

# Los Angeles Academy of Arts and Enterprise

## LPFM Allocation Study

Los Angeles Academy of Arts and Enterprise ("LAAAE") desires to mount a Channel 268 Shively 6812B two bay LPFM antenna on an existing building. The Building is located at 1201 West 5th Street, Los Angeles, CA, 90017. Figure A is a picture<sup>1</sup> of the site.

Figure B of this document is an LPFM Allocation Spacing Study from the proposed site. The LAAAE facility is short spaced to two second adjacent facilities, KRTH, Facility ID 28631, Channel 266 in Los Angeles, CA and KSCA, Facility ID 24548, Channel 270 in Glendale, CA. The LAAAE facility must not cause interference to either facility. LAAAE proposes to use a two bay Shively 6812B low power antenna with 0.687876 wavelength bay spacing to eliminate downward radiation. The effective radiated power ("ERP") will be 25 watts. Figures C and D show the 94.1 dbμ contour of the KRTH License and the 83.4 dbμ contour of the KSCA License. Second adjacent channels are protected to a value 40 dbμ higher than the coverage contour. Therefore, it would require a signal level of 134.1 dbμ to interfere with KRTH and a signal level of 123.4 dbμ to interfere with KSCA. The LAAAE facility will not interfere with either station if the 123.4 dbμ signal of the proposed LPFM does not reach any occupied area around the tower site.

Figures E through H define the design of the proposed Shively antenna<sup>2</sup>. The overall height of the building is 54 meters accounting for the elevator equipment building. The main roof of the building is 48 meters above the ground or 9 meters below the Center of Radiation ("COR") of the antenna. The two bay antenna is mounted on a small pole to give a COR of 57.0 meters above ground level. FAA notification is not required. Figure H shows the level of the LAAAE signal at 9 meters above the main roof top. The maximum radiation of 119.35 dbμ occurs at a distance of 26.3 m at a 20 degree down tilt from the site. Occupied portions of the building receive less than the interfering signal level even without taking material and other building losses into account. The closest occupied building in the main lobe of the antenna is 246 meters away at it closest face point. Using the free space equation<sup>3</sup>, the field at that point is 103.0 dbμ. Buildings in the major lobe of the antenna farther than this will receive even less signal level. The roof of the building and elevator equipment room is unoccupied on a general

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<sup>1</sup> Picture obtained from Google Earth.

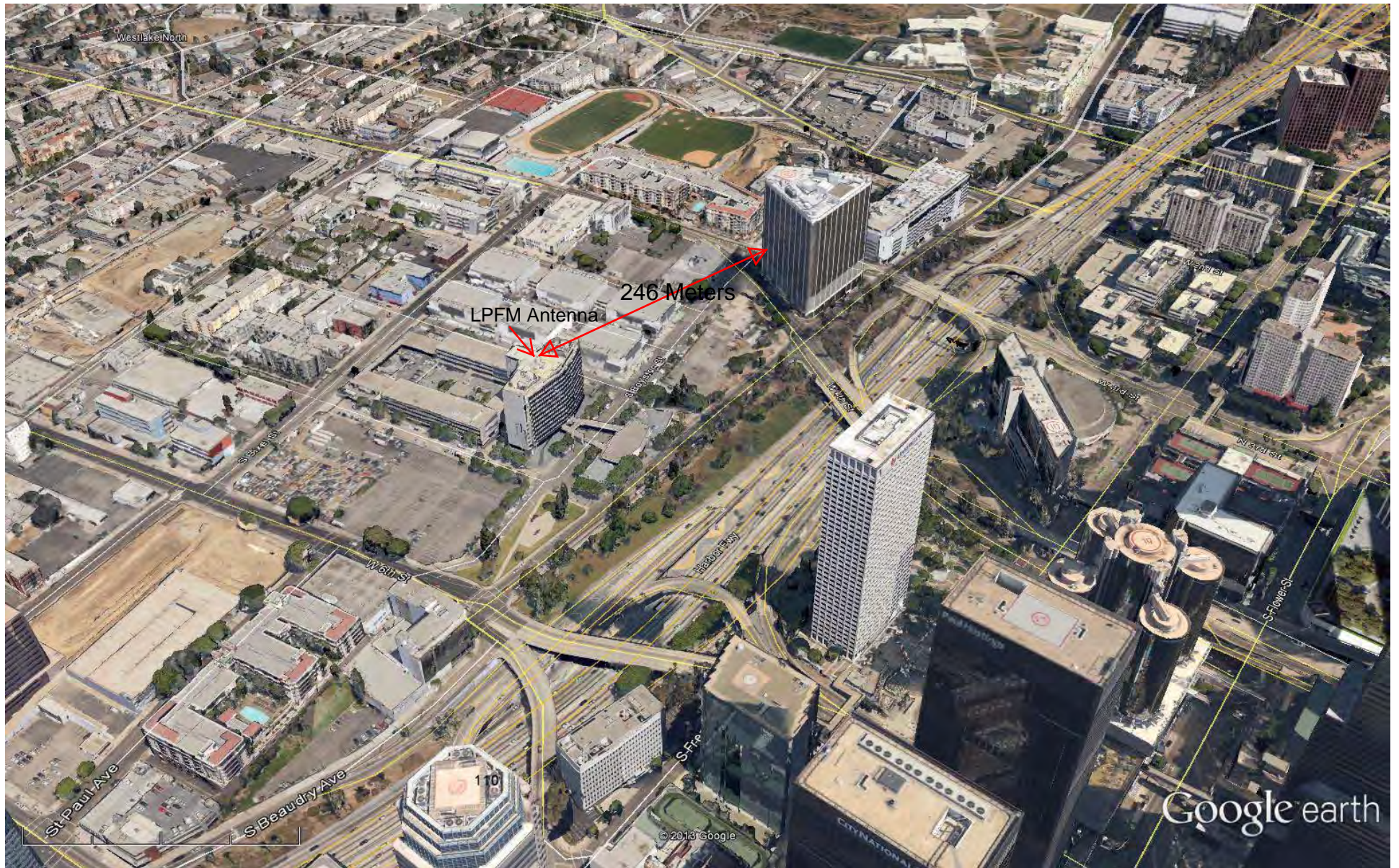
<sup>2</sup> This design spreadsheet was obtained from Shively Laboratories. The calculations of field strength are based on the free space formula. The field strength spreadsheet was derived by Ellis Engineering using data from the Shively Laboratories output and additions from Clarence Beverage with Communications Technologies, Inc. The antenna design has been checked and approved by Shively Laboratories.

