

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
FM STATION KYLZ
ENOCH, UTAH
CH 230C0 100 KW (DA) 341 M

Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an application for a construction permit for FM station KYLZ at Parowan, Utah. Station KYLZ is currently authorized (FCC File No. BPH-20120628ABF, Facility ID 170181) to operate on channel 230A (93.9 MHz) at Parowan, Utah with an effective radiated power (ERP) of 0.24 kilowatts (kW) and an antenna height above average terrain (HAAT) of -273 meters. In addition, KYLZ has constructed the facilities authorized by BPH-20120628ABF and has filed an application for license to cover, FCC File No. BLH-20120806ABE.

The purpose of this instant application is to specify a change in the city of license of KYLZ and upgrade from Class A to Class C0 on channel 230 as permitted by the rules adopted by the FCC allowing community of license changes by application.¹ Specifically it is proposed to operate on channel 230C0 at Enoch, Utah with a directional antenna maximum ERP of 100 kW and an HAAT of 341 meters. Processing under Section 73.215 is requested with respect to a short-spacing with KLGL on channel 229C at Richfield, Utah. The instant KYLZ application is considered a "minor" change in facilities in accordance with Sections 73.3573(a)(1)(i) and 73.3573(g).

Paragraph 5 - Antenna Structure Registration Number

It is proposed to increase the height of the existing supporting structure from 20 meters to 48.8 meters above ground level. Based on the FCC's TOWAIR

¹ Report and Order in the Matter of Revision of Procedures Governing Amendments to the FM Table of Allotments and Changes of Community of License in the Radio Broadcast Services, MB Docket No. 05-210, RM-10960, FCC 06-163, released November 29, 2006 ("Report and Order"). See also Second Report and Order, First Order on Reconsideration, and Second Further Notice of Proposed Rule Making in the Matter of Policies to Promote Rural Radio Service and to Streamline Allotment and Assignment Procedures, MB Docket 09-52, RM-11528, FCC 11-28, released March 3, 2011 ("Second Report and Order").

program, the proposal does not require registration. Figure 13 is the output of the TOWAIR program.

Paragraph 12 - Directional Antenna Relative Field Values

Figure 1 is a graph of the horizontal plane relative field for the proposed KYLZ hypothetical directional antenna.

Response to Paragraph 13 - Allotment

Figure 2A is a separation study from the proposed allotment reference site. As shown, the proposed allotment reference site complies with the minimum distance separation requirements of Section 73.207 for Class C0 operation on channel 230 towards all existing, authorized and proposed stations.

Figure 2B is a map which demonstrates that the proposed allotment reference point complies with the FCC's city coverage requirements (73.315) based on maximum Class C0 facilities (ERP 100 kW/HAAT 450 m).

Response to Paragraph 14 - Community Coverage

Figure 3 is a map which demonstrates that the proposed KLYZ operation complies with the provisions of Section 73.315 and provides the entire community of Enoch, Utah with a 70-dBu signal. The Enoch city limits shown on Figure 2B and 3 were obtained from a map contained in the 2010 U.S. Census of Population.

Response to Paragraph 16 - Interference

Figure 4 is a separation study from the proposed KYLZ site. As shown, the proposed site complies with the minimum distance separation requirements of Section 73.207 for Class C0 operation on channel 230 towards all existing, authorized and proposed stations with the exception of the licensed operation of KLGL on channel 229C at Richfield, Utah. It is proposed to utilize the contour protection provisions of Section 73.215 with respect to the KLGL short-spacing. Figure 5, Sheets 1 and 2, demonstrate that the proposed KYLZ operation

on channel 230C0 at Enoch complies with the contour protection provisions of Section 73.215 with respect to KLGL.² All contour locations were based on the use of the U.S. Geological Survey (U.S.G.S.) 30-second terrain database.

Response to Paragraph 17 - RFR Hazard Statement

The proposed KYLZ facilities were evaluated in terms of potential radiofrequency radiation exposure at 2 meters above ground level in accordance with the OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation". This Bulletin provides assistance in determining whether FCC-regulated transmitting facilities, operations or devices comply with limits for human exposure to radiofrequency (RF) electromagnetic fields.

It is proposed to utilize an ERI model SHPXA-12AC-HW, 12-bay, $\frac{1}{2}$ wavelength spaced directional antenna side-mounted at the 39 meter level on the proposed tower. The calculated power density at 2 meters above ground level at the base of the tower was calculated using the appropriate equation contained in the Bulletin. Using a greater than expected vertical relative field value of 0.04 (for angles below 56 degrees downward, see Figure 12) for the proposed directional antenna, the total ERP of 200 kW (H+V) and an antenna center of radiation height above ground level of 39 meters, the calculated power density at two meters above ground level at the base of the tower is 7.8 microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$), or 3.9 percent of the Commission's recommended limit applicable to general population/uncontrolled exposure areas ($200 \mu\text{W}/\text{cm}^2$ for FM channel 230). Therefore, based on the responsibility threshold of 5%, the proposal will comply with the 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, procedures will be in effect in the event that workers or other authorized personnel enter the restricted area to ensure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer

² The distance between the proposed KLYZ transmitter site and the KLGL transmitter site complies with the minimum distance separation requirement of Section 73.215(e).

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.

Finally, it is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic field exposure.

Response to Paragraph 18 - Community of License Change -
Section 307(b)

1. Proposal

It is proposed to specify a change in the city of license of KYLZ from Parowan, Utah to Enoch, Utah as permitted by the rules adopted by the FCC allowing community of license changes by application.

2. City Populations and Local Service

Parowan has a 2010 U.S. Census population of 2,790 persons. Parowan will not be deprived of its only aural service as fulltime AM station KENT on 1400 kHz is assigned to Parowan.

Enoch city has a 2010 U.S. Census population of 5,803 persons and has no other FM or AM service. Therefore, the instant proposal will result in a first local aural transmission service to the community of Enoch.

*3. 60 dBu Gain and Loss Areas and Available Aural Services -
KYLZ C1 Proposal*

Figure 6 is a map showing the FM 60 dBu (1 mV/m) primary service contours for KYLZ'S licensed operation on channel 300 at Parowan and the proposed channel 230C0 allotment at Enoch. Maximum facilities and uniform terrain were utilized for KYLZ's licensed operation and from the channel 230C0 allotment reference site. The 60 dBu gain area is also indicated. It is noted that no 60 dBu loss area will be created by the instant proposal.

The following tabulates the land areas and 2010 Census populations within the 60 dBu FM contours for the KYLZ licensed operation on channel 300A at Parowan and the proposed operation on channel 230C0 at Enoch. Also tabulated are the gain (total and net) areas.

<i>Facilities</i>	<i>Within 60 dBu Contour</i>	
	<i>2010 Census Population</i>	<i>Land Area (km²)</i>
Authorized Ch. 230A Parowan, UT	20,893	2,516
Allotment Ch. 230C0 Enoch, UT	203,825	21,850
Gain	182,932	19,334
Loss	0	0
"Net" Gain	182,932	19,334

Figure 6 also shows the other aural services available to the gain area within the 60 dBu contours.³ Figure 7 tabulates the AM and FM stations whose contours are shown on Figure 6. The numerals within the gain and loss areas indicate the number of available services. As indicated on Figure 6, there are underserved areas located within the gain area. Specifically, there are areas that currently receive 2, 3 and 4 aural services. The following tabulates the 2010 Census population within each of the underserved areas depicted on Figure 6.

