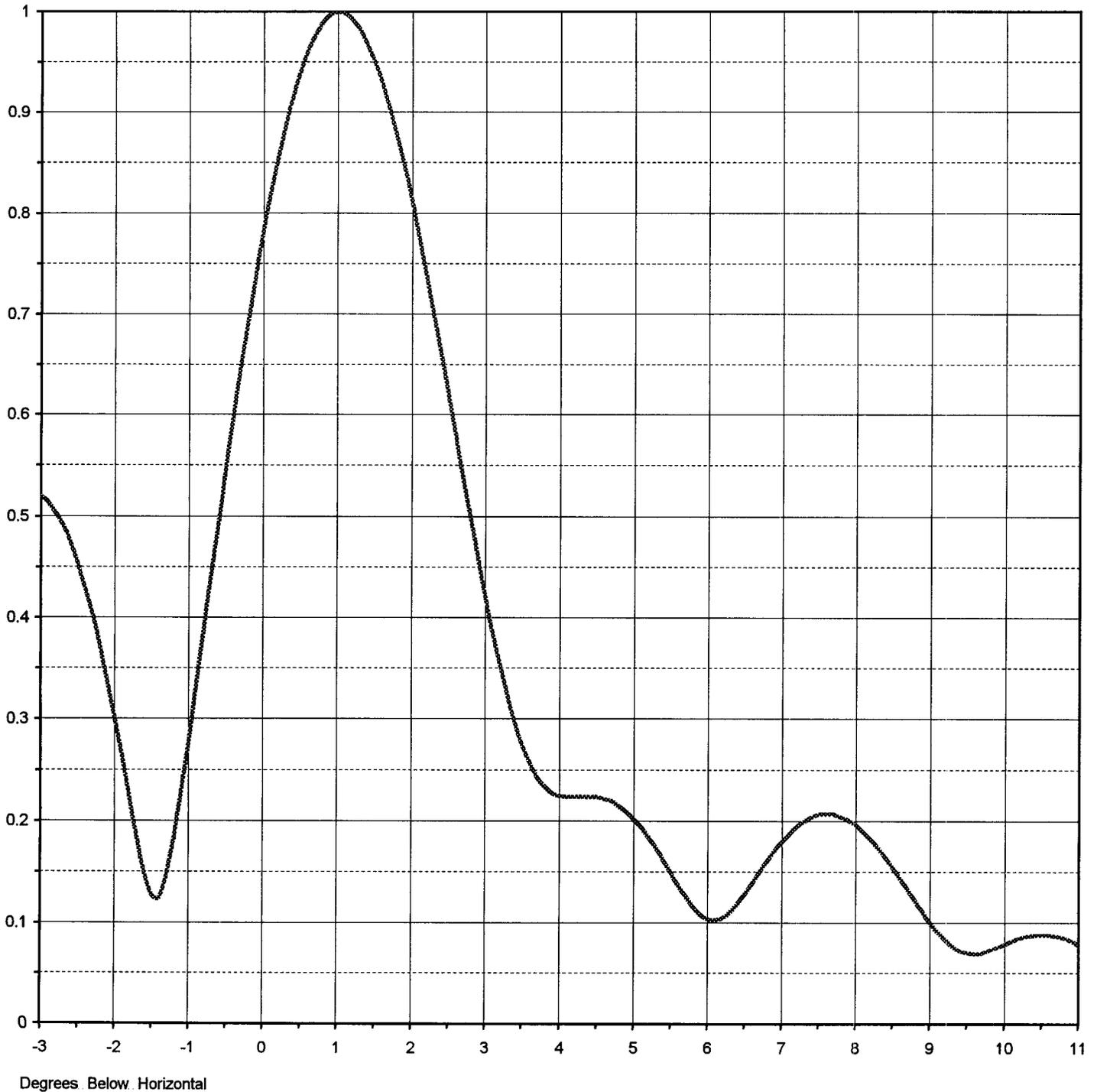
PREDICTED 48dBu F[50:90] COVERAGE CONTOURS  
WABC-DT, NEW YORK, NEW YORK (AUX)  
CHANNEL 45, 219.0 kW ERP, 397 m HAAT  
JULY, 2004



Proposal Number EXHIBIT 3  
Date 5-Nov-01  
Call Letters Channel 45  
Location New York, NY  
Customer CBS  
Antenna Type TAD-16UDASP-4/32

### ELEVATION PATTERN

RMS Gain at Main Lobe	16.57 ( 12.19 dB )	Beam Tilt	1.00 deg
RMS Gain at Horizontal	10.10 ( 10.04 dB )	Frequency	659.00 MHz
Calculated / Measured	Calculated	Drawing #	100402EL45100





Proposal Number  
Date **5-Nov-01**  
Call Letters  
Location **New York, NY** Channel **45**  
Customer **CBS**  
Antenna Type **TAD-16UDASP-4/32**