<sup>3</sup> Free Space Signal =  $106.92 - 20 \cdot \log(\text{distance in km}) + \text{dBk}$

basis. Therefore, this proposal causes no interference to any second adjacent facility within their protected service contour. All occupied buildings, residences, roadways, highways and vehicles are protected from second adjacent channel interference to KRTH and KSCA.

LAAAE meets all co-channel, first adjacent, and third adjacent spacing requirements. LAAAE respectfully requests a waiver of the second adjacent spacing requirements due to the fact that this proposed facility will cause no interference to any second adjacent channel shortspaced facility. Los Angeles Academy of Arts and Enterprise will perform any test or measurements required should the Commission grant a Construction Permit with conditions requiring tests or measurements.





Google earth

feet  
meters



Figure A



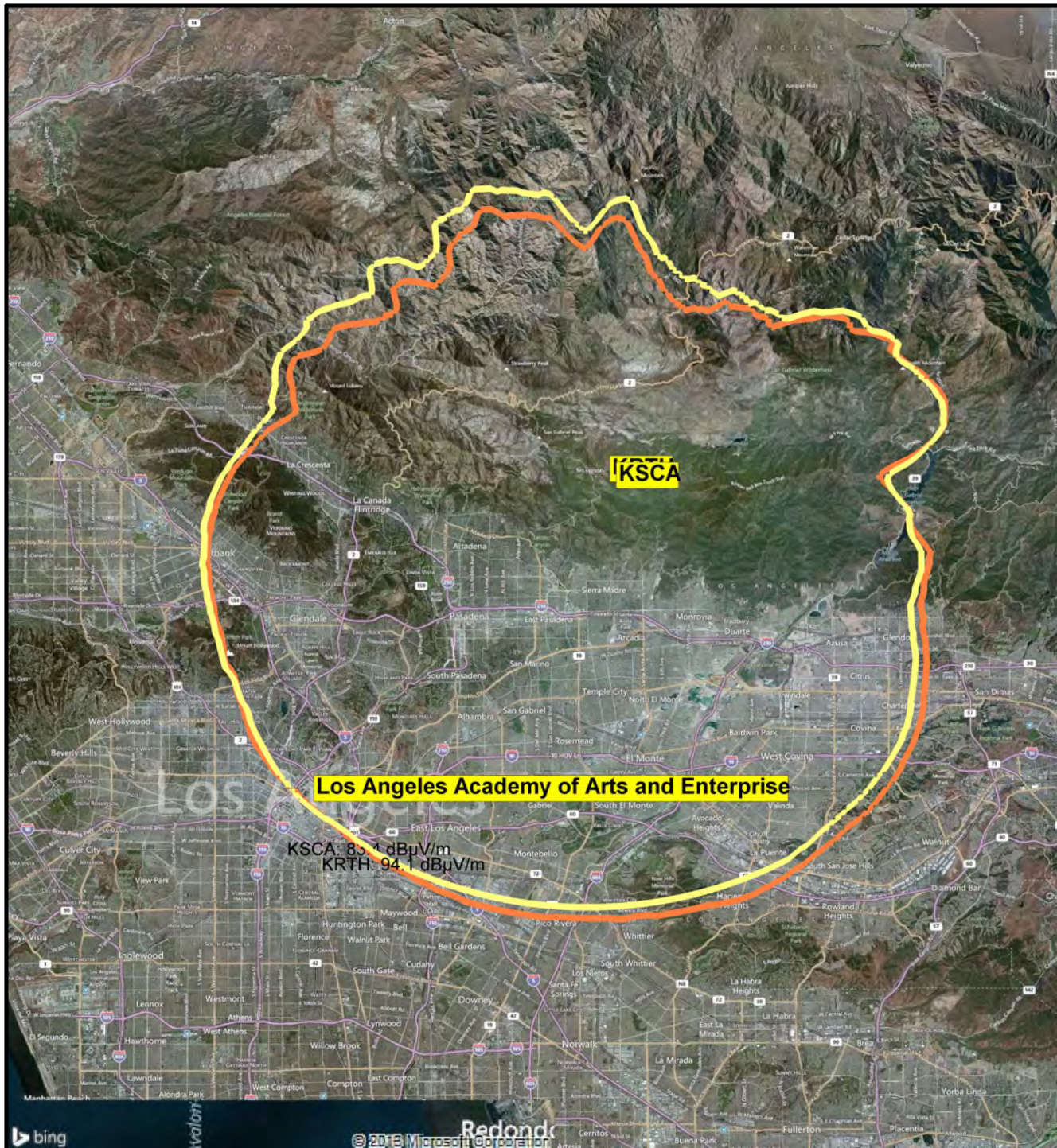
Figure B

# LPFM Spacing Study

Client: NEW  
FM Study for Proposed Site: 34-3-16.9100, 118-15-31.3500  
Desired Class: L1

