JT Communications
579 NE 44 Ave.
Ocala, FL 34470-1421
Part 5 Application

EXHIBIT 1- Narrative Statement

A) COMPLETE PROGRAM OF RESEARCH AND EXPERIMENTATION, and
B) SPECIFIC OBJECTIVES
(1) overview

JT Communications is an FM broadcast equipment manufacturer. JT Communications would like to design and manufacture FM broadcast antennas. In order to perform certain tests and measurements, the generation of low-power radiofrequency energy is necessary. It is financially impossible for JT Communications to construct an enclosed RF anechoic chamber large enough to conduct tests and measurements. The only alternative would be to perform the tests and measurements in an outdoor, unobtrusive environment.

JT Communications is aware that the FM broadcast band is sensitive to other licensed entities, and will take precautions to assure that no interference to broadcast stations will occur. JT Communications is aware that it will be granted a license on a secondary basis, with the full understanding that it must cease any further generation of radiofrequency energy, or reduce the energy to the point that the radiofrequency energy is no longer causing the interference.

JT Communications has documented all FM broadcast stations located within 180 miles of its location, and will take the following, but not limited steps to reduce the possibility of interference:

a) Make all attempts to conduct tests that could radiate radiofrequency energy during the "experimental period" (after midnight, local time),

b) Provide advance notice in writing to any licensed radio station that may be subject to interference from JT Communications. The notice will be in the form of a request, and JT Communications realizes that the licensed radio stations have the final authority whether or not JT Communications may conduct any tests that may occur on the licensed radio stations frequency of operation,

c) Monitor each transmission to assure that all radiofrequency energy generated does not extend above or below the range of frequencies in which it is licensed for,

d) Accept any interference it receives from licensed broadcast stations,

e) Fully comply with part(s) 2, 5, 73, 74, and any other FCC rules that may be required.

(2) Theory of operation and equipment description

In designing an antenna, the measurement factors that would require the generation of radiofrequency energy (other than maximum power handling capability) are:

1) resonant frequency,
2) useable bandwidth,
3) antenna gain,
4) antenna polarity,
5) antenna polar vectors,
6) antenna reaction to mounting surfaces,
7) antenna directivity, and,
8) antenna efficiency.

It will be assumed that the physical construction of the antennas will satisfy the maximum power handling requirement.

Antennas are designed to transfer the electrical energy placed into the antenna terminals as efficiently as possible, converting it into electromagnetic and electrostatic waves. Measurement of the necessary parameters to result in maximum efficiency involves radiofrequency energy being applied to the antenna. There exists several acceptable methods to conduct the necessary tests for an antenna:

a) antenna gain and efficiency
Apply a calibrated signal to a reference antenna, measure the signal a given distance away with another reference antenna connected to a calibrated field strength meter, setting a reference on the field strength meter by adjusting the output level of the calibrated reference signal. Then, remove the reference antenna from either location, and connecting the test antenna to that location. Reading the new measurement on the field strength meter will reveal the test antenna gain/loss factor relative to the reference antenna.

b) antenna polarity and polar vectors
Utilization of the same arrangement in (a), changing the test antennas' rotational aspect, and noting the field strength measurement at various angles.

c) antenna resonant frequency and necessary bandwidth
This measurement requires the use of a sweep generator, connected to a RF directional coupler. The sweep generator generates a radiofrequency signal starting below the resonant frequency of the test antenna, and ending above the frequency. The directional coupler samples the reflection coefficient of the antenna, and the bandwidth and resonant frequencies can be adjusted.

An alternative to the sweep generator would be use of an impedance bridge, with a calibrated signal generator. Sweep generators typically radiate extremely small amounts of radiofrequency energy.

d) antenna reaction to mounting surfaces
By utilization of (a) above, attaching the test antenna to various mounting surfaces, changing the orientation of the test antenna, and measuring the results on the field strength meter.

e) antenna measurements require an existing vertical antenna structure to be used.
There already exists at JT Communications facility a 36 Meter structure capable of supporting the maximum number of antennas JT Communications plans to manufacture. This structure is located in an area that is surrounded by trees, and other man-made structures; a significant environmental impact on the community would not be a consideration. The nearest aircraft landing area is located approx 3.3 km, bearing approx 25 degrees, N. This landing area is a secondary field which has minimal use. There exists several other towers and power lines within a 3 KM radius of the existing JT Communications antenna which would further shield the structure from aircraft.

By "stacking" the antennas vertically in single and partial-wavelength spacings, various gain and patterns can be obtained. Since a wavelength at 88-108 mHz is approx. 3 meters, several antennas stacked above one another requires the existing structure to support the antenna, as highlighted in EXHIBIT 2.

(f) EQUIPMENT DESCRIPTION

The following is a partial list of equipment to be utilized in the measurement and test of the antennas:

DEVICES THAT GENERATE RADIOFREQUENCY ENERGY

1) Transmitter- JT Communications model FMT-15 FCC type GAC4FYFMT-15.
This device will be operated at the 1 watt level (and below), to measure near-field, far-field and reflectometer measurements.