**ELEVATION PATTERN**

RMS Gain at Main Lobe	<b>16.57 ( 12.19 dB )</b>	Beam Tilt	<b>1.00 deg</b>
RMS Gain at Horizontal	<b>10.10 ( 10.04 dB )</b>	Frequency	<b>659.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>100402EL45100-90</b>

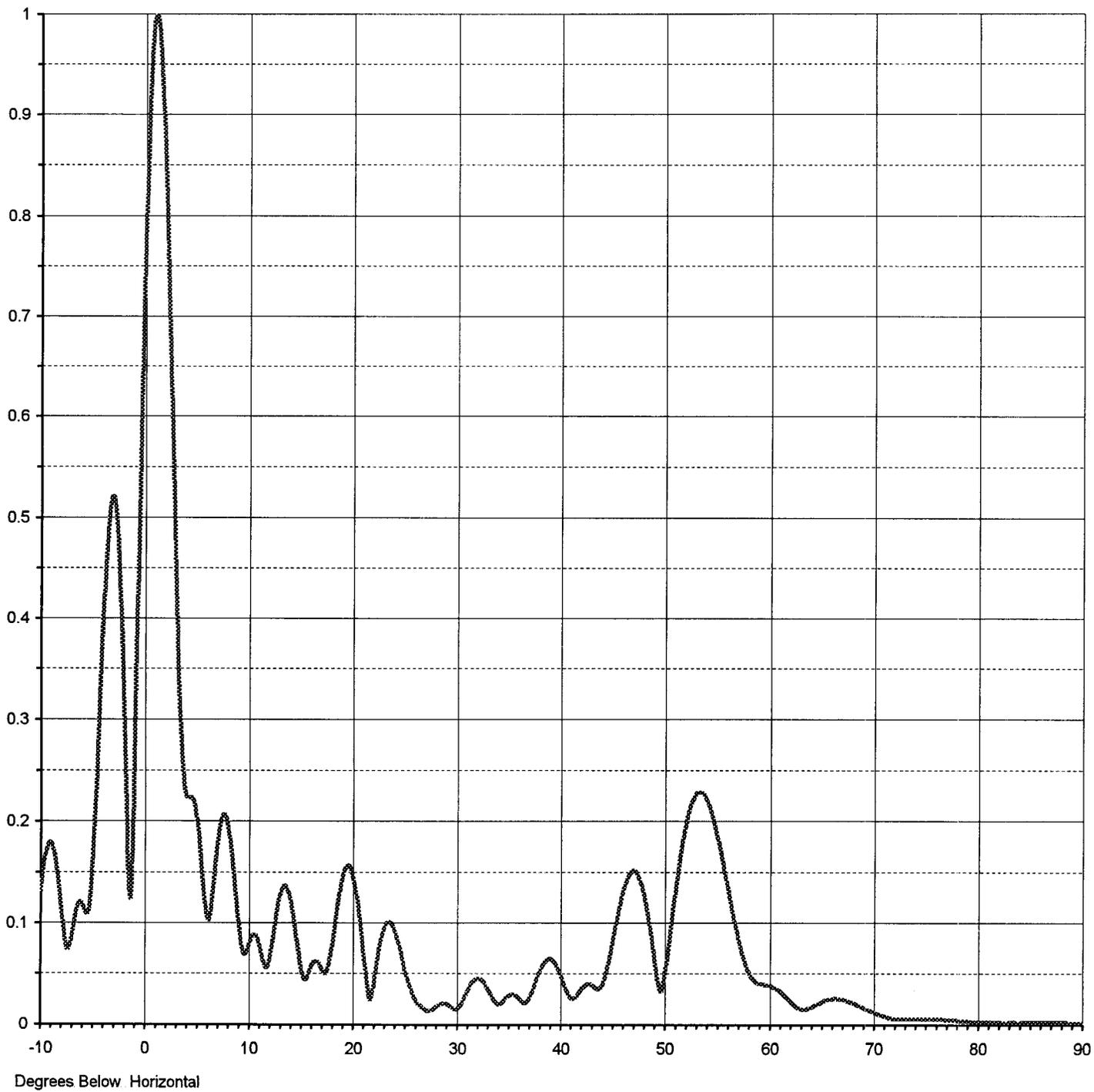


EXHIBIT 3



Proposal Number  
 Date **5-Nov-01**  
 Call Letters Channel **45**  
 Location **New York, NY**  
 Customer **CBS**  
 Antenna Type **TAD-16UDASP-4/32**

