

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
DIGITAL COMPANION CHANNEL APPLICATION  
LPTV STATION WCSN-LP  
FACILITY ID 1105  
COLUMBUS, OHIO  
CH 33 15 KW (MAX-DA)

Technical Narrative

The technical exhibit of which this narrative is part was prepared in response to the FCC Public Notice (Public Notice) dated August 31, 2006 and entitled "LPTV and TV Translator Digital Companion Channel Applications Non-Mutually Exclusive Proposals (Auction No. 85)" (DA 06-1748). Specifically, this technical exhibit was prepared in support of a complete FCC Form 346 as required by the Public Notice for WCSN-LP's proposed digital companion channel operation on channel 33 at Columbus, Ohio (FCC File No. BSFDTL-20060630BMF, Facility ID 167758). It is proposed to operate on digital channel 33 using an Andrew model ALP16L2-HSOC (Antenna ID 16531) "off-the-shelf" directional antenna oriented at 0° true. The maximum ERP will be 15 kW and the antenna radiation center height above mean sea level will be 397 meters. The transmitter will employ a "stringent" out-of-channel emission mask to control adjacent channel interference.

Figure 1 depicts the 74 dBu for the licensed analog and herein proposed 51 dBu contours for WCSN-LP. As indicated, the proposed 51 dBu contour completely encompasses the licensed 74 dBu contour. Thus, the proposal complies with the FCC requirement that there be contour overlap between the current analog and proposed digital operations.

Response to Paragraph 5 - Antenna Registration

The antenna will be mounted at the 175 meter level on an existing tower having an overall height above ground level of 205 meters (ASR 1029036).

Response to Paragraph 13 - Interference

A study has been conducted using the provisions of Section 74.793 and the OET Bulletin 69 interference model.<sup>1</sup> The results indicate that the proposed operation will not create prohibited interference to stations in the Land Mobile Radio Service (LMRS) or other existing, authorized or proposed NTSC or DTV full-power, LPTV, TV translator or Class A stations.

WCSN-LP Interference Acceptance

Based on the provisions of Section 74.793 and the OET Bulletin 69 interference model, the proposed digital channel 33 operation is predicted to cause excessive interference to the licensed LPTV operation of WCSN-LP on NTSC channel 32 at Bucyrus, OH (BLTTL-20050719AHL). It is noted that the proposed operation does not cause excessive interference to the authorized operation of WCSN-LP on NTSC channel 32 at Columbus, OH (BPTTL-20050817AEB). Furthermore, WCSN-LP agrees to accept any interference that is caused to its licensed operation by the herein proposed digital operation.

Canadian Coordination

As the FCC noted in the Report and Order in MB Docket No. 03-185 ("Report and Order"), the existing bilateral agreement with Canada currently does not contain provisions for digital LPTV stations. Furthermore, the FCC indicated in the Report and Order that the coordination approval process will be on a "case-by-case" basis. Studies have been conducted presuming that the coordination provisions ultimately adopted would not be more stringent than for full power digital TV (DTV) operations. On this basis, the proposed channel 33 digital operation would comply with the pertinent allocation criteria as it meets the first step minimum distance separations contained in the Letter of Understanding (LOU,

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<sup>1</sup>The du Treil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 1 km was employed. An Alpha based processor computer system was employed. The results have been found to be in very close agreement with the results of the FCC implementation of OET Bulletin No. 69.

September 22, 2000) concerning DTV service along the common US-Canadian border.

Response to Paragraph 14 - Environmental Protection Act

The proposed LPTV facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation."<sup>2</sup> The calculated power density at the base of the tower was calculated using the appropriate equation of the Bulletin.

