

## **TECHNICAL REPORT KLQQ ONE-STEP UPGRADE TO 285C0**

This technical report has been developed in support of an application for a one-step upgrade of the FM facility KLQQ at Clearmont, WY, from 284C3 to 285C0. The proposed facility is mutually exclusive with the existing KLQQ facility (see E-1). A same class channel substitution is proposed for station KGCL on 286C2 at Ten Sleep, WY.

### **I. Allocation Analysis:**

The data for all terrain in this report was obtained from the V-Soft PROBE 3 computer program, utilizing the NGDC thirty (30) second terrain database. The 70 dBu F(50,50) contour was plotted accordingly. The HAAT was calculated using CONTOUR with eight evenly-spaced radials with the same database.

KLQQ meets 73.207 spacing requirements at the transmitter site to all facilities and allocations, with the forced substitution of KGCL.CP at Ten Sleep, WY, from its existing 286C2 to 271C2, as allowed by Commission rules for one-step upgrades. Exhibits E-1 and E-2 show that both facilities will be fully-spaced, and it should be noted that the substitution of KGCL.CP may also occur at 266C2.

The following exhibits are provided:

- E-1 KLQQ Spacing Study
- E-2 KGCL.CP at 271C2 Spacing Study
- E-3 KLQQ HAAT Calculation
- E-4 KLQQ 70 dBu Contour Plot

**Charles M. Anderson Associates**

Broadcast Consultants  
1519 Euclid Avenue  
Bowling Green, KY 42103

Phone 205-782-0246  
Fax 270-793-9129  
Cell 270-535-4432

**IIA. KGCL 271C2 substitution:**

In accordance with the procedures recently adopted in Section 73.3573 as recently modified in MB Docket No.05-210, a same class channel substitution is hereby proposed for station KGCL from 286C2 to 271C2. A channel study is attached as exhibit E2.

<b><u>COMMUNITY</u></b>	<b><u>EXISTING</u></b>	<b><u>PROPOSED</u></b>	<b><u>COORDINATES</u></b>
Ten Sleep, WY (KGCL(CP))	286C2	271C2 <sup>1</sup>	N44-09-31 W 107-13-27

**II. Site:**

The proposed facility is to be located on the existing KLQQ tower at coordinates:

**(NAD 27) 44-37-20 N 107-06-57 W**

**III. Blanketing:**

The 115 dBu blanketing contour is calculated to be 3.94 km. The calculation was made in accordance with the Commission's formula:

$$115 \text{ dBu (km)} = 1.609 [0.245 (P \text{ kw})^{1/2}].$$

The applicant accepts the responsibility for correction of any objectionable interference or blanketing problems in accordance with Commission rules.

**IV. Antenna System and Environmental Considerations:**

A seven bay Shively model 6810 antenna with 0.925 wavelength spacing, operating at an ERP of 100kW, will be mounted on the existing tower at a COR AGL of

<sup>1</sup> Channel 266C2 may also be substituted at the KGCL CP site.

**Charles M. Anderson Associates**

Broadcast Consultants  
1519 Euclid Avenue  
Bowling Green, KY 42103

Phone 205-782-0246  
Fax 270-793-9129  
Cell 270-535-4432

38 meters with an HAAT of 368 meters. To the applicant's knowledge, no adverse impact will result to any applicable 1.1307 category. Consequently, no environmental statement is provided.

The RF contribution for the facility was evaluated utilizing the Commission's FMMODEL program at 2 meters above ground level. The existing tower site is not accessible to the general public. Access is restricted and RF exposure warnings are posted. Consequently, the combined maximum RF exposure permitted is 1,000 microWatts/cm<sup>2</sup>.

