

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

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

**MAY 2007**

**FCC FORM 302-FM APPLICATION  
for  
STATION LICENSE to COVER CONSTRUCTION PERMIT  
&  
PROGRAM TEST AUTHORITY  
FCC File # BPH-20061002BWT  
(Facility ID: 57336)  
N R C BROADCASTING, INC.  
K S M T (FM)  
FM CHANNEL 271 A / 102.1mHz.  
BRECKENRIDGE , COLORADO**

## **INTRODUCTION and ENGINEERING STATEMENT**

The firm of Klein Broadcast Engineering, L.L.C, has been retained by the licensee of KSMT(FM), to prepare the engineering calculations and exhibits required by FCC Form 302-FM, an application for FM Broadcast Station License to cover the above captioned outstanding construction permit and Program Test Authority.

The specifications of the facility are as follows:

**Summary of Proposed Operation:**

Effective Radiated Power	6.0 kW	H & V
Antenna Height Above Average Terrain	-64 meters	H & V
Antenna Radiation Center Above Mean Sea Level	3250 meters	H & V
Antenna Radiation Center Above Ground Level	56 meters	H & V

These specifications are exactly as specified in the station's FCC Construction Permit, FCC File Number BPH-20061002BWT.

The transmitter power output (T.P.O.) is calculated to be 6.4kW which produce the authorized effective radiated power (E.R.P.) of 6.0kW in both the Horizontal and Vertical Planes.

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The valid construction permit has seven "Special Operating Conditions or Restrictions." They are addressed below.

**SPECIAL OPERATING CONDITIONS or RESTRICTIONS #1.**

BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee shall submit the results of a complete proof-of-performance to establish the horizontal plane radiation patterns for both the horizontally and vertically polarized radiation components. This proof-of-performance may be accomplished using the complete full size antenna, or individual bays there from, mounted on a supporting structure of identical dimensions and configuration as the proposed structure, including all braces, ladders, conduits, coaxial lines, and other appurtenances; or using a carefully manufactured scale model of the entire antenna, or individual bays therefrom, mounted on an equally scaled model of the proposed supporting structure, including all appurtenances. Engineering exhibits should include a description of the antenna test facilities and equipment employed, including appropriate photographs or sketches and a description of the test procedures, including scale factor, measurements frequency and equipment calibration.

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**ANSWER to SPECIAL OPERATING CONDITION #1.**

The applicant and permittee has installed the antenna type and model specified herein.

The antenna employed in an Electronics Research, Inc., model, MP-2AE-DA-HW, end fed, two section, half wavelength spaced, E.P.A. Type 3 (three) FM broadcast antenna. All of the information requested in Special Operating Condition #1, is contained in Engineering EXHIBIT E-2 of this instant application.

**SPECIAL OPERATING CONDITION or RESTRICTION #2.**

BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee shall submit an affidavit from a licensed surveyor to establish that the directional antenna has been oriented at the proper azimuth.

**ANSWER to SPECIAL OPERATING CONDITION #2.**

Engineering EXHIBIT E-3 is the stamped affidavit and certification requested by Special Operating Condition or Restriction #2, from Theodore J. Archibeque, a Registered Professional Land Surveyor in the State of Colorado and President of Archibeque Land Consulting, Ltd. , a professional land surveying company in Eagle, Colorado. This exhibit was prepared just after the antenna was installed at Station KSMT in August of 2005. The existing antenna was modified with the removal of the existing parasites and new parasites were installed on April 22, 2007.

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The orientation of the antenna was not changed since its original installation in September of 2005 and remains oriented at 226 degrees true, as required by the antenna manufacturer's specifications developed in March of 2007.

**SPECIAL OPERATING CONDITION or RESTRICTION #3.**

BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee/licensee shall submit an affidavit that the installation of the directional antenna system was overseen by a qualified engineer. This affidavit shall include a certification by the engineer that the antenna was installed pursuant to the manufacturer's instructions and a list of qualifications of the certifying engineer.