Using a greater than expected vertical relative field value of 0.25 at angles towards the tower base (see Figure 2) and a maximum effective radiated power of 15 kilowatts, the calculated power density at 2 meters above ground level at the base of the tower is 0.0010 milliwatt per square centimeter ( $\text{mW}/\text{cm}^2$ ). This is 0.26% of the recommended limit of 0.39  $\text{mW}/\text{cm}^2$  for channel 33 applicable to uncontrolled exposure areas. Therefore, the facility complies with the FCC's RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, as this is a multi-user site, an agreement will be in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a

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<sup>2</sup> See *Report and Order* in ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 11 FCC Rcd 15123 (1997). See also *First Memorandum Opinion and Order*, ET Docket 93-62, FCC 96-487, adopted December 23, 1996, 11 FCC Rcd 17512 (1997), and *Second Memorandum Opinion and Order and Notice of Proposed Rulemaking*, ET Docket 93-62, FCC 97-303, adopted August 25, 1997.

***du Treil, Lundin & Rackley, Inc.***

Consulting Engineers

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longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down.

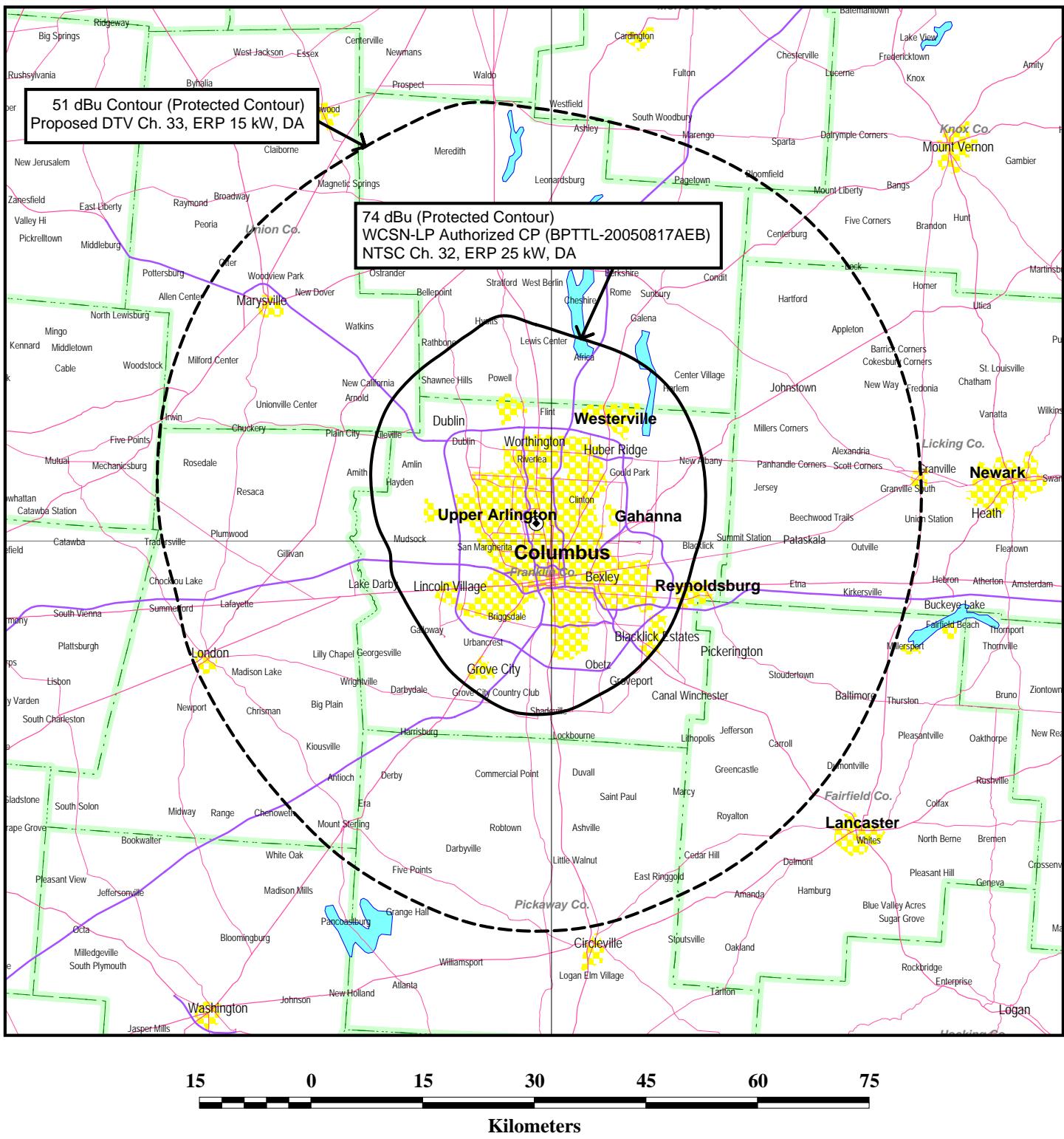


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October 2, 2006

Figure 1



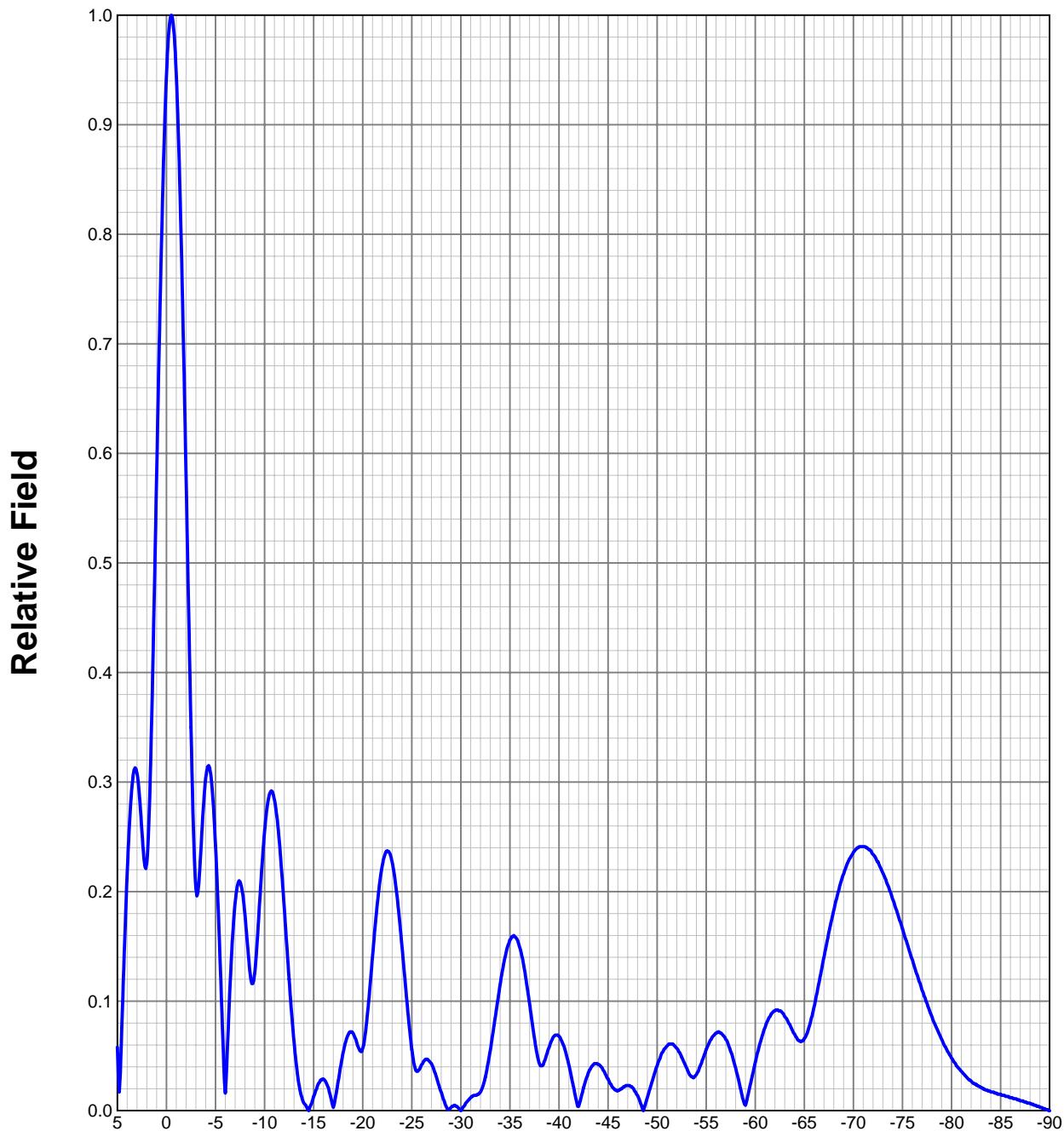
## FCC PREDICTED COVERAGE CONTOURS

LPTV STATION WCSN-LP  
COLUMBUS, OHIO  
DTV COMPANION CH 33  
15 KW (MAX-DA)

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

**ELEVATION PATTERN**

Type:	<u>ALP16L2</u>		Channel:	<u>32</u>
Directivity:	<u>Numeric</u>	<u>dBd</u>	Location:	
Main Lobe:	<u>16.59</u>	<u>12.20</u>	Beam Tilt:	<u>-0.50</u>
Horizontal:	<u>14.82</u>	<u>11.71</u>	Polarization:	<u>Horizontal</u>