Channel: 268 Frequency: 101.5 MHz

Channel	Facility/Application ID	City	State	Callsign	Licensee	Facility Status	Class	Service	Latitude	Longitude	Distance Between Facilities	Direction True North	Required Distance	Spacing Status	Separation Distance
265	3727	BEAUMONT	CA	KAEH	CASA MEDIA PARTNERS, LLC	USE	A	FA	33-56-6.000000	116-58-24.000000	119.4988	96.3789	29	OK	90.4988
265	3727	BEAUMONT	CA	KAEH	CASA MEDIA PARTNERS, LLC	LIC	A	FM	33-54-29.000000	116-59-45.000000	117.8266	97.9347	29	OK	88.8266
265	3727	BEAUMONT	CA	KAEH	CASA MEDIA PARTNERS, LLC	CP	A	FM	33-56-51.000000	116-59-3.000000	118.3482	95.7661	29	OK	89.3482
266	28631	LOS ANGELES	CA	KRTH	CBS RADIO EAST INC.	LIC	B	FS	34-13-38.000000	118-4-0.000000	26.076	42.787	67	****SHORT****	-40.924
266	28631	LOS ANGELES	CA	KRTH	CBS RADIO EAST INC.	LIC	B	FS	34-11-49.000000	118-15-30.000000	15.7783	0.1256	67	****SHORT****	-51.2217
266	28631	LOS ANGELES	CA	KRTH	CBS RADIO EAST INC.	USE	B	FA	34-13-38.000000	118-4-0.000000	26.076	42.787	67	****SHORT****	-40.924
266	28631	LOS ANGELES	CA	KRTH	CBS RADIO EAST INC.	LIC	B	FM	34-13-38.000000	118-4-0.000000	26.076	42.787	67	****SHORT****	-40.924
266	28631	LOS ANGELES	CA	KRTH	CBS RADIO EAST INC.	LIC	B	FS	34-13-38.000000	118-4-0.000000	26.076	42.787	67	****SHORT****	-40.924
266	28631	LOS ANGELES	CA	KRTH	CBS RADIO EAST INC.	LIC	B	FS	34-11-49.000000	118-15-30.000000	15.7783	0.1256	67	****SHORT****	-51.2217
267	33611	IDYLLWILD	CA	KATY-FM	ALL PRO BROADCASTING, INC.	USE	A	FA	33-43-49.000000	116-42-31.000000	147.8349	104.0876	56	OK	91.8349
267	658223	BARSTOW	CA			VAC	A	FA	34-53-55.000000	117-1-19.000000	147.2165	50.5139	56	OK	91.2165
267	33611	IDYLLWILD	CA	KATY-FM	ALL PRO BROADCASTING, INC.	LIC	A	FM	33-43-31.000000	116-44-58.000000	144.3176	104.6657	56	OK	88.3176
267	189395	MENIFEE	CA	KATY-1	ALL PRO BROADCASTING, INC.	APP	D	FB	33-46-0.100000	117-20-23.400000	90.7864	110.6014	13	OK	77.7864
267	191522	BARSTOW	CA	NEW	POINT FIVE LLC	APP	A	FM	34-53-55.000000	117-1-19.000000	147.2165	50.5139	56	OK	91.2165
267	191522	BARSTOW	CA	NEW	POINT FIVE LLC	APP	A	FM	34-51-22.000000	117-2-59.000000	142.2852	51.333	56	OK	86.2852
268	36234	BAKERSFIELD	CA	KGFM	AGM CALIFORNIA, INC.	LIC	B	FM	35-26-17.000000	118-44-22.000000	159.6491	343.9939	112	OK	47.6491
268	36234	BAKERSFIELD	CA	KGFM	AGM CALIFORNIA, INC.	USE	B	FA	35-26-20.000000	118-44-23.000000	159.7449	343.9944	112	OK	47.7449
268	124258	OXNARD	CA	KOCC-LP	CALVARY CHAPEL OF OXNARD	LIC	L1	FL	34-11-55.000000	119-9-16.000000	84.159	280.934	24	OK	60.159
268	124322	ADELANTO	CA	KPTG-LP	CALVARY CHAPEL OF ADELANTO	LIC	L1	FL	34-31-55.000000	117-24-50.000000	94.0869	55.7604	24	OK	70.0869