**ANSWER to SPECIAL OPERATING CONDITION #3.**

Engineering EXHIBIT E-4 is an affidavit of Consulting Broadcast Engineer, Elliott Kurt Klein, who witnessed the directional antenna proof-of-performance tests personally at the Electronics Research, Inc., test range near Booneville, Indiana.

Mr. Klein was also personally present during the entire installation of the directional antenna system employed at KSMT(FM) and directed the installation strictly according to the antenna manufacturer's instructions. The engineering qualifications of Elliott Kurt Klein are a matter of record with the Federal Communications Commission, as he has been in practice before the Commission for the past forty years. He has also designed many directional antennas for both radio and television stations and has made applications for construction permits and licensing before the Federal Communications Commission, for these directional antenna systems over the past four decades.

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**SPECIAL OPERATING CONDITION or RESTRICTION #4.**

The relative field strength of neither the measured horizontally nor vertically polarized radiation component shall exceed at any azimuth the value indicated on the composite radiation pattern authorized by this construction permit.

A relative field strength of 1.0 on the composite radiation pattern herein authorized corresponds to the following effective radiated power:

6.0 kilowatts

Principal minima and their associated field strength limits:

30 degrees True: 0.730 kilowatts

**ANSWER to SPECIAL OPERATING CONDITION #4.**

Compliance with the radiation limitations set forth in Special Operating Condition or Restriction #4 is demonstrated in the tabulation of the composite radiation pattern tabulation contained in Engineering EXHIBIT E-2 of the instant application.

**SPECIAL OPERATING CONDITION or RESTRICTION #5.**

\*\*\*\*\* This is a Section 73.215 contour protection grant \*\*\*\*\*

\*\*\*\*\* as requested by the applicant\*\*\*\*\*

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**ANSWER to SPECIAL OPERATING CONDITION #5.**

The applicant, permittee and licensee acknowledges this construction permit was processed under 47 C.F.R. Section 73.215 contour protection as requested by the applicant, permittee and licensee in the original FCC Form 301 application. The applicant agrees with this condition and accepts a grant of the covering license under these terms.

**SPECIAL OPERATING CONDITION or RESTRICTION #6.**

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radio frequency electromagnetic fields in excess of FCC guidelines.

**ANSWER to SPECIAL OPERATING CONDITION #6.**

The permittee/licensee comply with Special Operating Condition #6 and will take all necessary precautions to protect the General Public and Workers on, in or near the site, from exposure to non-ionizing radio frequency radiation in excess of FCC guidelines.

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**SPECIAL OPERATING CONDITION or RESTRICTION #7.**

Pursuant to the grant of this construction permit and the authority found in Sections 4(i), 5(c) (1), 303 and 307 (b) of the Communications Act of 1934, as amended, and Sections 0.61, 0.204(b), 0.283, 1.420, 73.203(b), and 73.3573 of the Commission's Rules, the FM assignment IS MODIFIED as follows:

Community	Channel No.
Breckenridge, CO	Add 271A, Delete 272A

Pursuant to Section 316(a) of the Communications Act of 1934, as amended, license BLH-20050915ADB IS MODIFIED to specify operation on Channel 271A in lieu of Channel 272A.

**ANSWER to SPECIAL OPERATING CONDITION #7.**

The applicant acknowledges the FM Channel assignment change from Channel 272A to Channel 271A at Breckenridge, Colorado, for operation of Station KSMT. The applicant further accepts the modification of the license for Station KSMT to specify operation on Channel 271A as a condition for the grant of this instant application.

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Engineering EXHIBIT E-1 is a copy of the FCC construction permit underlying this Form 302-FM application and is included herein to aid Commission Staff in the processing of this application.

The instant application requests the Commission grant PROGRAM TEST AUTHORITY and a new STATION LICENSE for FM Broadcast Station K S M T (FM), as specified herein.

The applicant, NRC Broadcasting, Inc., respectfully requests the Commission staff consider and grant the instant application for the facilities requested herein.

Respectfully submitted,

Elliott Kurt Klein  
Consulting Broadcast Engineer

04 May 2007