2) Transmitter- JT Communications model FMP-20 (not yet type notified). This is a similar device to the FMT-15, however, it is capable of operation on 12V batteries, capable of operation in the field. It will also be used if the FMT-15 (item 1) is not available.

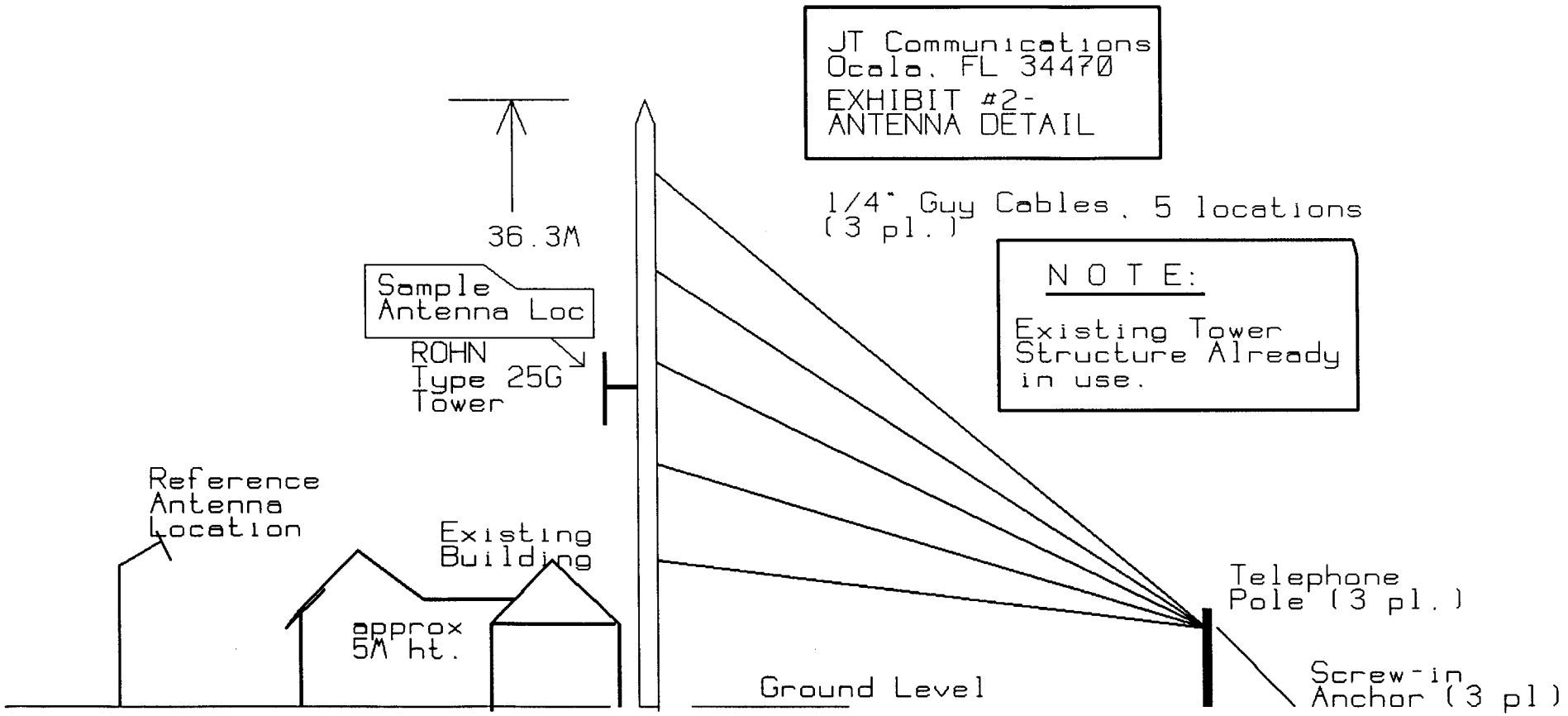
3) Sweep Generator- (various manufactures)- this device is incapable of generating more than 0 dbV re 0.7vrms into 50 ohms. It will be used to conduct all swept-measurements.

PASSIVE DEVICES TO BE USED THAT ARE NOT INTENTIONAL RADIATORS

Oscilloscopes, wavemeters, chart recorders, field-strength meters, antenna impedance bridges, spectrum analyzers, directional couplers- various manufactures.

C) CONTRIBUTION TO THE DEVELOPMENT OF THE RADIO ART

JT Communications wishes to expand its' capabilities, and increase its' financial position in the broadcast marketplace. It would be necessary to conduct experiments, perform tests, and make measurements as described above. The results would provide the necessary data needed to properly market the proposed product (antennas). The cumulative effect of the experiments, tests, and measurements would assist and further develop technology and allow the design and sale of FM broadcast antennas, providing an additional source for the marketplace.


JT Communications
Ocala, FL 34470
EXHIBIT #2-
ANTENNA DETAIL
1/4" Guy Cables, 5 locations
(3 pl.)
NOTE:
Existing Tower
Structure Already
in use.
36.3M
Sample
Antenna Loc
ROHN
Type 25G
Tower
Reference
Antenna
Location
Existing
Building
approx
5M ht.
Telephone
Pole (3 pl.)
Screw-in
Anchor (3 pl)
Ground Level