268	124219	NEWPORT BEACH	CA	KOCI-LP	STARTREE 107, INC.	LIC	L1	FL	33-37-43.000000	117-54-31.000000	57.3021	145.5631	24	OK	33.3021
268	124781	CORONA	CA	KORM-LP	TEMPLO NUEVA VIDA, INC.	LIC	L1	FL	33-49-55.500000	117-29-41.800000	74.8014	109.2748	24	OK	50.8014
268	148497	LAKE LOS ANGELES	CA	NEW	RADIO ASSIST MINISTRY, INC.	APP	D	FX	34-38-43.000000	118-4-12.000000	67.7722	14.8439	24	OK	43.7722
268	148497	LAKE LOS ANGELES	CA	NEW	RADIO ASSIST MINISTRY, INC.	APP	D	FX	34-38-49.000000	118-14-21.000000	65.72	1.5677	24	OK	41.72
269	43999	BIG BEAR LAKE	CA	KXSB	LAZER LICENSES, LLC	LIC	A	FM	34-12-47.000000	116-51-59.000000	129.6255	82.212	56	OK	73.6255
269	43999	BIG BEAR LAKE	CA	KXSB	LAZER LICENSES, LLC	USE	A	FA	34-12-47.000000	116-51-59.000000	129.6255	82.212	56	OK	73.6255
269	35592	ISLA VISTA	CA	KSBL	RINCON BROADCASTING LS2 LLC	CP	B	FM	34-0-9.000000	119-38-51.500000	128.4065	267.4157	97	OK	31.4065
270	24548	GLENDALE	CA	KSCA	UNIVISION RADIO LICENSE CORPORATION	LIC	B	FS	34-13-36.000000	118-3-56.000000	26.1007	43.0441	67	****SHORT****	-40.8993
270	24548	GLENDALE	CA	KSCA	UNIVISION RADIO LICENSE CORPORATION	LIC	B	FS	34-13-36.000000	118-3-56.000000	26.1007	43.0441	67	****SHORT****	-40.8993
270	24548	GLENDALE	CA	KSCA	UNIVISION RADIO LICENSE CORPORATION	USE	B	FA	34-13-26.000000	118-3-45.000000	26.0714	43.9594	67	****SHORT****	-40.9286
270	24548	GLENDALE	CA	KSCA	UNIVISION RADIO LICENSE CORPORATION	LIC	B	FS	34-9-50.000000	118-11-45.000000	13.4294	25.594	67	****SHORT****	-53.5706
270	24548	GLENDALE	CA	KSCA	UNIVISION RADIO LICENSE CORPORATION	LIC	B	FM	34-13-26.000000	118-3-45.000000	26.0714	43.9594	67	****SHORT****	-40.9286
270	24548	GLENDALE	CA	KSCA	UNIVISION RADIO LICENSE CORPORATION	LIC	B	FS	34-13-26.000000	118-3-44.000000	26.0892	43.9999	67	****SHORT****	-40.9108
270	190827	SANTA CLARITA	CA	KSCA-FM1	UNIVISION RADIO LICENSE CORPORATION	CP	D	FB	34-19-48.000000	118-35-56.000000	43.7699	314.2411	6	OK	37.7699
271	59093	OJAI	CA	K271AC	SANTA MONICA COMMUNITY COLLEGE DISTRICT	LIC	D	FX	34-20-57.000000	119-20-7.000000	104.4628	288.2208	6	OK	98.4628
271	151638	OXNARD	CA	K271CA	LIVING WAY MINISTRIES, INC.	CP	D	FX	34-10-2.000000	119-8-4.000000	81.7595	278.7811	6	OK	75.7595
214	51252	LOS ANGELES	CA	KPFK	PACIFICA FOUNDATION, INC.	USE	B	FA	34-13-45.000000	118-4-3.000000	26.1827	42.3426	12	OK	14.1827
214	51252	LOS ANGELES	CA	KPFK	PACIFICA FOUNDATION, INC.	LIC	B	FM	34-13-45.000000	118-4-3.000000	26.1827	42.3426	12	OK	14.1827
214	51252	LOS ANGELES	CA	KPFK	PACIFICA FOUNDATION, INC.	LIC	B	FS	34-13-45.000000	118-4-3.000000	26.1827	42.3426	12	OK	14.1827
214	158785	MALIBU	CA	KPFK-FM1	PACIFICA FOUNDATION, INC.	LIC	D	FB	34-4-32.000000	118-39-32.000000	37.0156	273.5835	3	OK	34.0156



