Benjamin M. Adams
9132 SW 110th Terrace
Gainesville, Florida 32608-5833

EXHIBIT 1

Complete program of research and experimentation, and specific objectives.

Benjamin Adams is an FM electronic broadcast manufacturer. I would like to design and manufacture FM broadcast antennas. In order to perform certain tests and measurements, the generation of low power RF is necessary. It is financially impossible for me to construct an enclosed RF chamber large enough to conduct field tests and measurements. The only alternative would be to perform the test and measurements in an outdoor environment.

Benjamin Adams is aware that the FM broadcast band is sensitive to other licensed entities, and will take precautions to assure that no interference to broadcast station will occur. I am also aware that I will only be granted a license on a secondary basis, with the complete understanding that it must cease any further transmission of radio frequency energy, or reduce the 1 watt to a level in which no interference would be caused.

I Benjamin Adams have documented all FM broadcast station within the radius of 250 miles of the transmitter and antenna-testing site. I will take the following prior to any testing or measurements:

a) Make all attempts to conduct test that could radiate RF during proper times.
b) Provide advance notice in writing to any licensed radio station that may be subject to interference. This notice will be in the form of a request and I Benjamin Adams realize that the licensed radio stations have the final authority whether or not I may conduct any tests that may occur on the licensed radio stations frequency of operation.
c) Monitor each transmission to assure that all radio frequency generated does not extend above or below the range of the frequencies in which it will be 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 rulings that may apply or be required.

Theory of operation and equipment description

1) Resonant frequency
2) Useable bandwidth
3) Antenna polarity
4) Antenna gain
5) Antenna polar vectors
6) Antenna reaction to mounting surfaces
7) Antenna directivity
8) Antenna efficiency

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 RF energy to be applied to the 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, or connecting the test antenna to that location. Reading the new measurement on the field strength meter will reveal the test antenna gain and 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 radio frequency 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 the use of an impedance bridge, with a calibrated signal generator. Sweep generators typically radiate extremely low amounts of RF 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
All testing will be done on a mast that is no greater those 5 meters tall. Most of our antenna designs are DC grounded antennas therefore, a metal structure will be used but at a very low height. The nearest airport is 12 KM away and antenna testing will not interfere.

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 RF ENERGY

1) Transmitter from JT Communications model FMT-100 This device will be operated at the 1 (one) watt level and below, to measure near field, far field and reflectometer measurements.
2) Sweep Generator- (various manufactures) – this 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, wave-meters, chart recorders, field strength meters, antenna impedance bridges, spectrum analyzers, directional couplers for different manufactures.

**** Contribution to the development of the radio art**

I Benjamin Adams wish to expand my capabilities, and increase my financial position in the broadcast marketplace. I would be necessary for me to conduct experiments, perform tests, and make measurements as described in this exhibit. The result would provide the necessary data needed to properly market the proposed 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 with well-built antennas made in the United States of America.