## **TABULATED DATA FOR ELEVATION PATTERN**

Type: ALP16L2  
*PolarizationHorizontal*

ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB
5.00	0.058	-24.73	-6.75	0.160	-15.92	-27.00	0.043	-27.33	-50.50	0.053	-25.51
4.75	0.026	-31.70	-7.00	0.190	-14.42	-27.50	0.031	-30.17	-51.00	0.059	-24.58
4.50	0.089	-21.01	-7.25	0.206	-13.72	-28.00	0.017	-35.39	-51.50	0.061	-24.29
4.25	0.156	-16.14	-7.50	0.209	-13.60	-28.50	0.004	-47.96	-52.00	0.057	-24.88
4.00	0.217	-13.27	-7.75	0.199	-14.02	-29.00	0.003	-50.46	-52.50	0.049	-26.20
3.75	0.265	-11.55	-8.00	0.179	-14.94	-29.50	0.004	-47.96	-53.00	0.039	-28.18
3.50	0.297	-10.54	-8.25	0.152	-16.33	-30.00	0.000	-40.00	-53.50	0.031	-30.17
3.25	0.312	-10.12	-8.50	0.127	-17.92	-30.50	0.007	-43.10	-54.00	0.033	-29.63
3.00	0.308	-10.23	-8.75	0.116	-18.71	-31.00	0.012	-38.42	-54.50	0.043	-27.33
2.75	0.287	-10.84	-9.00	0.126	-17.99	-31.50	0.014	-37.08	-55.00	0.056	-25.04
2.50	0.255	-11.87	-9.25	0.155	-16.19	-32.00	0.017	-35.39	-55.50	0.065	-23.74
2.25	0.227	-12.88	-9.50	0.191	-14.38	-32.50	0.031	-30.17	-56.00	0.071	-22.97
2.00	0.226	-12.92	-9.75	0.226	-12.94	-33.00	0.055	-25.19	-56.50	0.071	-22.97
1.75	0.274	-11.24	-10.00	0.255	-11.87	-33.50	0.085	-21.41	-57.00	0.065	-23.74
1.50	0.359	-8.90	-10.50	0.289	-10.78	-34.00	0.115	-18.79	-57.50	0.054	-25.35
1.25	0.467	-6.62	-11.00	0.284	-10.93	-34.50	0.140	-17.08	-58.00	0.039	-28.18
1.00	0.580	-4.73	-11.50	0.246	-12.18	-35.00	0.156	-16.14	-58.50	0.020	-33.98
0.75	0.693	-3.19	-12.00	0.186	-14.61	-35.50	0.159	-15.97	-59.00	0.005	-46.02
0.50	0.794	-2.00	-12.50	0.120	-18.42	-36.00	0.149	-16.54	-59.50	0.024	-32.40
0.25	0.880	-1.11	-13.00	0.063	-24.01	-36.50	0.128	-17.86	-60.00	0.044	-27.13
0.00	0.945	-0.49	-13.50	0.024	-32.40	-37.00	0.098	-20.18	-60.50	0.062	-24.15
-0.25	0.986	-0.13	-14.00	0.007	-43.10	-37.50	0.066	-23.61	-61.00	0.076	-22.38
-0.50	1.000	0.00	-14.50	0.000	-40.00	-38.00	0.043	-27.33	-61.50	0.086	-21.31