## Los Angeles Academy of Arts and Enterprise

### Sites

Site: Los Angeles Academy of Arts and Enterprise  
 N34°03'16.91" W118°15'31.35" 118.0 m  
 LAAE Tx.Ht.AGL: 57.0 m Total ERPd: 0.03 kW  
 Model: 1 Isotropic-horizontal/0.0° 10 1.5000 MHz

Site: KRTH  
 N34°13'38.00" W118°04'00.00" 1741.0 m  
 KRTH Tx.Ht.AGL: 113.0 m Total ERPd: 51.00 kW  
 Model: 1 Isotropic-horizontal/0.0° 10 1.1000 MHz

Site: KSCA  
 N34°13'26.00" W118°03'45.00" 1724.0 m  
 KSCA Tx.Ht.AGL: 39.0 m Total ERPd: 4.80 kW  
 Model: 1 Isotropic-horizontal/0.0° 10 1.9000 MHz

### Field strength at remote

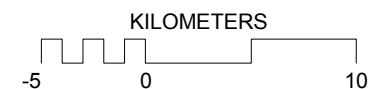
■ = 60.0 dBuV/m  
 Display threshold level: -120.0 dBmW

### Field strength at remote

■ = 94.1 dBuV/m  
 Display threshold level: -120.0 dBmW

### Field strength at remote

■ = 83.4 dBuV/m  
