

TECHNICAL STATEMENT
IN SUPPORT OF APPLICATION FOR
MODIFICATION OF LICENSE
KXLT-FM CHANNEL 300C
EAGLE, IDAHO
FCC FACILITY 18049

This technical statement has been prepared on behalf of Townsquare Media Boise License, LLC, licensee of the above referenced FM Broadcast station.

Due to sustained damage to its main antenna, KXLT-FM has been operating on an STA authorizing operation with reduced power.¹ This application also requests termination of said STA.

The licensee has now replaced its licensed Jampro 6 Bay Double “V” half wave spaced antenna with an ERI SHPX-6AC-HW “roto-tiller” antenna.

The new antenna has been installed at the same center of radiation as that of the old antenna, thus the HAAT remains the same as presently authorized.²

Environmental Considerations

In as much as this application is solely for a change in antenna system, the only environmental consideration is that of RFR.

A complete measurement of RFR at the site was conducted in November of 2013 by the Professional Engineering firm of Hatfield and Dawson in conjunction with an application for License for FM station KSAS-FM³. A copy of the report on these measurements is included herein for convenience of the Commission and is designated as Exhibit –A -.

Exhibit –B- attached, shows the electrical specifications for the KXLT-FM new antenna.

Utilizing the OET’s FM Model program and comparing power density radiated by the old antenna to that of the new antenna results in the following:

¹ See BSTA-20140129AGT

² See BLH-19940824KC

³ See BXLH-20131118ARJ

The old antenna, A Jampro 6 bay double “V” with 0.5λ bay spacing shows a maximum power density of $13.4 \mu\text{w}/\text{cm}^2$ two meters above ground located 89.2 meters from the base of the tower.⁴

The new antenna an ERI SHPX-6AC-HW with 0.5λ bay spacing shows a maximum power density of $11.04 \mu\text{w}/\text{cm}^2$ two meters above ground located 90 meters from the base of the tower.⁵

It can be seen that the new antenna will result in less overall RFR at the site and it is therefore believed that this application either meets or exceeds all rules and regulations as set forth in 47CFR part 73.

The Licensee in cooperation with other users of the site will either reduce power or cease transmissions in order to protect workers while in the vicinity of the antenna.

The site is well protected and signs warning of possible radiation exposure hazards are strategically placed.

Fred W. Greaves Jr.
Technical Consultant
March 6, 2014

⁴ 1.34% of the MPE of $1000 \mu\text{w}/\text{cm}^2$ for controlled areas and 6.7% of the MPE of $200 \mu\text{w}/\text{cm}^2$ for un-controlled areas

⁵ 1.1% of the MPE of $1000 \mu\text{w}/\text{cm}^2$ for controlled areas and 5.52 % of the MPE of $200 \mu\text{w}/\text{cm}^2$ for un-controlled areas.

EXHIBIT -A-

HATFIELD & DAWSON

CONSULTING ELECTRICAL ENGINEERS

9500 GREENWOOD AVE. N.

SEATTLE, WASHINGTON 98103

BENJAMIN F. DAWSON III, PE
THOMAS M. ECKELS, PE
STEPHEN S. LOCKWOOD, PE
DAVID J. PINION, PE
ERIK C. SWANSON, PE

THOMAS S. GORTON, PE
MICHAEL H. MEHIGAN, PE

TELEPHONE (206) 783-9151
FACSIMILE (206) 789-9834
E-MAIL hatdaw@hatdaw.com

JAMES B. HATFIELD, PE
CONSULTANT

MAURY L. HATFIELD, PE
(1942-2009)

PAUL W. LEONARD, PE
(1925-2011)

ELECTROMAGNETIC FIELD MEASUREMENTS AT DEER POINT FM & TV TRANSMITTER SITE

Prepared for Peak Broadcasting

KSAS-FM 103.5 MHz Auxiliary Facility

Boise, Idaho

November 2013

EXHIBIT -A-

INTRODUCTION

In May of 2013 Hatfield & Dawson was retained to measure the radiofrequency power density measurements were made around the FM & TV transmitting facility at Deer Point, located northeast of Boise, ID. A report on those measurements was included with the KSAS-FM license renewal application filed that same month.