No. of Aural Services	Population (2010 Census)
2	6
3	7
4	360

An analysis of the total number of aural services available to the populated areas that will gain 60 dBu service has also been conducted. Specifically, 36,141 persons will receive between 1 and 10 services and 146,791 persons will receive between 11 and 23 services. In addition, 54 percent (99,408 persons) of the current population within the 60 dBu

³The determination of available reception services was based on the criteria set forth in footnote 1 of the Notice of Proposed Rule Making in MM Docket No. 96-219 (DA 96-1774; adopted October 25, 1996, released November 1, 1996).

gain area would receive a twenty-first (21st) reception service.

4. Protected FM and AM Services Available to Enoch

It has been determined that there are 12 protected FM and AM services available to Enoch as shown on Figure 8.⁴ Figure 9 tabulates the FM and AM stations whose contours are shown on Figure 8.

5. 70 dBu and 60 dBu Coverage

The following tabulates the land area and 2010 Census population within the 70 dBu and 60 dBu contours for the proposed KYLZ operation which are depicted on Figure 10.

Contour	Population (2010 Census)	Area (sq. km)
70 dBu	50,502	8,355
60 dBu	113,613	15,970

Contour locations calculated in accordance with the provisions of Section 73.313. Population calculated using a computer program that utilizes the 2010 U.S. Census database of "population centroids". Area calculated using a root mean square algorithm.

6. Urbanized Area Considerations

Figure 11 is which depicts the Enoch city limits and the St. George Urbanized Area (UA). Also shown is the 70 dBu contour for the proposed KYLZ operation which does not encompass any portion of the St. George UA.

Studies were conducted to determine if any rule-compliant minor modifications could be made on the proposed channel which would provide 70 dBu coverage over 50 percent or more of the St. George UA. The studies considered all existing registered towers in the Commission's Antenna Structure Registration database along with unregistered towers currently

⁴ For FM stations, the pertinent primary service contour has been used. For AM stations, the daytime 2 mV/m contour has been used.

used by licensed radio stations. In addition, consideration was also given to use of short-spaced sites and directional antenna systems. Based on these studies, it does not appear that a minor modification could be made which would provide 70 dBu coverage over 50 percent or more of the St. George UA.

If there are any questions, or additional information is required, please contact the office of the undersigned.



W. Jeffrey Reynolds

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, FL 34237-6019
(941) 329-6000
JEFF@DLR.COM

August 6, 2012

Figure 1

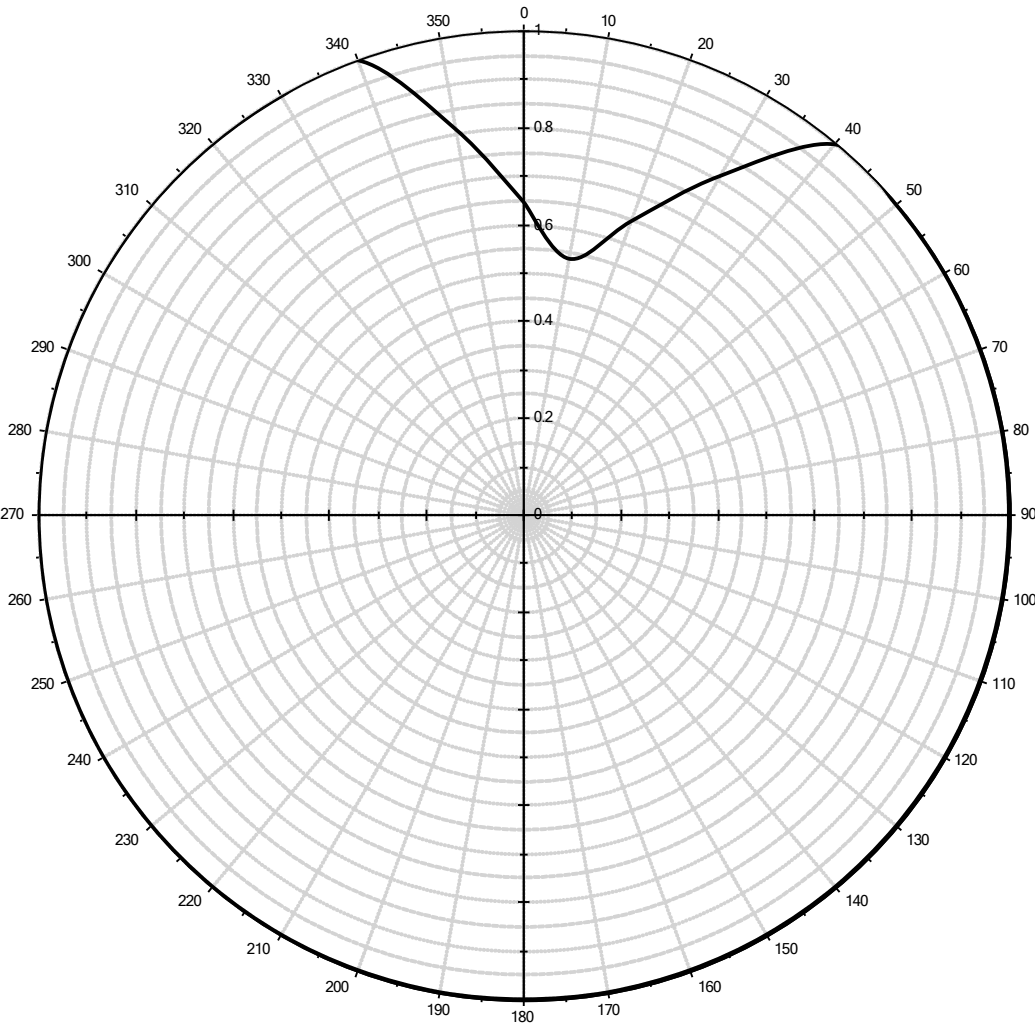
DA Inquiry

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



Antenna ID: 800429

**KYLZ HYPOTHETICAL
DIRECTIONAL ANTENNA
PATTERN, ERP 100 KW**



Note: display reflects rotation of 0.00°

0° 0.647	60° 1.000	120° 1.000	180° 1.000	240° 1.000	300° 1.000
10° 0.538	70° 1.000	130° 1.000	190° 1.000	250° 1.000	310° 1.000
20° 0.646	80° 1.000	140° 1.000	200° 1.000	260° 1.000	320° 1.000
30° 0.810	90° 1.000	150° 1.000	210° 1.000	270° 1.000	330° 1.000
40° 1.000	100° 1.000	160° 1.000	220° 1.000	280° 1.000	340° 1.000
50° 1.000	110° 1.000	170° 1.000	230° 1.000	290° 1.000	350° 0.810

Antenna Make: KYLZ

Standard Pattern:

Antenna Model: COMPOSITE

Last Change Date:

CDBS FM SEPARATION STUDY - KYLZ CH 230C0 ALLOTMENT REFERENCE SITE

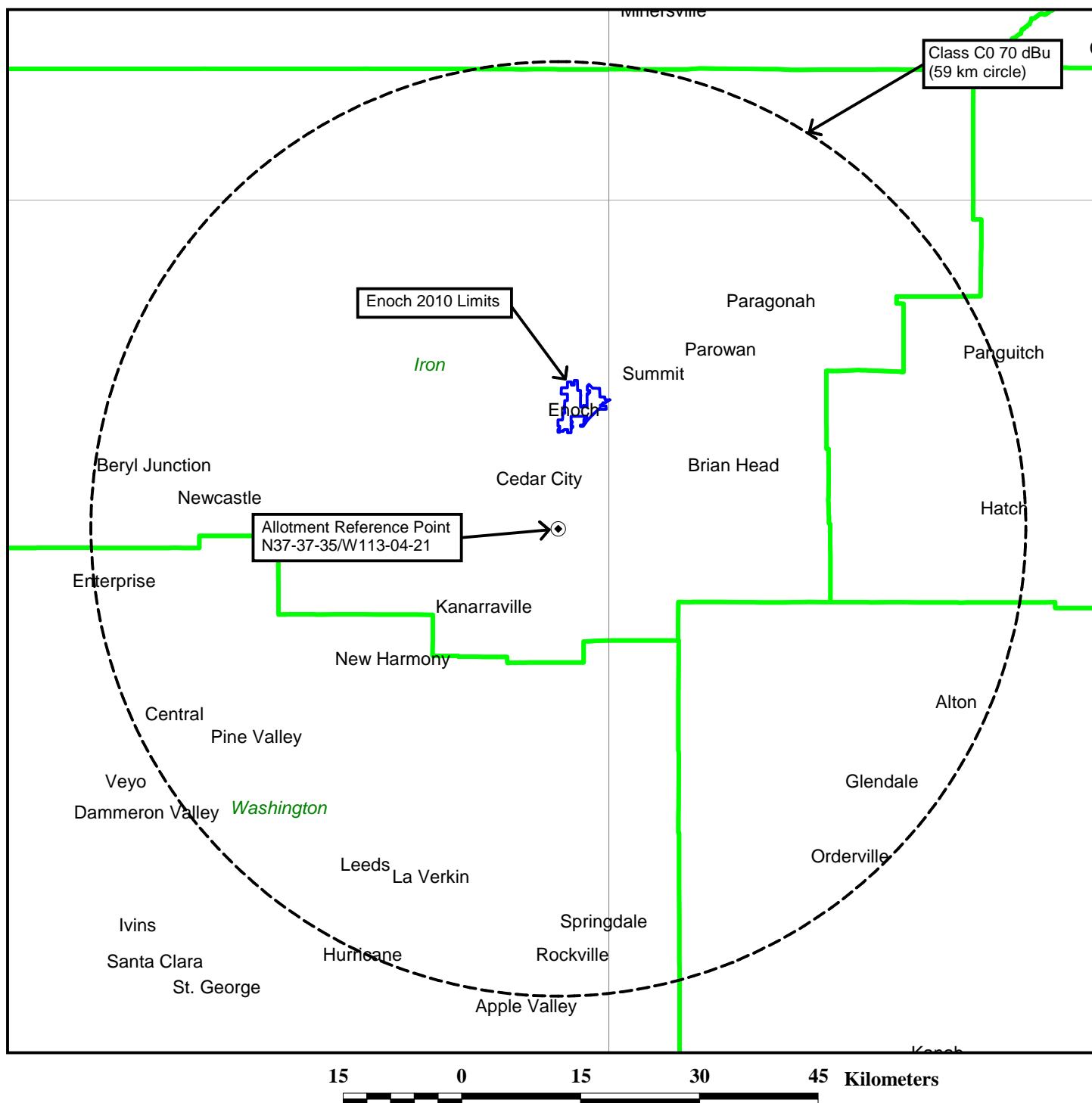
Channel: 230 Coordinates: 037-37-35 113-04-21 (NAD 27)
 Class: C0 Buffer Distance: 32 km

Date: 08/06/2012
 Page: 1 of 1

Callsign	Status	Chan.	Serv.	Freq.	City		State	Latitude	Dist.(km)	Sep.(km)	Spacing(km)	
Fac. ID	ARN			Class	DA	Ant. ID	ERP(kW)	HAAT(m)	Longitude	Bear.(deg)	73.215	Comment
KLGL	LIC	229	FM	93.7	RICHFIELD		UT	039-19-17	219.83	220	-0.17	
41895	BLH 20050803AAF			C	N		66	718	111-46-11	30.63	207 N	Close
KYLZ	CP	230	FM	93.9	PAROWAN		UT	037-51-25.5	33.71	215	-181.29	
170181	BPH 20120628ABF			A	N		0.24	-273	112-49-25.4	40.38	193 N	SHORT¹
KMXB	LIC	231	FM	94.1	HENDERSON		NV	036-00-30	248.98	220	28.98	
51676	BLH 19991005ABX			C	N		100	354	115-00-20	224.31	207 N	CLEAR

¹ Current KYLZ authorization. License application pending, FCC File No. BLH-20120806ABE.