In addition to the FM facilities co-located on the tower, four low power television applications are also proposed to be co-located on the tower. The RF contributions for these facilities were calculated based on OET65 Table 1 and Section 3 in Supplement A at a height of 2 meters above ground. Vertical factors (F) of 0.2 were assumed for VHF and 0.1 for UHF. The following table represents the worst-case RF contributions:

Facility	ERP/kW	Antenna	RCAGL	RF uW/cm <sup>2</sup>	% of Max.
KLQQ	100.0 H&V	7 bay 0.925?	38	44.7	4.5
KZWY (FM)	75.0 H&V	7 bay 1?	38	175.6	17.6
KYTI	75.0 H&V	7 bay 1?	38	175.6	17.6
KZWY-AUX	4.5 H&V	3 bay 1?	18	110.7	11.1
KYTI-AUX	4.5	3 bay 1?	18	110.7	11.1
CH. 09 AP	0.85/0.17 Aural Assumed		20	2.1	0.2
CH. 36 AP	8.0/1.6 Aural Assumed		20	4.9	0.24 (2026.7 Max)
CH. 39 AP	8.0/1.6 Aural Assumed		20	4.9	0.23 (2086.7 Max)
CH. 43 AP	8.0/1.6 Aural Assumed		20	4.9	0.23 (2166.7 Max)

Total = 634.1, 63.4% of maximum

## Charles M. Anderson Associates

Broadcast Consultants  
1519 Euclid Avenue  
Bowling Green, KY 42103

Phone 205-782-0246  
Fax 270-793-9129  
Cell 270-535-4432

The combined maximum radiation was found to be 678.8 microWatts/cm<sup>2</sup> representing 63.4% of the maximum permissible 1000 microwatts/cm<sup>2</sup> exposure for occupational/controlled environments.

### **V. Conclusion:**

It is concluded that the proposed one-step upgrade for KLQQ is in full compliance with Commission rules and policies.



Christopher Anderson January 29, 2007  
andersce@yahoo.com  
© 2007 by Charles M. Anderson and Associates

E-1 KLQQ Spacing Study

REFERENCE

44 37 20.0 N.  
107 06 57.0 W.

CLASS = C0

Current Spacings

DISPLAY DATES

DATA 01-27-07  
SEARCH 01-30-07

----- Channel 285 - 104.9 MHz -----

Call	Channel	Location		Azi	Dist	FCC	Margin
KLQQ	LIC 284C3	Clearmont	WY	0.0	0.00	163.0	-163.00
KGCL*	CP -N 286C2	Ten Sleep	WY	189.5	52.23	176.0	-123.77

\*This application proposes to substitute KGCL.CP to 271C2, following Commission rules allowing a forced substitution for a facility to another channel at the same class for the one-step upgrade of KLQQ from 284C3 to 285C0. As a result, KLQQ will be fully-spaced.

KQBL	LIC 286A	Billings	MT	320.9	164.96	152.0	12.96
KTRS-FM	LIC 284C1	Casper	WY	162.4	218.68	196.0	22.68
AL5152	RSV 285C	Ellsworth Afb	SD	107.3	306.55	281.0	25.55
RADD	ADD 288C	Meeteetse	WY	246.9	145.17	105.0	40.17
RADD	ADD 288C	Meeteetse	WY	246.9	145.17	105.0	40.17
RADD	ADD 288C	Meeteetse	WY	250.4	147.27	105.0	42.27
KQBL	CP 283C1	Billings	MT	320.9	164.95	94.0	70.95
KTUG	CP 286A	Hudson	WY	212.1	225.17	152.0	73.17
NEW	CP 287A	Wright	WY	125.9	161.73	86.0	75.73
NEW	CP -N 284C2	Dubois	WY	246.6	255.88	176.0	79.88
KAWK	LIC 286C1	Custer	SD	107.3	306.55	196.0	110.55
KRUG	CP 283C1	Upton	WY	95.1	213.17	94.0	119.17
AP3319	APP 283A	Upton	WY	105.5	206.80	86.0	120.80
KRKX	LIC 231C1	Billings	MT	320.9	164.40	37.0	127.40
KHAD	CP 288C2	Mills	WY	162.5	218.85	89.0	129.85

-----

E-2 KGCL Spacing Study

REFERENCE

44 09 31.0 N.  
107 13 27.0 W.

