

# ***KLEIN BROADCAST ENGINEERING, L.L.C.***

**dedicated to improving the science and technology of radio & television communications**

**FCC FORM 301 APPLICATION  
for  
FM BROADCAST STATION CONSTRUCTION PERMIT  
(a minor change application)  
(FCC FACILITY ID # 57336)  
N R C BROADCASTING, INC.  
K S M T (FM)  
FM CHANNEL 271 A / 102.1 mHz.  
BRECKENRIDGE , COLORADO**

**SEPTEMBER 2006**

## **INTRODUCTION and ENGINEERING STATEMENT**

The firm of Klein Broadcast Engineering, L.L.C., has been retained by the applicant, NRC Broadcasting, Inc., the licensee of FM Broadcast Station KSMT at Breckenridge, Colorado. The instant application requests a change of operating channel from channel 272A to channel 271A additionally the applicant requests an Effective Radiated Power of 6 kilowatts for Station KSMT in both the Horizontal and Vertical Planes. The application also requests operation with a directional antenna with the directional antenna pattern for Station KSMT as specified herein. The applicant requests this application be processed under 47 C.F.R. Section 73.215 of the Rules and Regulations of the Federal Communications Commission, a contour protection grant with respect to Station KJEB at Greenwood Village, Colorado.

Engineering Exhibit E-1 is a complete FCC FM Channel Spacing Study that shows compliance with 47 C.F.R. Section 73.215 of the Commission's Rules for the proposed transmitter site location coordinates. This study demonstrates the proposed KSMT main transmission facility is clear to all known stations, allocations and proposed allotments under 47 CFR Section 73.215 of the Rules and Regulations of the Federal Communications Commission with the following exceptions: Station KRKY at Estes Park, Colorado, is short-spaced under Section 47 CFR 73.207 but is clear under 47 CFR Section 73.215. Station KGDQ Colorado Springs, Colorado is short-spaced under 47 CFR Section 73.207 but is also clear under 47 CFR Section 73.215 to the proposed facility for KSMT.

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Engineering Exhibit E-1A is an FCC FM Channel Spacing Study from the 47 CFR Section 73.207 Reference Coordinates site for the change in channel requested in this instant One-Step application. The 47 CFR Section 73.207 Reference coordinates are:

NL: 39-25-34 / WL: 106-05-56 (NAD 1927)

These coordinates are clear to all known stations, vacant allotments and proposed allotments except the existing class C3 operation of KRKY at Estes Park, Colorado and the class C1 operation of Station KTUN at Eagle, Colorado.

Addressing the issue, Station KRKY, Estes Park, Colorado, has requested and applied for a channel downgrade to channel 271A at Estes Park, Colorado, at a new location specified in BPH-20060809AIK. That application specified a new transmitter site location and requested the downgrade of channel 271C3 to channel 271A at Estes Park, Colorado. Application BPH-20060809AIK was granted by the Commission on September 18, 2006. The 47 CFR Section 73.207 allotment reference coordinates specified herein for the requested channel change at Breckenridge, Colorado, for Station KSMT to channel 271A is fully spaced under 47 CFR Section 73.207 to the KRKY class A facility on channel 271A at Estes Park, Colorado, therefore protection of the KRKY class C3 facility is moot.

Addressing the issue, Station KTUN at Eagle, Colorado, has simultaneously, with this filing, filed an instant application to change transmitter site location that will eliminate any short-spacing to the proposed Section 73.207 reference coordinates specified herein for the allotment of channel 271A at Breckenridge, Colorado, for Station KSMT.