Figure 2B



COMPLIANCE WITH SECTION 73.315

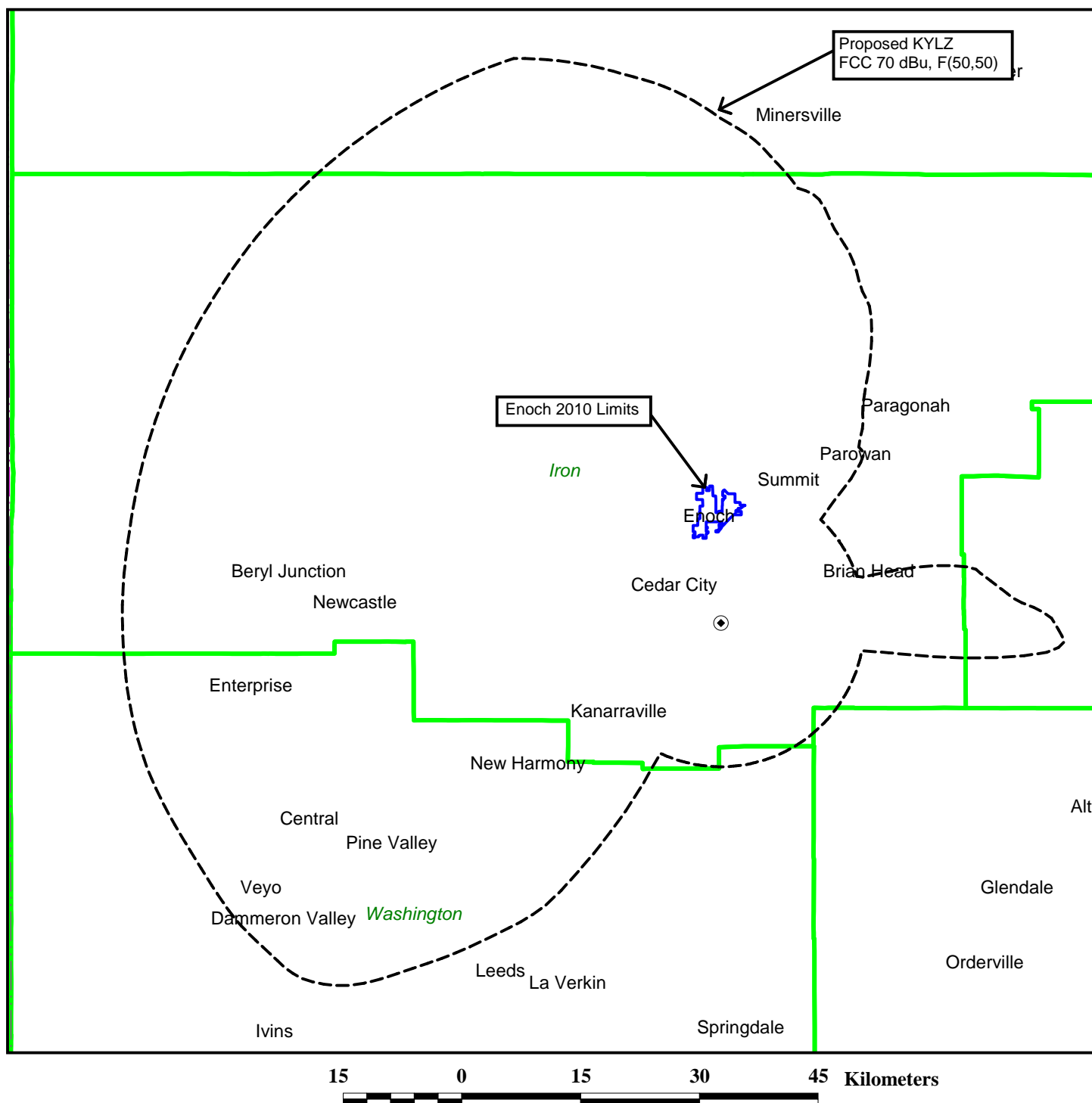
FM STATION KYLZ

ENOCH, UTAH

CH 230C0 100 KW (DA) 341 M

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

Figure 3



COMPLIANCE WITH SECTION 73.315

FM STATION KYLZ

ENOCH, UTAH

CH 230C0 100 KW (DA) 341 M

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

CDBS FM SEPARATION STUDY - KYLZ CH 230C0 PROPOSED SITE

Channel: 230 **Coordinates:** 037-38-22 113-02-00 (NAD 27)
Class: C0 **Buffer Distance:** 32 km

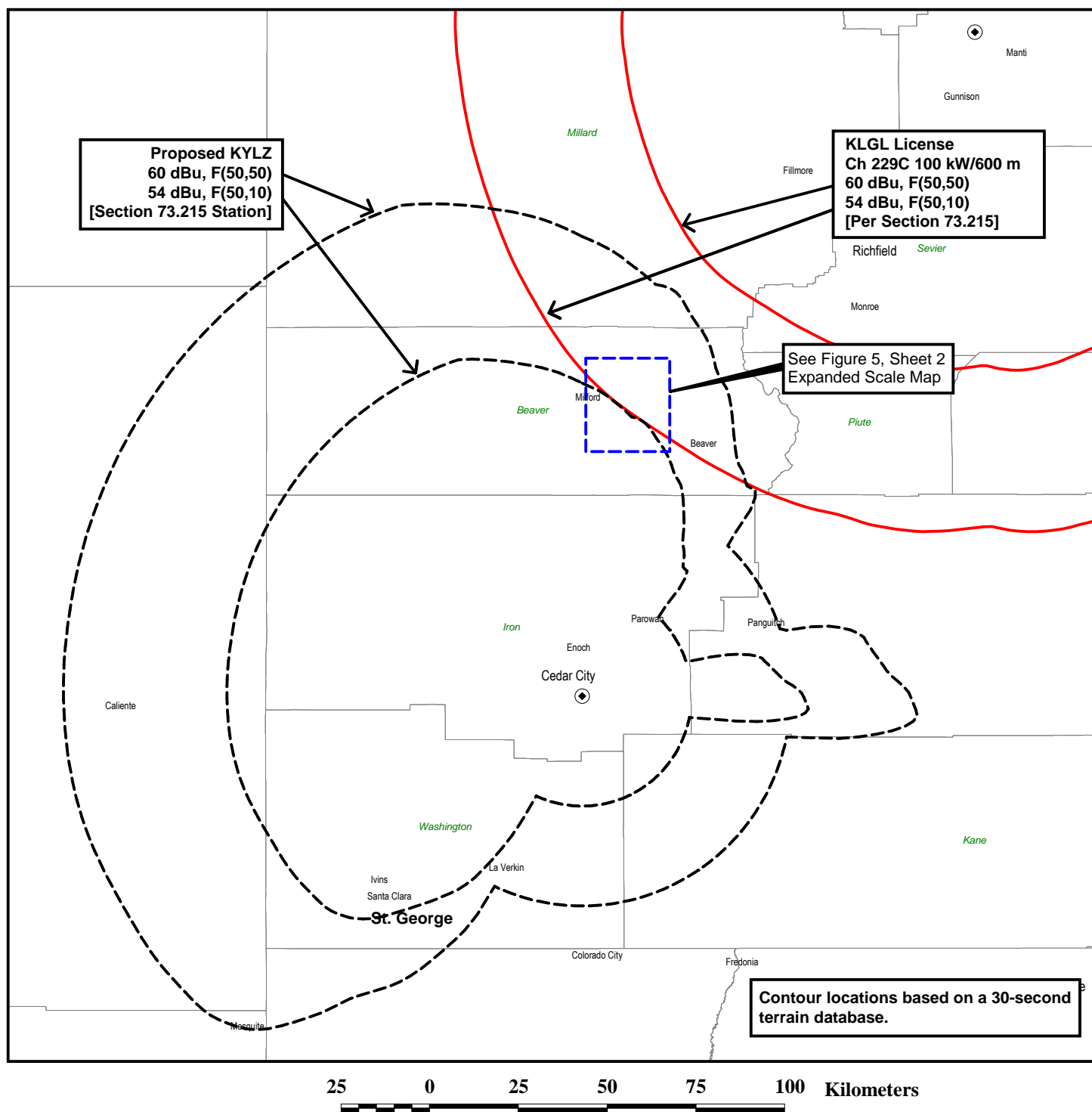
Date: 08/06/2012
Page: 1 of 1

Callsign	Status	Chan.	Serv.	Freq.	City	State	Latitude	Dist.(km)	Sep.(km)	Spacing(km)
Fac. ID	ARN	Class	DA	Ant. ID	ERP(kW)	HAAT(m)	Longitude	Bear.(deg)	73.215	Comment
KLGL	LIC	229	FM	93.7	RICHFIELD	UT	039-19-17	216.83	220	-3.17
41895	BLH 20050803AAF	C	N		66	718	111-46-11	30.07	207 N	SHORT¹
KYLZ	CP	230	FM	93.9	PAROWAN	UT	037-51-25.5	30.41	215	-184.59
170181	BPH 20120628ABF	A	N		0.24	-273	112-49-25.4	37.23	193 N	SHORT²

¹ It is proposed to utilize the contour protection provisions of Section 73.215 with respect to this short-spacing. The proposal complies with the minimum distance separation requirements of Section 73.215(e). See Figure 5.