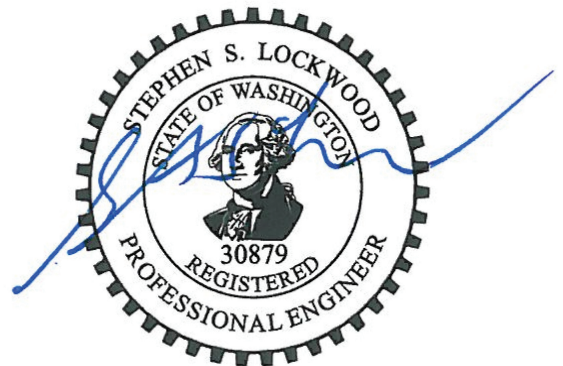
In October 2013 the KSAS-FM auxiliary facility changed frequency from 103.3 MHz to 103.5 MHz. The power level and the antenna remain the same as previously licensed under auxiliary license BLH-19940912KA. The radiofrequency power density was measured. These measurements were made between the hours of 7:30 AM and 8:00 AM on 15 November 2013 with KSAS-FM operating using its auxiliary antenna and transmitter. Measurements were made by Stephen S. Lockwood, P.E. using the same equipment and procedures outlined in the May report. All FM and TV transmitters at the site were reportedly operating at 100% of licensed power as the measurements were made. The attached map summarizes the measurements. The RF exposure conditions and conclusion remain the same as outlined in the May report.

STATEMENT OF ENGINEER

This Engineering Report regarding radiofrequency field measurements around the Deer Point FM and TV transmitter site located northeast of Boise, Idaho, has been prepared by the undersigned or under my direct supervision. All representations contained herein are true to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am a partner in the firm of Hatfield and Dawson Consulting Engineers and am Registered as a Professional Engineer in the States of Washington, Alaska, and Wyoming.

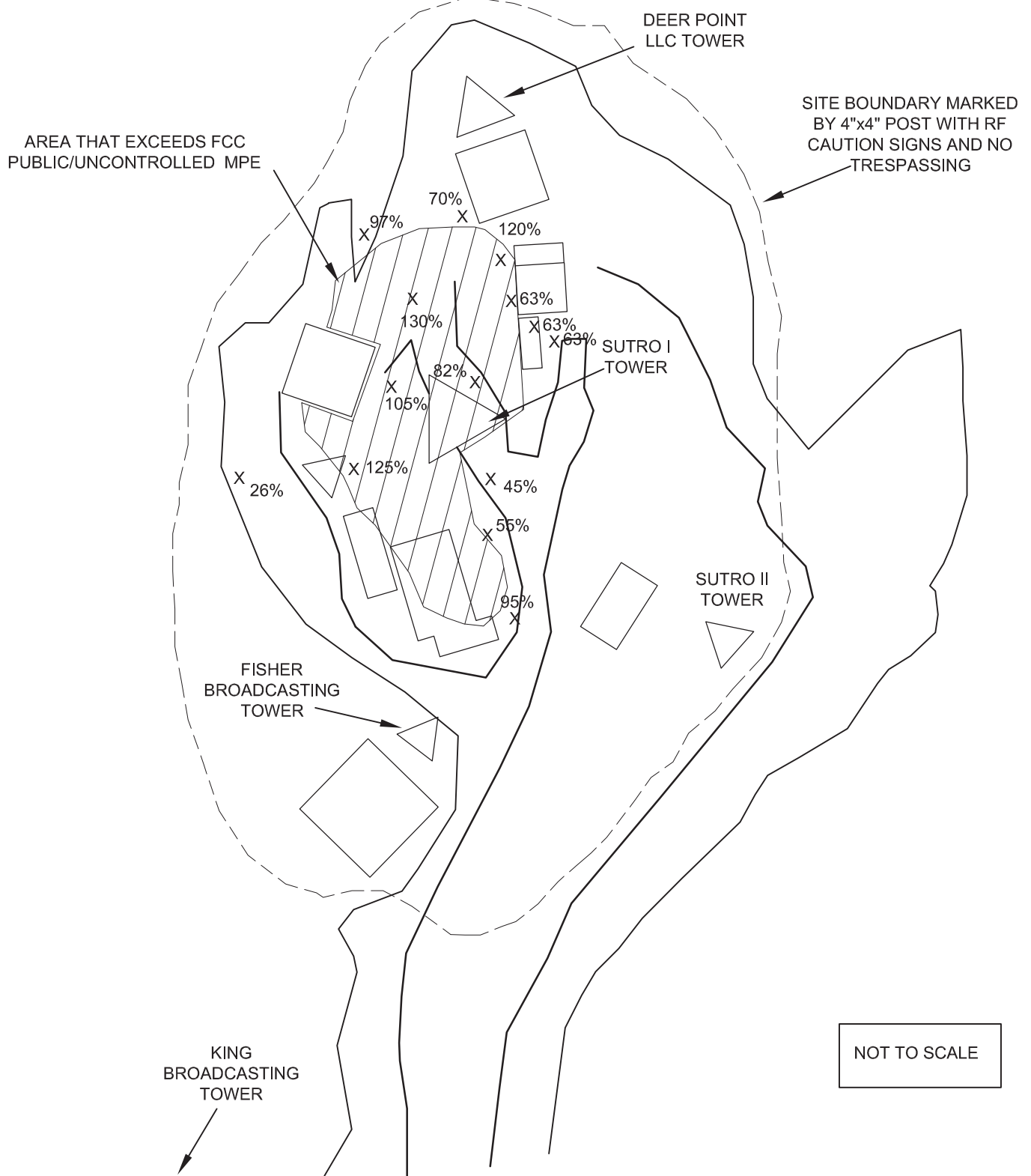
Stephen S. Lockwood, P.E.