 Display threshold level: -120.0 dBmW



## L.A. Academy of Arts and Enterprise

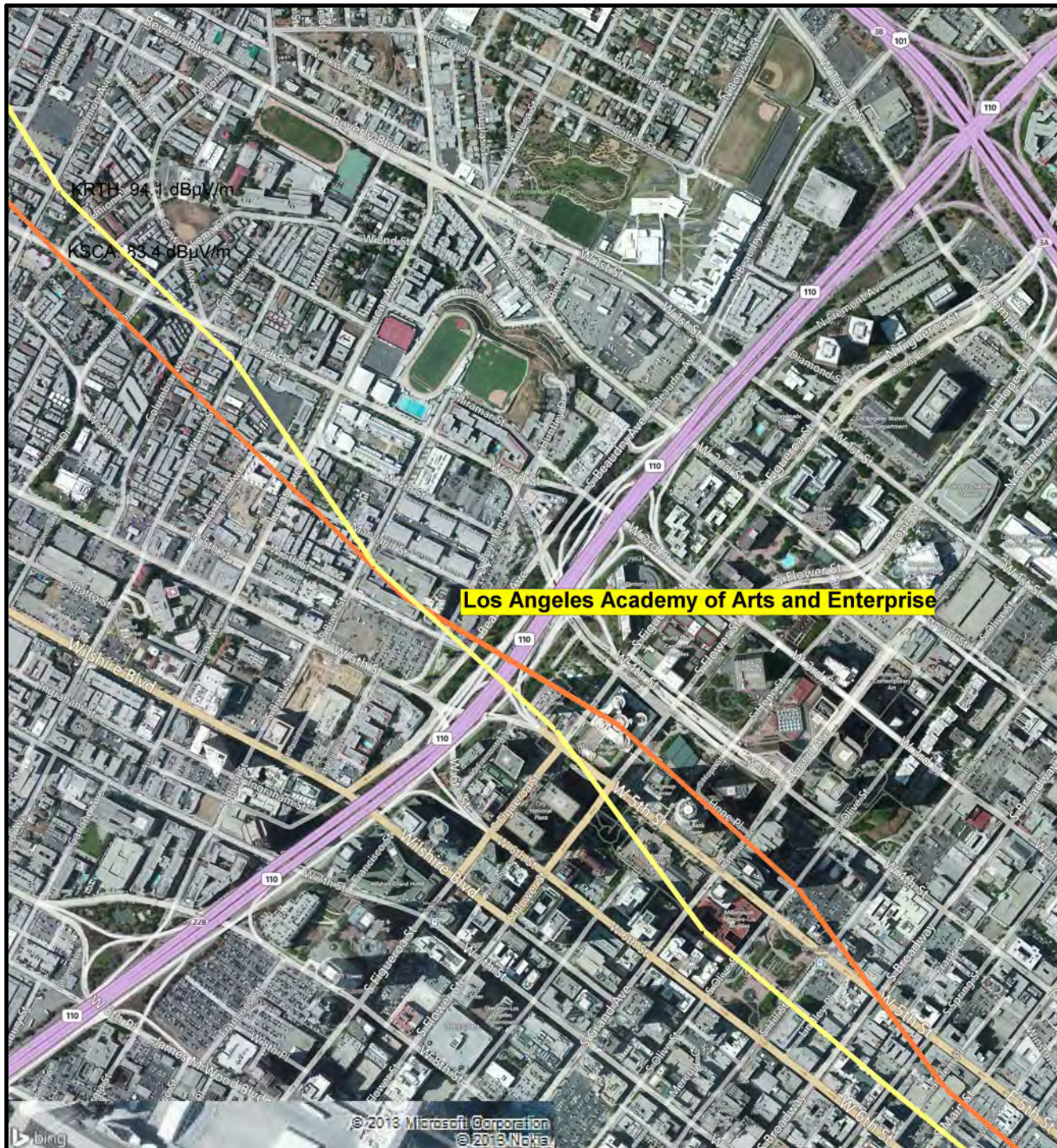
Contours

Figure1

Sun Nov 10 06:11:21 2013

Figure C





# Los Angeles Academy of Arts and Enterprise

## Sites

Site: Los Angeles Academy of Arts and Enterprise  
N34°03'16.91" W118°15'31.35" 118.0 m  
LAAAE Tx.Ht.AGL: 57.0 m Total ERPd: 0.025 kW  
Model: 1 Isotropic-horizontal/0.0° 10 1.5000 MHz

Site: KRTH  
N34°13'38.00" W118°04'00.00" 1741.0 m  
KRTH Tx.Ht.AGL: 113.0 m Total ERPd: 51.00 kW  
Model: 1 Isotropic-horizontal/0.0° 10 1.1000 MHz

Site: KSCA  
N34°13'26.00" W118°03'45.00" 1724.0 m  
KSCA Tx.Ht.AGL: 39.0 m Total ERPd: 4.80 kW  
Model: 1 Isotropic-horizontal/0.0° 10 1.9000 MHz

## Field strength at remote

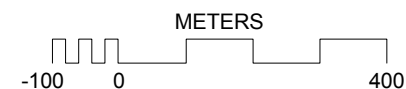
■ = 60.0 dBuV/m  
Display threshold level: -120.0 dBmW