² Current KYLZ authorization. License application pending, FCC File No. BLH-20120806ABE.

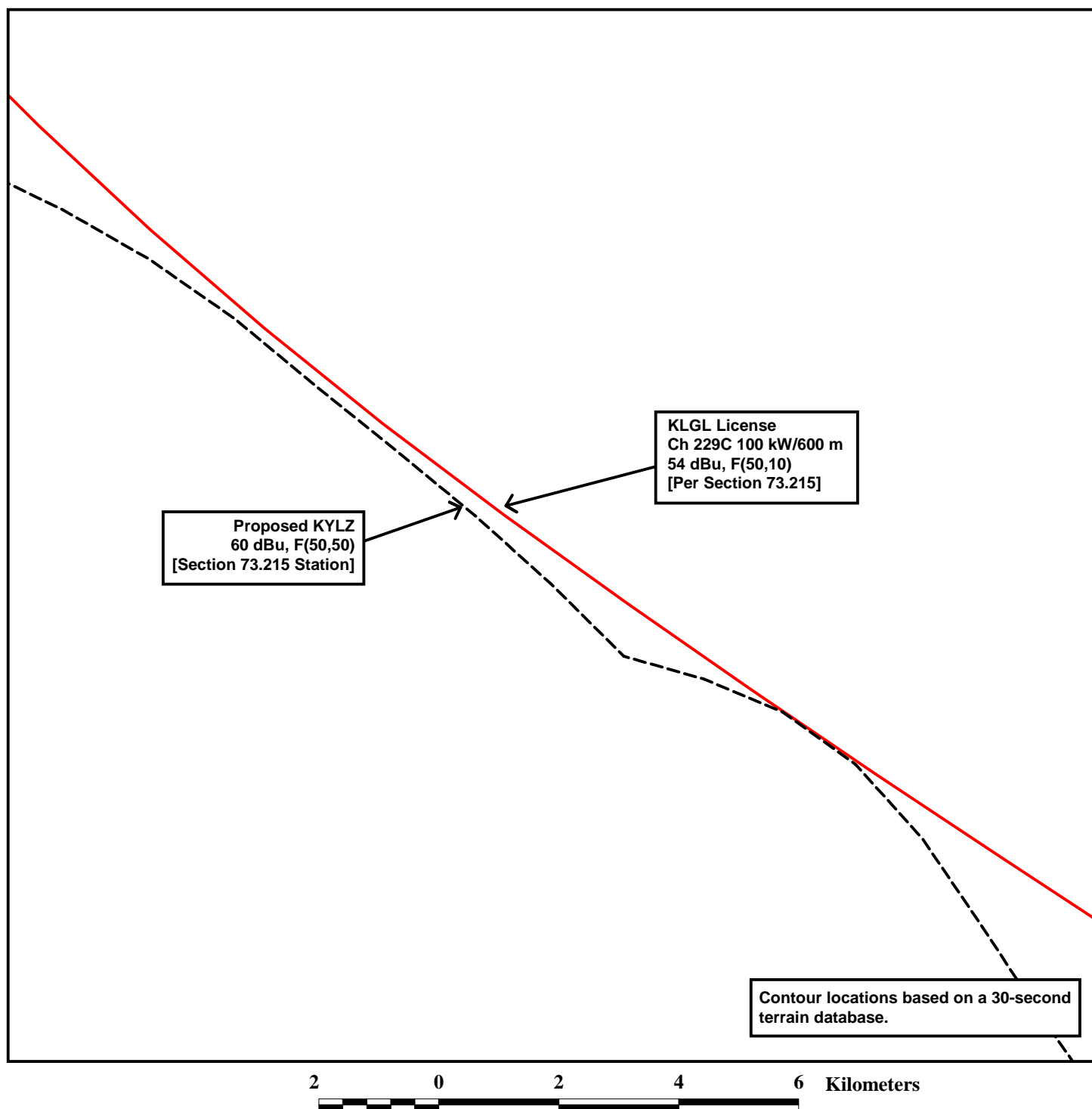
Figure 5
Sheet 1 of 2



SECTION 73.215 COMPLIANCE

FM STATION KYLZ
ENOCH, UTAH
CH 230C0 100 KW (DA) 341 M

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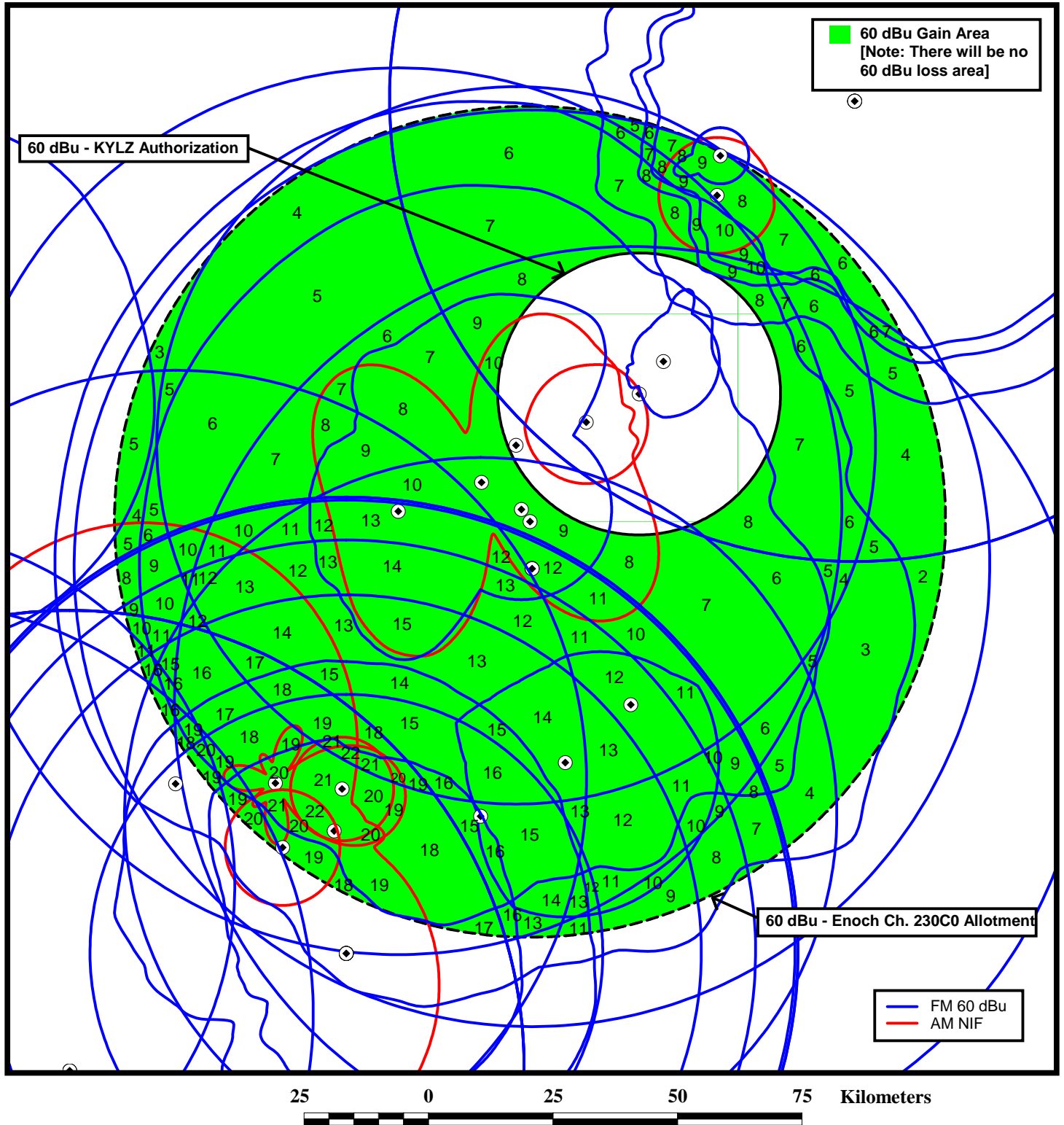