CLASS = C2

Current Spacings

DISPLAY DATES

DATA 01-27-07

SEARCH 01-29-07

----- Channel 271 - 102.1 MHz -----

Call	Channel	Location		Azi	Dist	FCC	Margin
KDNO	LIC-N 269C1	Thermopolis	WY	217.9	101.18	79.0	22.18
KXMP	CP 271C1	Hanna	WY	177.6	249.11	224.0	25.11
AU6229055VAC	273C	Meeteetse	WY	270.5	131.92	105.0	26.92
RDEL	DEL 273C	Meeteetse	WY	270.5	131.92	105.0	26.92
KSUW	LIC 217A	Sheridan	WY	25.2	54.58	15.0	39.58
AP3236	APP 268C	Wright	WY	107.6	145.78	105.0	40.78
KRSQ	LIC 270C1	Laurel	MT	331.9	203.08	158.0	45.08
AP5831	APP 268C1	Wright	WY	90.3	137.40	79.0	58.40
KHOC	LIC 273C	Casper	WY	154.5	173.79	105.0	68.79
KUWT	CP -D 217C2	Thermopolis	WY	218.0	101.38	20.0	81.38
KFMH	LIC 270C	Belle Fourche	SD	84.8	271.37	188.0	83.37
KUWT	LIC 217A	Thermopolis	WY	236.0	99.93	15.0	84.93
KCHQ	LIC-N 271C1	Driggs	ID	262.9	334.90	224.0	110.90
AP3166	APP 217A	Powell	WY	290.7	138.04	15.0	123.04

E-3 KLQQ HAAT Calculation

N. Lat. = 443720 W. Lng. = 1070657

HAAT and Distance to Contour - FCC Method - NGDC 30 SEC

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	1407.0	973.0	100.0000	20.00	1.000	105.13
045	1356.9	1023.1	100.0000	20.00	1.000	106.35
090	1503.3	876.7	100.0000	20.00	1.000	102.39
135	2178.6	201.4	100.0000	20.00	1.000	63.93
180	2620.6	-240.6	100.0000	20.00	1.000	30.97
225	2506.3	-126.3	100.0000	20.00	1.000	30.97
270	2426.2	-46.2	100.0000	20.00	1.000	30.97
315	2099.3	280.7	100.0000	20.00	1.000	70.82