-0.75	0.986	-0.12	-15.00	0.013	-37.72	-38.50	0.045	-26.94	-62.00	0.091	-20.82
-1.00	0.946	-0.48	-15.50	0.025	-32.04	-39.00	0.058	-24.73	-62.50	0.091	-20.82
-1.25	0.881	-1.10	-16.00	0.029	-30.75	-39.50	0.068	-23.35	-63.00	0.086	-21.31
-1.50	0.796	-1.98	-16.50	0.021	-33.56	-40.00	0.068	-23.35	-63.50	0.079	-22.05
-1.75	0.693	-3.19	-17.00	0.003	-50.46	-40.50	0.059	-24.58	-64.00	0.070	-23.10
-2.00	0.579	-4.75	-17.50	0.027	-31.37	-41.00	0.042	-27.54	-64.50	0.064	-23.88
-2.25	0.462	-6.71	-18.00	0.053	-25.51	-41.50	0.021	-33.56	-65.00	0.066	-23.61
-2.50	0.350	-9.12	-18.50	0.069	-23.22	-42.00	0.004	-47.96	-65.50	0.077	-22.27
-2.75	0.258	-11.78	-19.00	0.071	-22.97	-42.50	0.021	-33.56	-66.00	0.095	-20.45
-3.00	0.203	-13.85	-19.50	0.059	-24.58	-43.00	0.035	-29.12	-66.50	0.117	-18.64
-3.25	0.204	-13.83	-20.00	0.057	-24.88	-43.50	0.042	-27.54	-67.00	0.140	-17.08
-3.50	0.236	-12.54	-20.50	0.090	-20.92	-44.00	0.042	-27.54	-67.50	0.163	-15.76
-3.75	0.275	-11.21	-21.00	0.141	-17.02	-44.50	0.037	-28.64	-68.00	0.183	-14.75
-4.00	0.304	-10.34	-21.50	0.190	-14.42	-45.00	0.029	-30.75	-68.50	0.201	-13.94
-4.25	0.315	-10.05	-22.00	0.224	-13.00	-45.50	0.021	-33.56	-69.00	0.216	-13.31
-4.50	0.308	-10.23	-22.50	0.237	-12.51	-46.00	0.018	-34.89	-69.50	0.228	-12.84
-4.75	0.282	-10.98	-23.00	0.227	-12.88	-46.50	0.021	-33.56	-70.00	0.236	-12.54
-5.00	0.242	-12.32	-23.50	0.196	-14.15	-47.00	0.023	-32.77	-70.50	0.240	-12.40
-5.25	0.190	-14.45	-24.00	0.150	-16.48	-47.50	0.021	-33.56	-71.00	0.241	-12.36
-5.50	0.129	-17.79	-24.50	0.100	-20.00	-48.00	0.014	-37.08	-71.50	0.239	-12.43
-5.75	0.065	-23.74	-25.00	0.056	-25.04	-48.50	0.002	-53.98	-72.00	0.234	-12.62
-6.00	0.016	-35.92	-25.50	0.036	-28.87	-49.00	0.012	-38.42	-72.50	0.227	-12.88
-6.25	0.065	-23.74	-26.00	0.042	-27.54	-49.50	0.027	-31.37	-73.00	0.217	-13.27
-6.50	0.118	-18.56	-26.50	0.047	-26.56	-50.00	0.041	-27.74	-73.50	0.206	-13.72