## Field strength at remote

■ = 94.1 dBuV/m  
Display threshold level: -120.0 dBmW

## Field strength at remote

■ = 83.4 dBuV/m  
Display threshold level: -120.0 dBmW



## L.A. Academy of Arts and Enterprise

Detailed Contours

Figure 2

Sun Nov 10 06:16:07 2013

Figure D



## Shively 6812B Two Bay Antenna Configuration

Antenna Manufacturer	Shively Labs
Antenna Type	6812B
Station	CS
Frequency (MHz)	101.5
Channel #	268
Wavelength (in)	116.3
Number of Bays	2
Bay Spacing (in)	80
Beam Tilt Angle (Deg)	0
Center (1) or End (0) Fed	1
End Bay Line Length Delta (in)	0
Tee Offset Length for Center Fed (in)	0
Computed (0) or Custom (1) Excitation	0
Figure	FIGURE 1
Total Gain	0.906
Azimuth Gain	1
Computed Elevation Gain	0.906

Computed Array Excitation			Custom Excitation		Phase for Null Fill		Phase for Beam Tilt	
Bay #	Bay Amp.	Bay Phase (Deg)	Bay Amp.	Bay Phase (Deg)				
1	1	0.00			0.00		0.00	
2	1	0.00			0.00		0.00	

## Shively 6812B Pattern Data

Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field
0	1.000	46	0.011
1	0.999	47	0.007
2	0.997	48	0.024
3	0.992	49	0.040
4	0.986	50	0.055
5	0.979	51	0.070
6	0.969	52	0.083
7	0.959	53	0.095
8	0.946	54	0.106
9	0.932	55	0.116
10	0.917	56	0.125
11	0.900	57	0.134
12	0.882	58	0.141
13	0.862	59	0.147
14	0.842	60	0.152
15	0.820	61	0.157
16	0.797	62	0.160
17	0.773	63	0.163
18	0.748	64	0.165
19	0.723	65	0.166
20	0.696	66	0.166
21	0.669	67	0.165
22	0.641	68	0.164
23	0.613	69	0.161
24	0.585	70	0.159
25	0.556	71	0.155
26	0.527	72	0.151
27	0.498	73	0.146
28	0.468	74	0.141
29	0.439	75	0.135
30	0.410	76	0.129
31	0.381	77	0.122
32	0.352	78	0.114
33	0.324	79	0.107
34	0.296	80	0.099
35	0.268	81	0.090
36	0.241	82	0.081
37	0.215	83	0.072
38	0.189	84	0.063
39	0.164	85	0.053
40	0.140	86	0.043
41	0.116	87	0.033
42	0.093	88	0.022
43	0.072	89	0.011
44	0.051	90	0.000
45	0.030		