SECTION 73.215 COMPLIANCE [EXPANDED SCALE]

FM STATION KYLZ
ENOCH, UTAH
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Figure 6



60 DBU GAIN-LOSS AREA MAP

FM STATION KYLZ
ENOCH, UTAH
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TECHNICAL EXHIBIT
STATION KYLZ
ENOCH, UTAH
CH 230C0 100 KW (DA) 341 M

Tabulation of Other AM/FM Services
Available to 60 dBu Gain-Loss Areas

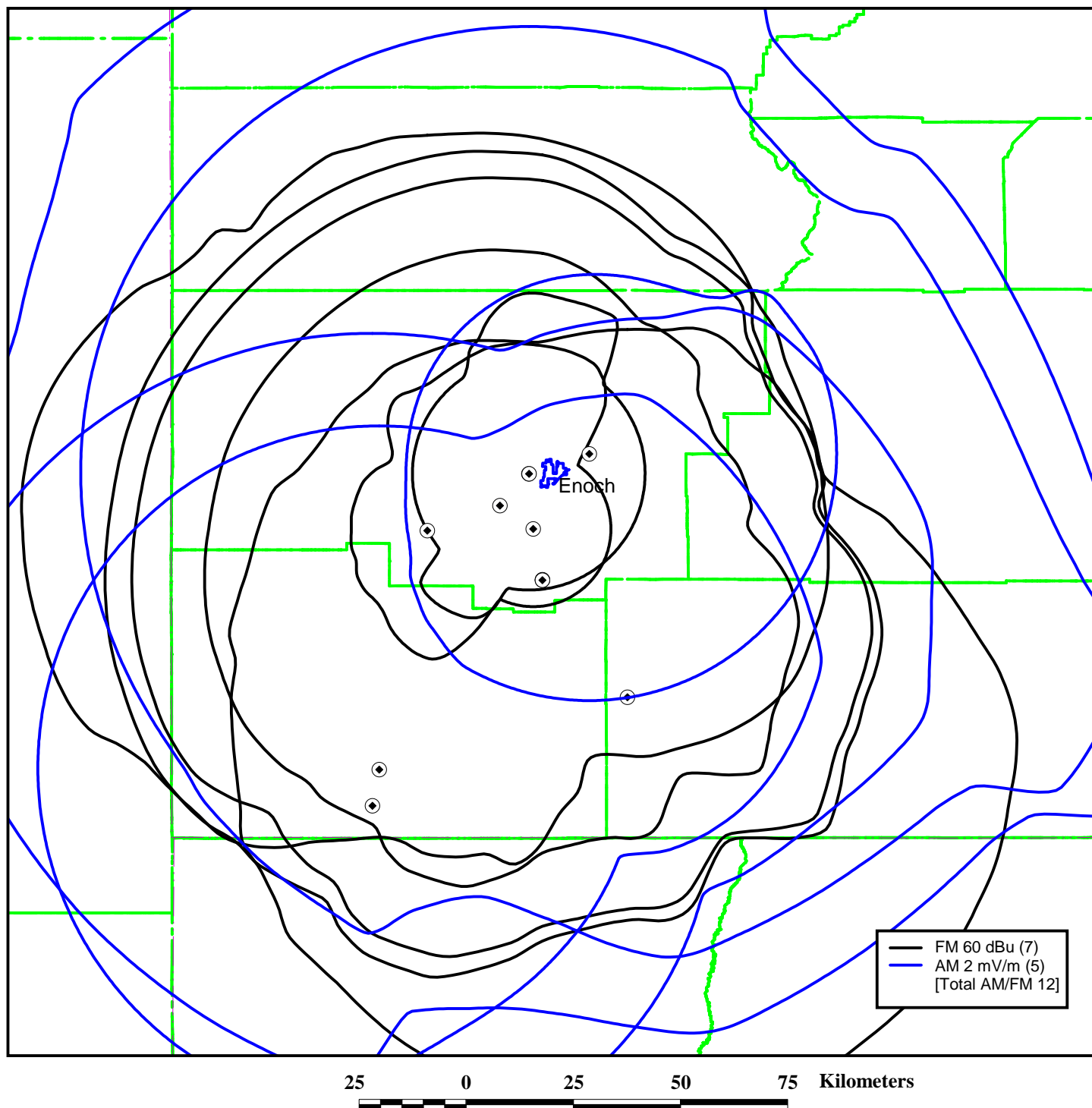
FM CONTOURS

<u>Call Sign</u>	<u>Community of License</u>	<u>State</u>	<u>Channel</u>
KSUU	CEDAR CITY	UT	216C3
KREC	BRIAN HEAD	UT	251C
NEW (CP)	SANTA CLARA	UT	201C
KCHG	CEDAR CITY	UT	205C1
KCIN	CEDAR CITY	UT	235C1
KXBN	CEDAR CITY	UT	221C
KRRA (CP)	PARAGONAH	UT	217A
KPLD	KANAB	UT	286C
NEW (CP)	COLORADO CITY	UT	215C1
KXFF (CP)	COLORADO CITY	UT	291C1
KEZB	BEAVER	UT	214A
KCDC (CP)	LA VERKIN	UT	272C0
KSGU	ST. GEORGE	UT	212C2
KIYK	ST. GEORGE	UT	291C2
KURR	HURRICANE	UT	276C
KXDS	SANTA CLARA	UT	217C3
KRQX-FM	HURRICANE	UT	255C1
KONY	ST. GEORGE	UT	260C
KCLS	LEEDS	UT	268C0
KZHK	ST. GEORGE	UT	240C
KMXD	MONROE	UT	263C
KUSL	RICHFIELD	UT	207C1
KUXU	MONROE	UT	203C2
KWUT	ELISNORE	UT	249C
KEYR	RICHFIELD	UT	219C1
KLNR	PANACA	NV	219C1
KADD	LOGANDALE	NV	228C
KXLI	MOAPA	NV	233C
KVGQ	OVERTON	NV	295C1
KJUL (CP)	MOAPA VALLEY	NV	284C0