15 November 2013



Hatfield & Dawson Consulting Engineers

EXHIBIT -A-



***PRELIMINARY SPECIFICATION FOR
ERI SHPX ROTOTILLER[®] CIRCULARLY POLARIZED
FM BROADCAST ANTENNA***

*Prepared For
Townsquare Media
Channel 300
KXLT - Eagle, ID
January 26, 2014*

**ANTENNA TYPE:
SHPX-6AC-HW**

**SPECIFICATION NO:
SMK-01262014-KXLT**



EXHIBIT -B-

**PRELIMINARY SPECIFICATION FOR
ERI SHPX ROTOTILLER® CIRCULARLY POLARIZED
FM BROADCAST ANTENNA**

ELECTRICAL CHARACTERISTICS:

CHANNEL:		300
FREQUENCY:		107.9 MHz
POWER GAIN:	Cir Pol:	1.9130 (2.8171 dBd)
GAIN AT HORIZONTAL:	Cir Pol:	1.9130 (2.8171 dBd)
ELECTRICAL BEAM TILT:		0.00 Degrees
FIRST NULL FILL:		0.00 %
SECOND NULL FILL:		0.00 %
INPUT POWER REQUIRED:		23.523 kW Average Power
MAXIMUM INPUT POWER:		112.00 kW Average Power
INPUT TYPE:		3-1/8 EIA 50 Ohm
ANTENNA VSWR (MAXIMUM):		1.07:1 or less, with field matching; 1.25:1 or less, top pole or Lambda™ section mounting; 1.5:1 or less, side mounted, without field mounting.

Preliminary, subject to final design and review.

EXHIBIT -B-

**PRELIMINARY SPECIFICATION FOR
ERI SHPX ROTOTILLER® CIRCULARLY POLARIZED
FM BROADCAST ANTENNA**

MECHANICAL CHARACTERISTICS:**MOUNTING CONFIGURATION:**

**(Tower Interface supplied and
installed by others.)*

Side Mount

HEIGHT OF ANTENNA:

26.2 feet

HEIGHT OF CENTER OF
RADIATION:

13.1 feet

REQUIRED MOUNTING APERTURE°:

37.8 feet

DEICING:

*Radomes or deicing heaters not
normally required for radial
ice less than 1/2-inch*

DEICER SELECTED:

NO

RADOME SELECTED:

YES

RADOME COLOR:

BLACK (standard)

CALCULATED WEIGHT¹:

632 lbs.