**INTRODUCTION and ENGINEERING STATEMENT** cont'd page three: KSMT

Engineering Exhibit E-2 is a contour map prepared to show the proposed computed service contours for the facility specified herein. It clearly shows the predicted 60dBu f(50,50) and 70dBu f(50,50) contours. The City Limit Boundaries of the Principal Community, Breckenridge, Colorado, are also clearly marked as determined by the 2000 U.S. Census. This exhibit demonstrates the predicted 70dBu contour encompasses the entire principal community of Breckenridge, Colorado. This exhibit was generated using the DMA 3 Arc Second Digitized Terrain Datafile and the FCC Standard Contour Prediction Method f(50,50) with 360 Radials. In the case of any radial having a negative elevation, that radial was treated as if it had a height of positive 30 meters as allowed for by 47 CFR Section 73.313(e)

Exhibit E-3 is a map showing the Interfering and Protected contours of stations KSMT, KRKY (Class A) and Station KGDQ. This exhibit clearly shows compliance with the contour protection requirements of 47 C.F.R. Section 73.215 with respect to Station KSMT at Breckenridge, Colorado, Station KRKY(Class A) at Estes Park, Colorado and Station KGDQ at Colorado Springs, Colorado. This map exhibit was prepared using the DMA 3 Arc Second Digitized Terrain Datafile and the FCC Standard Contour Prediction Method, f(50,50) and f(50,10) with 360 Radials. In the case of any radial having a negative elevation, that radial was treated as if it had a height of positive 30 meters as allowed for by 47 CFR Section 73.313(e) The facility used for the analysis of Station KRKY is that of a maximum class A facility, 6kW ERP at 100meters HAAT. The facility used for the analysis of Station KGDQ was that of a maximum class C2 facility, 50kW ERP at 150meters HAAT. The co-channel protection requirement protection requirements between Station KSMT and Station KRKY (Class A) shows no overlap of the interfering 40dBu f(50,10) contours to the protected 60dBu f(50,50) contours of each station. The first adjacent channel protection requirements between Station KSMT and Station KGDQ shows no overlap of the interfering 54dBu f(50,10) contours to the protected 60dBu f(50,50) protected contours of each station.

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Exhibit E-4 is a Polar Plot of the proposed directional antenna pattern to be employed at Station KSMT.

Exhibit E-4A is a Tabulation of the directional antenna pattern proposed herein, calculated every one degree for 360 degrees.

Engineering Exhibit E-10RHS is a complete and comprehensive RF Radiation Hazard Study/Evaluation of the facility proposed in the instant application. Based on the calculations and findings contained therein, the proposed new main transmission facility complies with all of the requirements of the FCC O.S.T.

Bulletin #65, Guidelines for Human Exposure to Non-Ionizing Radio Frequency Radiation, as amended to date.

The instant application proposes the following specifications for the new KSMT main transmission facility:

Transmitter Site Location Coordinates: NL: 39 – 29 – 44 / WL: 106 – 01 – 44 (NAD-27) (No Change)

Ground Level AMSL at proposed site: 3194 meters AMSL

Overall Height Above Ground of Antenna Support Structure: 60 meters AGL

Overall Height Above Mean Sea Level of Antenna Support Structure: 3254 meters AMSL

Antenna Radiation Center Above Ground Level: 56 meters AGL

Antenna Radiation Center Above Mean Sea Level: 3250 meters AMSL

Antenna Support Structure Registration Number: Not Required

HAAT: -64 meters

Effective Radiated Power: 6 kW H & V

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An analysis of the engineering data presented herein demonstrates compliance of the proposed facility with all of the applicable Rules and Regulations of the Federal Communications Commission as amended to date. Therefore, the applicant and licensee of FM Broadcast Station KSMT at Breckenridge, Colorado, NRC Broadcasting, Inc., requests the Commission consider and GRANT the instant application for the facility requested herein under the Rules and Regulations of the Federal Communications Commission, as amended to date.

Respectfully submitted,

Elliott Kurt Klein, Consulting Broadcast Engineer

For the firm:

KLEIN BROADCAST ENGINEERING, L.L.C.

28 September 2006

NRC Broadcasting, Inc.  
FM Broadcast Station K S M T  
Breckenridge, Colorado