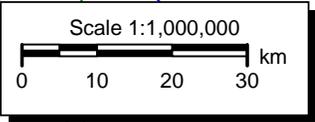
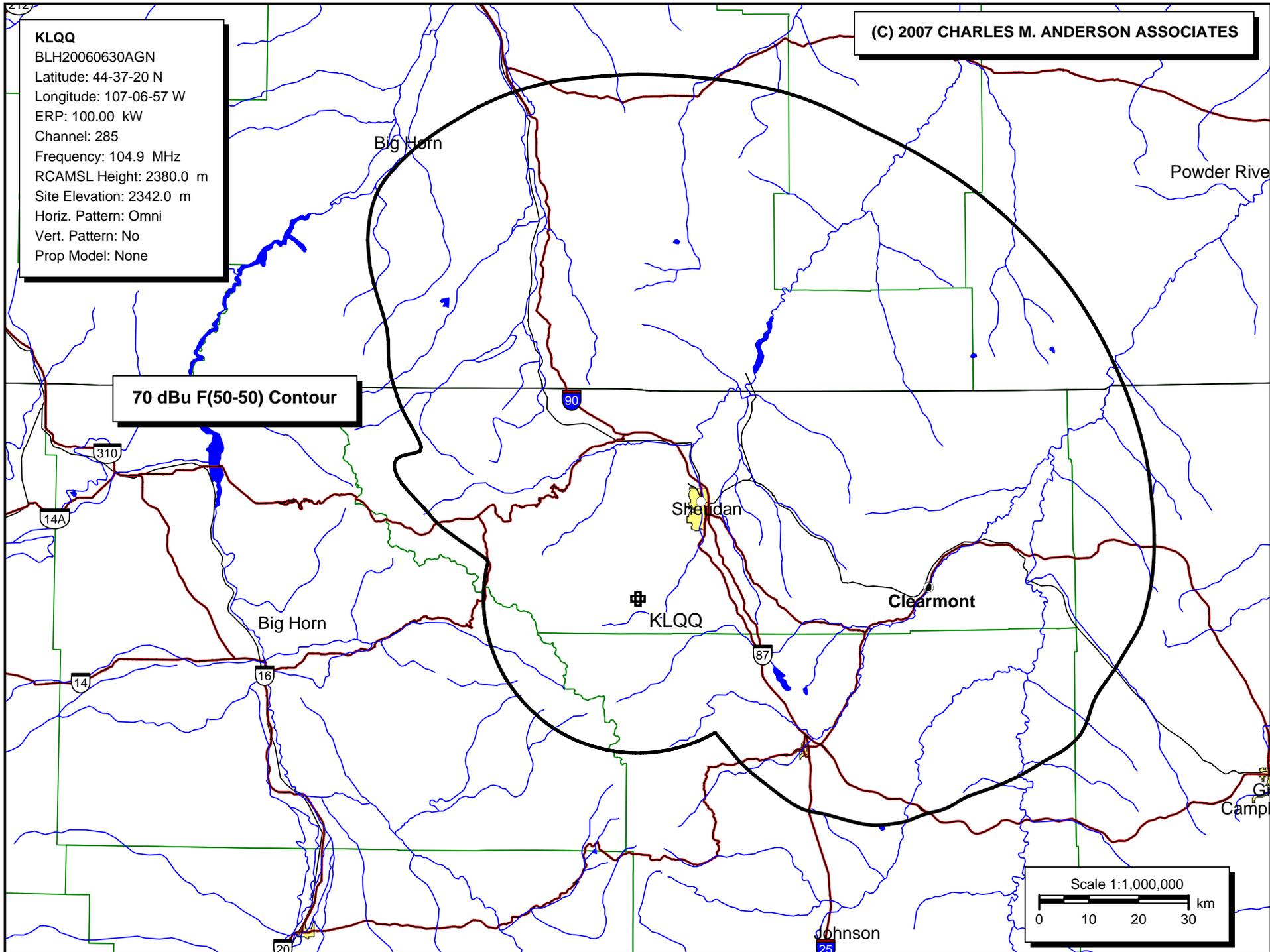
Ave El= 2012.27 M HAAT= 367.73 M AMSL= 2380 M

# E-4 KLQQ 70 dBu Coverage Plot

(C) 2007 CHARLES M. ANDERSON ASSOCIATES

**KLQQ**  
BLH20060630AGN  
Latitude: 44-37-20 N  
Longitude: 107-06-57 W  
ERP: 100.00 kW  
Channel: 285  
Frequency: 104.9 MHz  
RCAMSL Height: 2380.0 m  
Site Elevation: 2342.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

**70 dBu F(50-50) Contour**



**E-4A KLQQ**

BLH19990914AAN  
Latitude: 44-37-20 N  
Longitude: 107-06-57 W  
ERP: 100.00 kW  
Channel: 285  
Frequency: 104.9 MHz  
RCAMSL Height: 2380.0 m  
Site Elevation: 2342.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

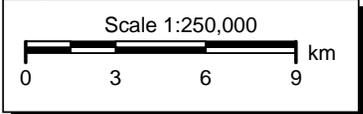
**KLQQ APPLICATION  
FCC STANDARD METHOD  
PREDICTED 70 DBU  
ENCOMPASSES CLEARMONT  
IN ACCORDANCE WITH  
73.315 AND "WOODSTOCK"  
REQUIREMENTS. THE KLQQ  
APPLICATION USES AN EXISTING  
LICENSED TOWER SITE.**

**CLEARMONT 2000  
CENSUS BOUNDARIES**

Clearmont

**CIRCULAR 59 KM 70 DBU  
FROM 285C0 REFERENCE  
POINT ENCOMPASSES CLEARMONT**

**(C) 2007 CHARLES M. ANDERSON ASSOCIATES**



V-Soft Communications LLC ©