ANTENNA AREA:

 $C_A A_C$:

24.4 square feet

This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three transitional and three rotational degrees of freedom.

° Vertical tower space is based on the top bay mounted 5 feet from the top of the tower. Add 5 feet if the antenna is to be mounted somewhere other than near the top of the tower.

¹ Calculated weight is based on the PRELIMINARY design of the antenna. The actual weight of the antenna will be within $\pm 10\%$ of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna. Weight and wind figures do not include radomes or radial ice.

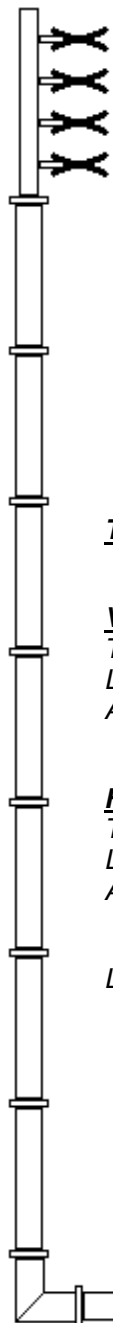
Note: Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.

Preliminary, subject to final design and review.

EXHIBIT -B-

FM Broadcast Antenna System Power Analysis

Townsquare Media Channel 300
KXLT - Eagle, ID
SHPX-6AC-HW



ERP: **Hor or Ver Pol:**
 kW: 45.00
 dBk: 16.53

POWER GAIN:
 Ratio: 1.91
 dBd: 2.82

TRANSMISSION LINE:**VERTICAL RUN:**

Type: HJ8-50B
 Length, ft: 175 ft.
 Attenuation, dB/100 ft: 0.148 dB/100 ft.

ANTENNA INPUT:

kW: 23.52
 dBk: 13.71

HORIZONTAL RUN:

Type: HJ8-50B
 Length, ft: 50 ft.
 Attenuation, dB/100 ft: 0.148 dB/100 ft.

LINE LOSS:

kW: 1.88
 dB: 0.33

Line Efficiency: 92.60 %

Circulator Loss

kW: 0.00
 dB: 0.00

Filter Loss

kW: 0.00
 dB: 0.00

Isol Trans Loss

kW: 0.00
 dB: 0.00

Transmitter Power

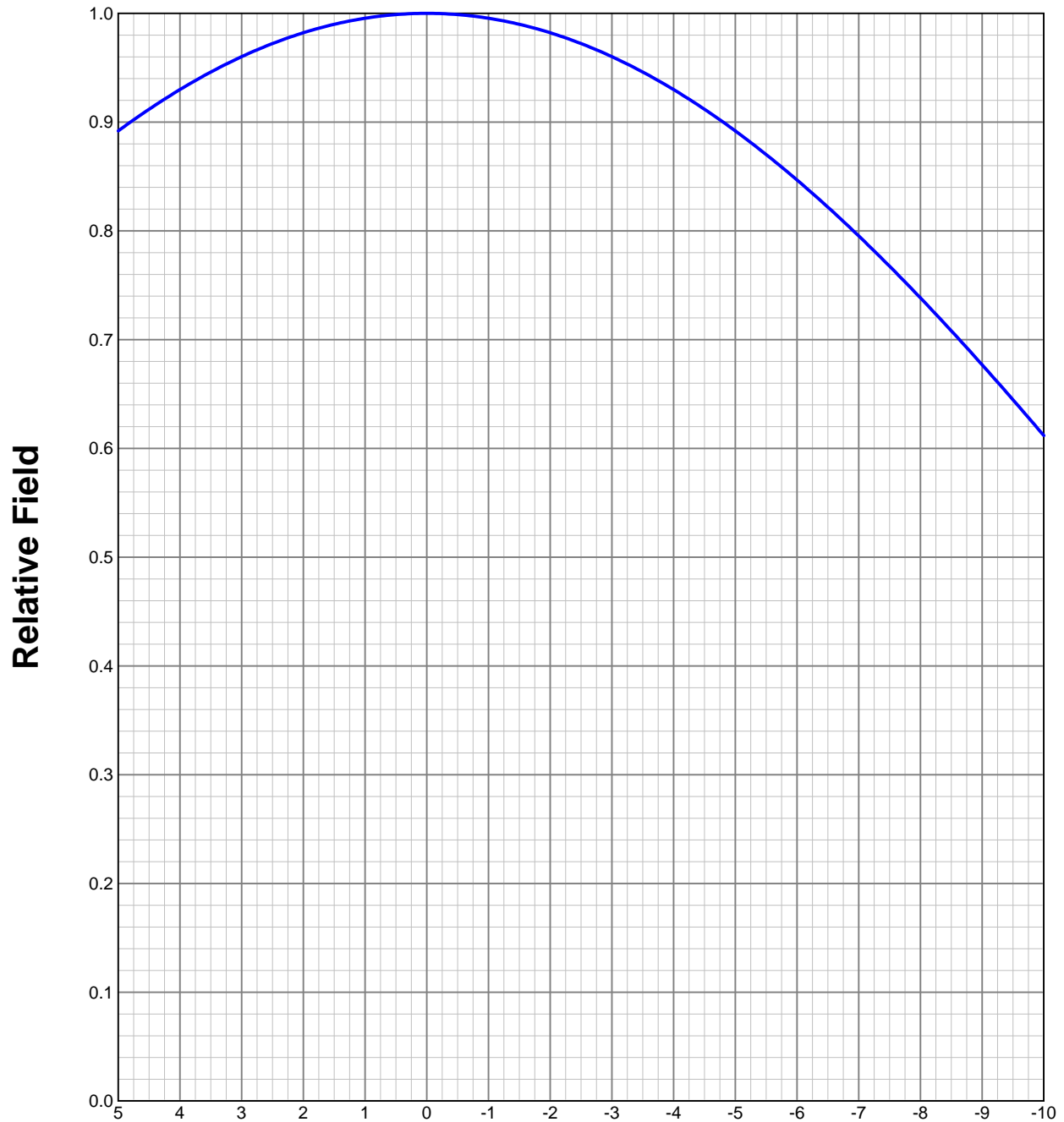
kW: 25.40
 dBk: 14.05

Preliminary, subject to final design and review.

EXHIBIT -B-

ELEVATION PATTERN

Type:	SHPX6H		Channel:	300
Directivity:	Numeric	dBd	Location:	KXLT - Eagle, ID
Main Lobe:	1.91	2.82	Beam Tilt:	0.00
Horizontal:	1.91	2.82	Polarization:	Circular



Preliminary, subject to final design and review.