## Shively 6812B Vertical Pattern

Antenna Mfg.: Shively Labs

Date: 11/9/2013

Antenna Type: 6812B

Station: CS

Beam Tilt 0

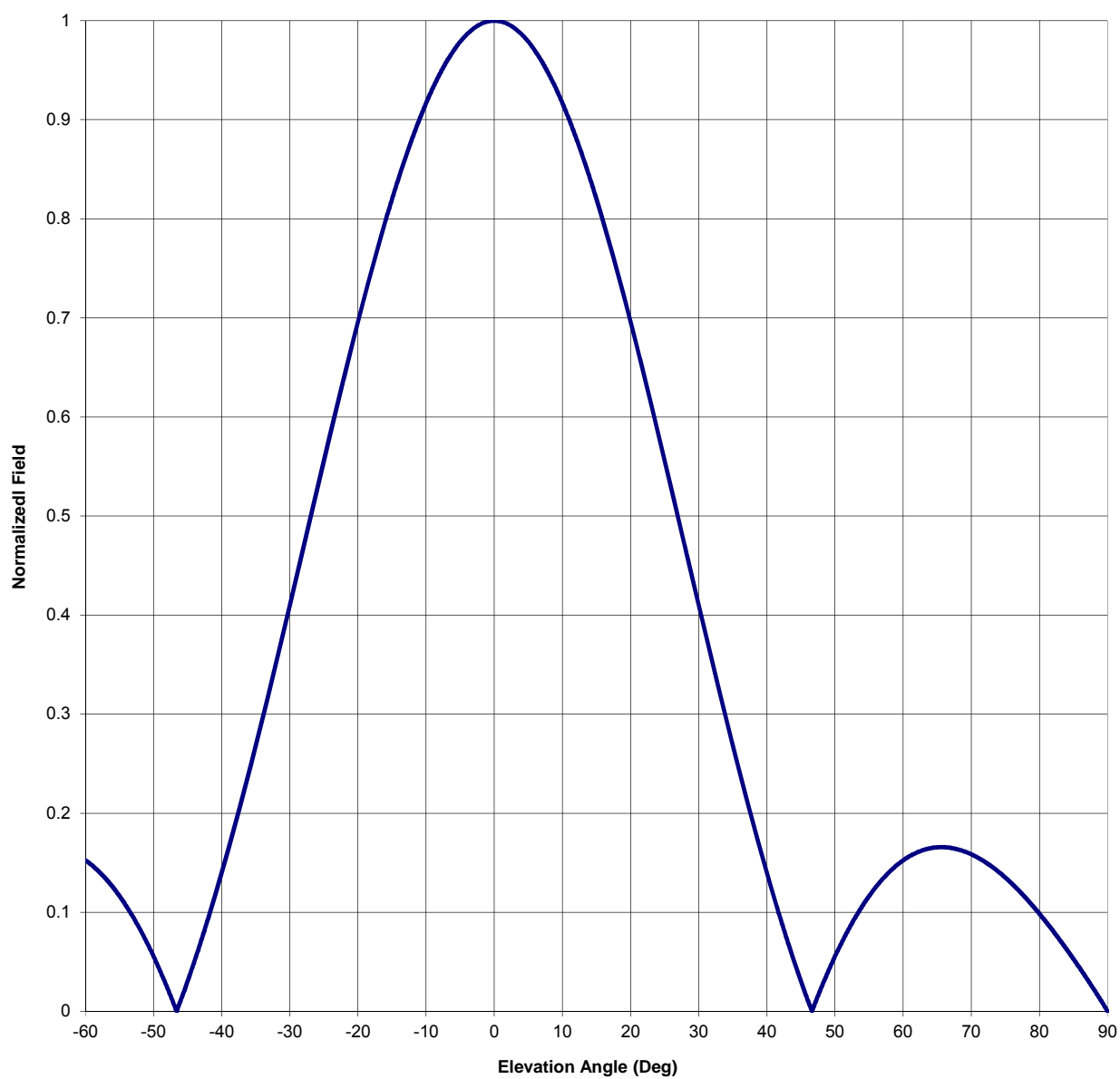
Frequency: 101.5

Gain (Max) 0.906 -0.428 dB

Channel #: 268

Gain (Horizon) 0.906 -0.428 dB

Figure: FIGURE 1



### Analysis of Signal Levels At 9 Meters Below Antenna COR

Translator H AGL	9	
Translator ERP	25	
Translator channel	268	
Translator HAAT	60	
Interference Contour	123.4	
Highest signal at 9 m below COR	119.35	<b>Adequate Choice</b>

Depression Angle, Degrees	Relative Field	ERP Watts	dBk	Distance to the Ground in Kilometers	Free Space Signal
90	0.000	0.0000	-332.4	0.0090	-184.56
85	0.053	0.0698	-41.6	0.0090	106.24
80	0.099	0.2429	-36.1	0.0091	111.56
75	0.135	0.4557	-33.4	0.0093	114.12
70	0.159	0.6285	-32.0	0.0096	115.28
65	0.166	0.6848	-31.6	0.0099	115.34
60	0.152	0.5805	-32.4	0.0104	114.22
55	0.116	0.3382	-34.7	0.0110	111.39
50	0.055	0.0769	-41.1	0.0117	104.38
45	0.030	0.0232	-46.3	0.0127	98.48
40	0.140	0.4884	-33.1	0.0140	110.88
35	0.268	1.8015	-27.4	0.0157	115.56
30	0.410	4.2031	-23.8	0.0180	118.05
25	0.556	7.7279	-21.1	0.0213	119.23
20	0.696	12.1160	-19.2	0.0263	119.35
15	0.820	16.8032	-17.7	0.0348	118.35
10	0.917	21.0140	-16.8	0.0518	115.85
5	0.979	23.9474	-16.2	0.1033	110.43
4	0.986	24.3219	-16.1	0.1290	108.57
3	0.992	24.6166	-16.1	0.1720	106.12
2	0.997	24.8290	-16.1	0.2579	102.64
1	0.999	24.9571	-16.0	0.5157	96.64

#### Notes:

Antenna radiation center above main roof (meters):	9
Maximum ERP (watts) at 0° Depression angle:	25

Free Space Signal = 106.92 -20\*log(distance in km) + dBk