AM CONTOURS

<u>Call Sign</u>	<u>Community of License</u>	<u>State</u>	<u>Frequency (kHz)</u>
KSUB	CEDAR CITY	UT	590
KENT	PAROWAN	UT	1400
KUNF	WASHINGTON	UT	1210
KBEV	BEAVER	UT	1230
KDXU	ST. GEORGE	UT	890
KNFC	SANTA CLARA	UT	1290
KZNU	ST. GEORGE	UT	1450

Figure 8



OTHER FM AND AM PROTECTED SERVICES AVAILABLE TO ENOCH, UTAH

FM STATION KYLZ
ENOCH, UTAH
CH 230C0 100 KW (DA) 341 M

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

TECHNICAL EXHIBIT
STATION KYLZ
ENOCH, UTAH
CH 230C0 100 KW (DA) 341 M

Tabulation of Other AM and FM Protected Services
Available to Enoch, Utah

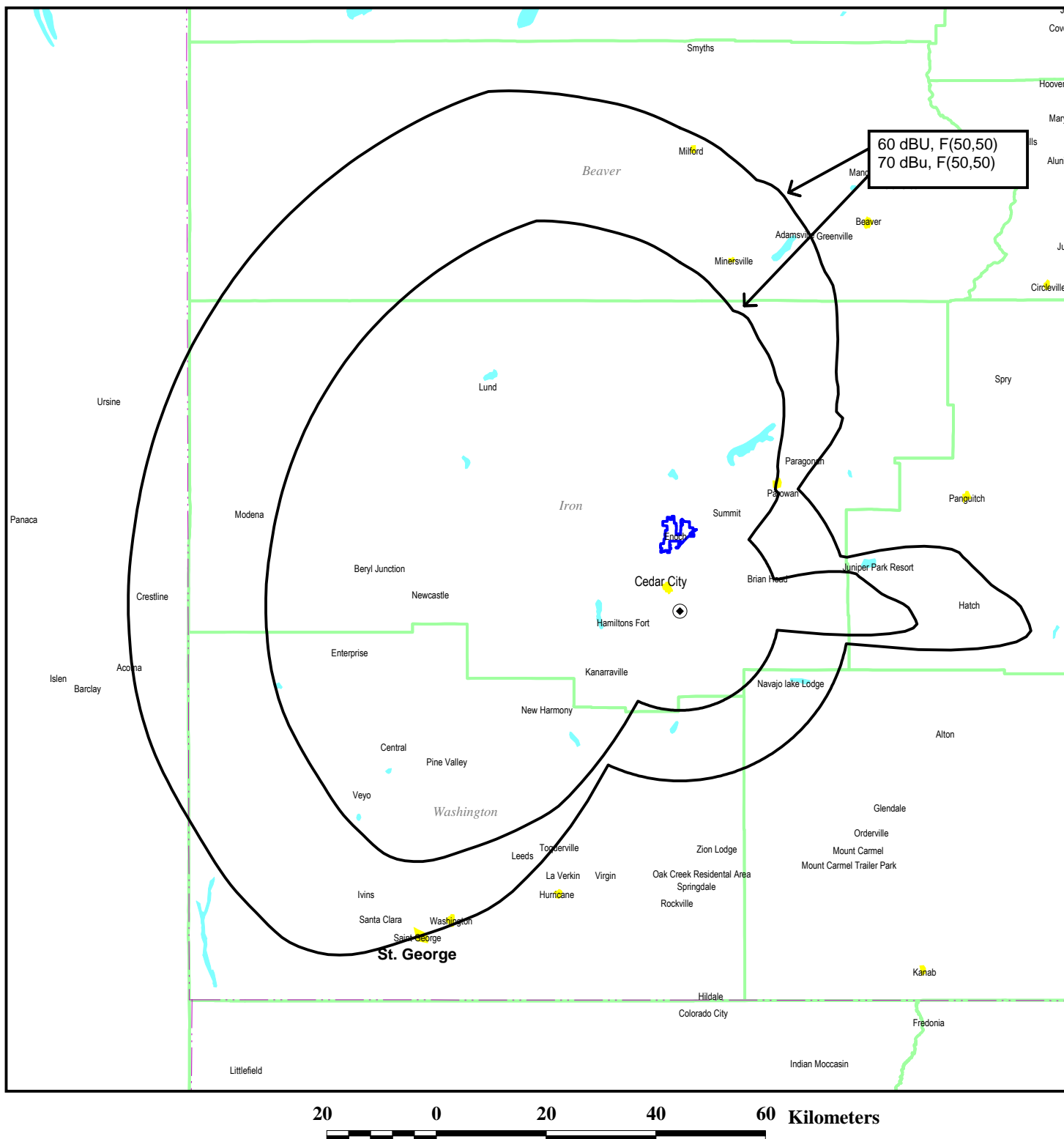
FM CONTOURS

<u>Call Sign</u>	<u>Community of License</u>	<u>State</u>	<u>Channel</u>
KCIN	CEDAR CITY	UT	235C1
KSUU	CEDAR CITY	UT	216C3
KREC	BRIAN HEAD	UT	251C
NEW (CP)	SANTA CLARA	UT	201C
KCHG	CEDAR CITY	UT	205C1
KXBN	CEDAR CITY	UT	221C
KPLD	KANAB	UT	286C

AM CONTOURS

<u>Call Sign</u>	<u>Community of License</u>	<u>State</u>	<u>Frequency (kHz)</u>
KOBY	CEDAR CITY	UT	940
KENT	PAROWAN	UT	1400
KSUB	CEDAR CITY	UT	590
KUNF	WASHINGTON	UT	1210
KDXU	ST. GEORGE	UT	890