EXHIBIT -B-

TABULATED DATA FOR ELEVATION PATTERNType: **SHPX6H**Polarization: **Circular**

ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB
5.00	0.892	-0.99	-6.75	0.809	-1.84	-27.00	0.208	-13.63	-50.50
4.75	0.902	-0.89	-7.00	0.795	-1.99	-27.50	0.211	-13.51	-51.00
4.50	0.912	-0.80	-7.25	0.782	-2.14	-28.00	0.213	-13.44	-51.50
4.25	0.921	-0.71	-7.50	0.767	-2.30	-28.50	0.213	-13.41	-52.00
4.00	0.930	-0.63	-7.75	0.753	-2.46	-29.00	0.213	-13.43	-52.50
3.75	0.938	-0.55	-8.00	0.738	-2.63	-29.50	0.211	-13.50	-53.00
3.50	0.946	-0.48	-8.25	0.723	-2.81	-30.00	0.209	-13.61	-53.50
3.25	0.953	-0.41	-8.50	0.708	-3.00	-30.50	0.205	-13.76	-54.00
3.00	0.960	-0.35	-8.75	0.693	-3.19	-31.00	0.201	-13.95	-54.50
2.75	0.966	-0.30	-9.00	0.677	-3.39	-31.50	0.195	-14.18	-55.00
2.50	0.972	-0.24	-9.25	0.661	-3.60	-32.00	0.189	-14.46	-55.50
2.25	0.977	-0.20	-9.50	0.645	-3.81	-32.50	0.183	-14.77	-56.00
2.00	0.982	-0.16	-9.75	0.628	-4.04	-33.00	0.175	-15.13	-56.50
1.75	0.986	-0.12	-10.00	0.612	-4.27	-33.50	0.167	-15.53	-57.00
1.50	0.990	-0.09	-10.50	0.578	-4.76	-34.00	0.159	-15.99	-57.50
1.25	0.993	-0.06	-11.00	0.544	-5.29	-34.50	0.150	-16.49	-58.00
1.00	0.996	-0.04	-11.50	0.510	-5.85	-35.00	0.141	-17.05	-58.50
0.75	0.997	-0.02	-12.00	0.475	-6.47	-35.50	0.131	-17.66	-59.00
0.50	0.999	-0.01	-12.50	0.440	-7.13	-36.00	0.121	-18.35	-59.50
0.25	1.000	0.00	-13.00	0.405	-7.85	-36.50	0.111	-19.10	-60.00
0.00	1.000	0.00	-13.50	0.370	-8.63	-37.00	0.101	-19.95	-60.50
-0.25	1.000	0.00	-14.00	0.336	-9.47	-37.50	0.090	-20.89	-61.00
-0.50	0.999	-0.01	-14.50	0.302	-10.40	-38.00	0.080	-21.95	-61.50
-0.75	0.997	-0.02	-15.00	0.268	-11.43	-38.50	0.069	-23.17	-62.00
-1.00	0.996	-0.04	-15.50	0.235	-12.57	-39.00	0.059	-24.57	-62.50
-1.25	0.993	-0.06	-16.00	0.203	-13.86	-39.50	0.049	-26.22	-63.00
-1.50	0.990	-0.09	-16.50	0.171	-15.33	-40.00	0.039	-28.24	-63.50
-1.75	0.986	-0.12	-17.00	0.140	-17.05	-40.50	0.029	-30.82	-64.00
-2.00	0.982	-0.16	-17.50	0.111	-19.13	-41.00	0.019	-34.41	-64.50
-2.25	0.977	-0.20	-18.00	0.082	-21.74	-41.50	0.010	-40.41	-65.00
-2.50	0.972	-0.24	-18.50	0.054	-25.32	-42.00	0.000	-70.48	-65.50
-2.75	0.966	-0.30	-19.00	0.028	-31.12	-42.50	0.009	-41.27	-66.00
-3.00	0.960	-0.35	-19.50	0.003	-51.78	-43.00	0.017	-35.26	-66.50
-3.25	0.953	-0.41	-20.00	0.021	-33.42	-43.50	0.026	-31.86	-67.00
-3.50	0.946	-0.48	-20.50	0.044	-27.15	-44.00	0.033	-29.51	-67.50
-3.75	0.938	-0.55	-21.00	0.065	-23.72	-44.50	0.041	-27.75	-68.00
-4.00	0.930	-0.63	-21.50	0.085	-21.42	-45.00	0.048	-26.35	-68.50
-4.25	0.921	-0.71	-22.00	0.103	-19.72	-45.50	0.055	-25.21	-69.00
-4.50	0.912	-0.80	-22.50	0.120	-18.40	-46.00	0.061	-24.26	-69.50
-4.75	0.902	-0.89	-23.00	0.136	-17.35	-46.50	0.067	-23.46	-70.00
-5.00	0.892	-0.99	-23.50	0.150	-16.49	-47.00	0.073	-22.77	-70.50
-5.25	0.881	-1.10	-24.00	0.162	-15.79	-47.50	0.078	-22.18	-71.00
-5.50	0.870	-1.21	-24.50	0.173	-15.22	-48.00	0.082	-21.68	-71.50
-5.75	0.859	-1.32	-25.00	0.183	-14.74	-48.50	0.087	-21.24	-72.00
-6.00	0.847	-1.44	-25.50	0.191	-14.36	-49.00	0.091	-20.86	-72.50
-6.25	0.834	-1.57	-26.00	0.198	-14.05	-49.50	0.094	-20.54	-73.00
-6.50	0.822	-1.70	-26.50	0.204	-13.81	-50.00	0.097	-20.27	-73.50

Preliminary, subject to final design and review.