**TABULATION OF ELEVATION PATTERN**

Elevation Pattern Drawing #: **100402EL45100-90**

Angle	Field										
-10.0	0.131	2.4	0.659	10.6	0.088	30.5	0.021	51.0	0.128	71.5	0.007
-9.5	0.169	2.6	0.578	10.8	0.087	31.0	0.032	51.5	0.166	72.0	0.006
-9.0	0.179	2.8	0.497	11.0	0.082	31.5	0.041	52.0	0.196	72.5	0.006
-8.5	0.158	3.0	0.421	11.5	0.061	32.0	0.045	52.5	0.217	73.0	0.006
-8.0	0.113	3.2	0.352	12.0	0.061	32.5	0.043	53.0	0.228	73.5	0.006
-7.5	0.075	3.4	0.297	12.5	0.092	33.0	0.036	53.5	0.229	74.0	0.006
-7.0	0.089	3.6	0.257	13.0	0.124	33.5	0.026	54.0	0.222	74.5	0.006
-6.5	0.116	3.8	0.234	13.5	0.137	34.0	0.020	54.5	0.207	75.0	0.006
-6.0	0.118	4.0	0.225	14.0	0.126	34.5	0.023	55.0	0.186	75.5	0.006
-5.5	0.110	4.2	0.224	14.5	0.097	35.0	0.028	55.5	0.162	76.0	0.006
-5.0	0.164	4.4	0.224	15.0	0.061	35.5	0.030	56.0	0.136	76.5	0.006
-4.5	0.280	4.6	0.222	15.5	0.044	36.0	0.026	56.5	0.110	77.0	0.005
-4.0	0.406	4.8	0.215	16.0	0.055	36.5	0.022	57.0	0.086	77.5	0.005
-3.5	0.496	5.0	0.202	16.5	0.062	37.0	0.025	57.5	0.066	78.0	0.004
-3.0	0.520	5.2	0.184	17.0	0.056	37.5	0.038	58.0	0.052	78.5	0.004
-2.8	0.504	5.4	0.161	17.5	0.051	38.0	0.051	58.5	0.044	79.0	0.004
-2.6	0.475	5.6	0.137	18.0	0.075	38.5	0.061	59.0	0.040	79.5	0.003
-2.4	0.430	5.8	0.116	18.5	0.112	39.0	0.065	59.5	0.039	80.0	0.003
-2.2	0.373	6.0	0.104	19.0	0.143	39.5	0.061	60.0	0.039	80.5	0.003
-2.0	0.303	6.2	0.105	19.5	0.156	40.0	0.051	60.5	0.036	81.0	0.003
-1.8	0.226	6.4	0.119	20.0	0.148	40.5	0.037	61.0	0.033	81.5	0.003
-1.6	0.153	6.6	0.140	20.5	0.120	41.0	0.027	61.5	0.028	82.0	0.003
-1.4	0.124	6.8	0.161	21.0	0.077	41.5	0.027	62.0	0.023	82.5	0.002
-1.2	0.179	7.0	0.180	21.5	0.033	42.0	0.034	62.5	0.018	83.0	0.003
-1.0	0.275	7.2	0.195	22.0	0.037	42.5	0.039	63.0	0.016	83.5	0.002
-0.8	0.382	7.4	0.204	22.5	0.071	43.0	0.039	63.5	0.015	84.0	0.002
-0.6	0.491	7.6	0.207	23.0	0.094	43.5	0.036	64.0	0.017	84.5	0.003
-0.4	0.596	7.8	0.204	23.5	0.101	44.0	0.038	64.5	0.020	85.0	0.003
-0.2	0.694	8.0	0.196	24.0	0.094	44.5	0.054	65.0	0.023	85.5	0.003
0.0	0.782	8.2	0.182	24.5	0.077	45.0	0.079	65.5	0.025	86.0	0.003
0.2	0.857	8.4	0.164	25.0	0.055	45.5	0.106	66.0	0.025	86.5	0.003
0.4	0.917	8.6	0.143	25.5	0.038	46.0	0.129	66.5	0.025	87.0	0.003
0.6	0.962	8.8	0.121	26.0	0.025	46.5	0.145	67.0	0.025	87.5	0.003
0.8	0.990	9.0	0.100	26.5	0.019	47.0	0.152	67.5	0.023	88.0	0.003
1.0	1.000	9.2	0.083	27.0	0.014	47.5	0.147	68.0	0.021	88.5	0.002
1.2	0.992	9.4	0.072	27.5	0.014	48.0	0.130	68.5	0.019	89.0	0.002
1.4	0.967	9.6	0.069	28.0	0.017	48.5	0.103	69.0	0.016	89.5	0.002
1.6	0.928	9.8	0.070	28.5	0.020	49.0	0.068	69.5	0.014	90.0	0.002
1.8	0.875	10.0	0.076	29.0	0.021	49.5	0.036	70.0	0.012		
2.0	0.811	10.2	0.082	29.5	0.018	50.0	0.046	70.5	0.010		
2.2	0.738	10.4	0.087	30.0	0.015	50.5	0.086	71.0	0.008		