Figure 10



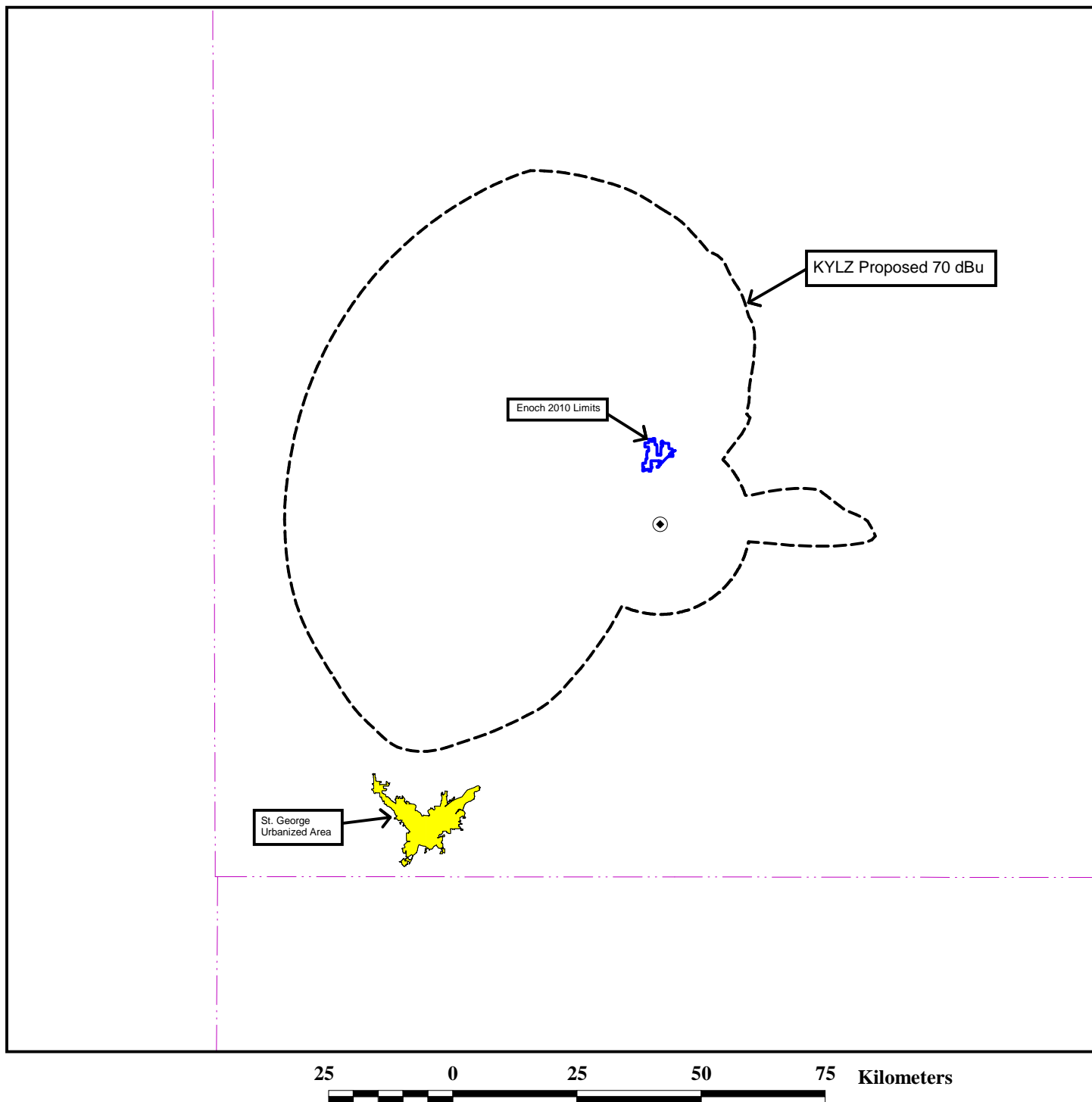
FCC PREDICTED COVERAGE CONTOURS

FM STATION KYLZ
ENOCH, UTAH

CH 230C0 100 KW (DA) 341 M

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Figure 11



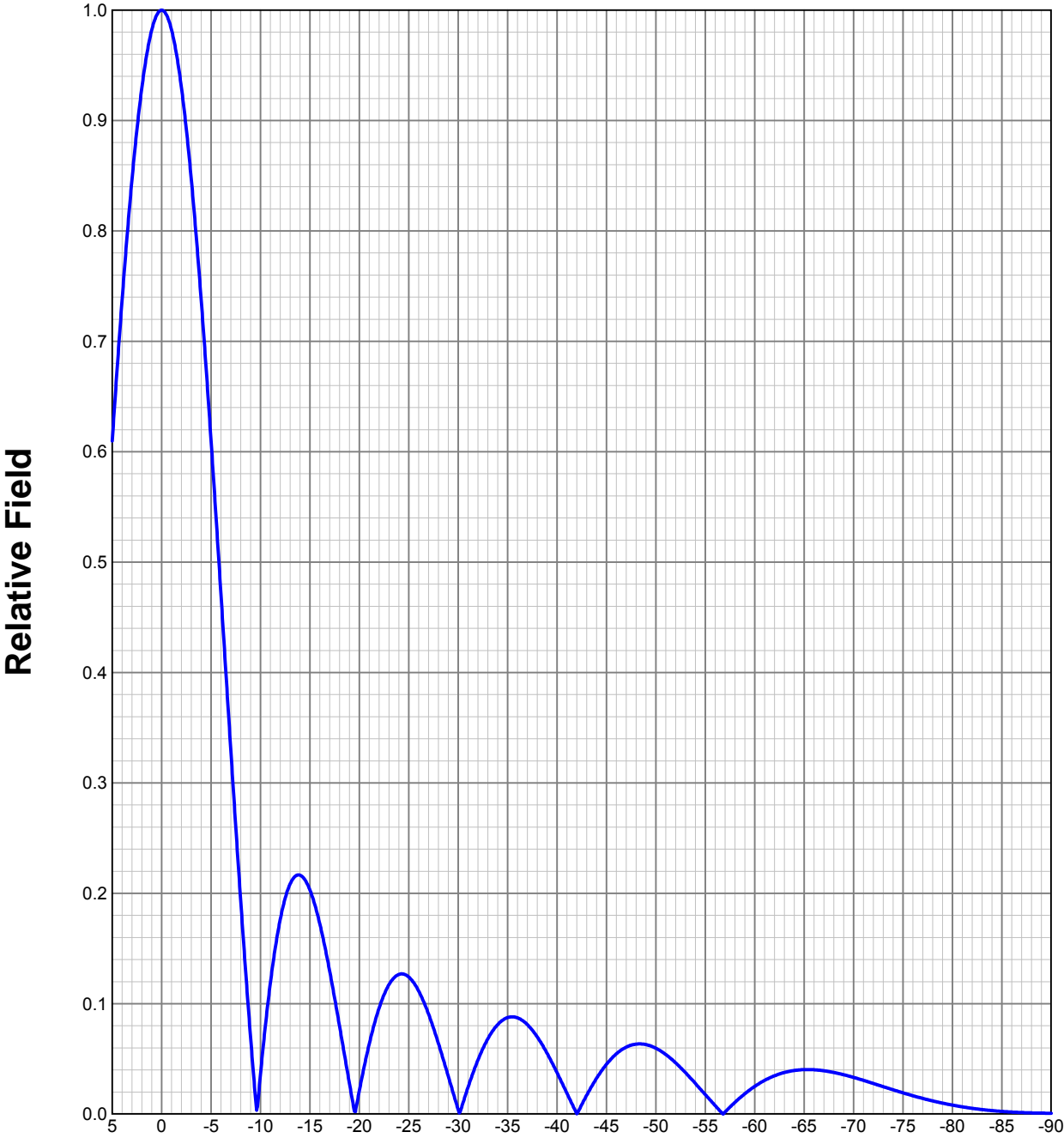
URBANIZED AREA COVERAGE

FM STATION KYLZ
ENOCH, UTAH
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du Treil, Lundin & Rackley, Inc. Sarasota, Florida

ELEVATION PATTERN

Type:	SHPX12H		Channel:	230
Directivity:	Numeric	dBd	Location:	
Main Lobe:	3.73	5.72	Beam Tilt:	0.00
Horizontal:	3.73	5.72	Polarization:	Circular



Preliminary, subject to final design and review.

TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	37-38-21.9 north
Longitude	113-02-02.8 west

Measurements (Meters)

Overall Structure Height (AGL)	48.8
Support Structure Height (AGL)	48.8
Site Elevation (AMSL)	2528

Structure Type

GTOWER - Guyed Structure Used for Communication Purposes

Tower Construction Notifications

Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW