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ENGINEERING STATEMENT

IN REGARD TO MEASUREMENTS ON

GEMEL ITALIA S.p.A.

FCC ID: F6QTXSHS

MODEL: TXSHS

A. INTRODUCTION

Hyak Laboratories Inc. has been authorized by GEMEL Italia S.p.a. to perform measurements on a TXSHS transmitter to determine compliance with FCC Rules, Subpart C, Para. 15.201.

The transmitter is a low powered device designed for remote control of automobile security systems. It operates at a nominal 433.9 MHz frequency. The transmitter, constructed on an etched circuit card, is powered by a 3 volt battery.

The TXSHS Alarm operates under manual control since transmission only occurs when the unit is keyed. The provisions of 15.231(a)(1) are met since transmission ceases within 5 seconds of the user manually releasing the push button.

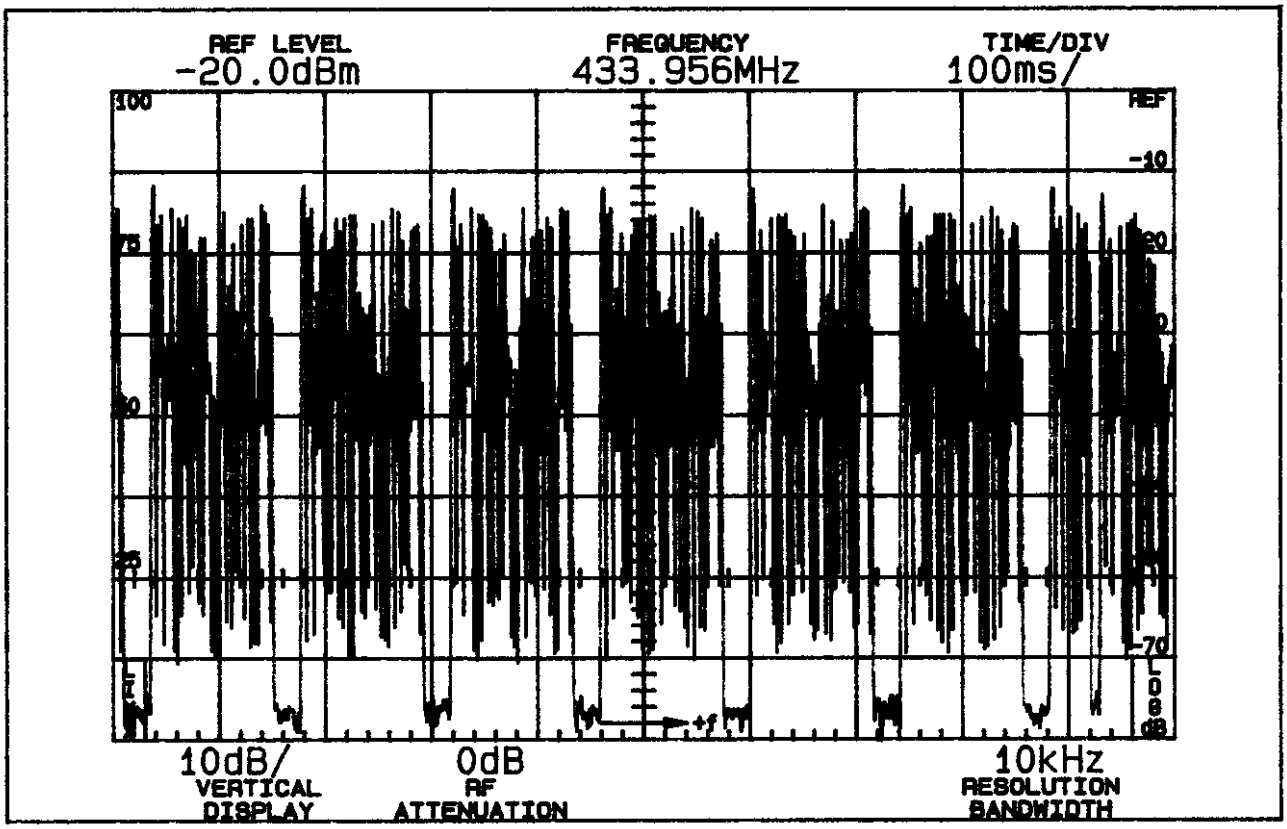
B. DESCRIPTION OF MEASUREMENT FACILITIES

A description of the Hyak Laboratories Inc. radiation test facility is a matter of record with the FCC. The facility was accepted for radiation measurements on October 1, 1976, and is currently listed as an acceptable site.

C. DESCRIPTION OF MEASUREMENT PROCEDURE: RADIATED MEASUREMENTS

Measurements of transmitter radiation field strength were made using ANSI C64.3 (1992) as the test procedure. Measurements were made with 3 meter spacing between the transmitter under test and the test equipment antenna.

A fresh 3 volt battery was installed.



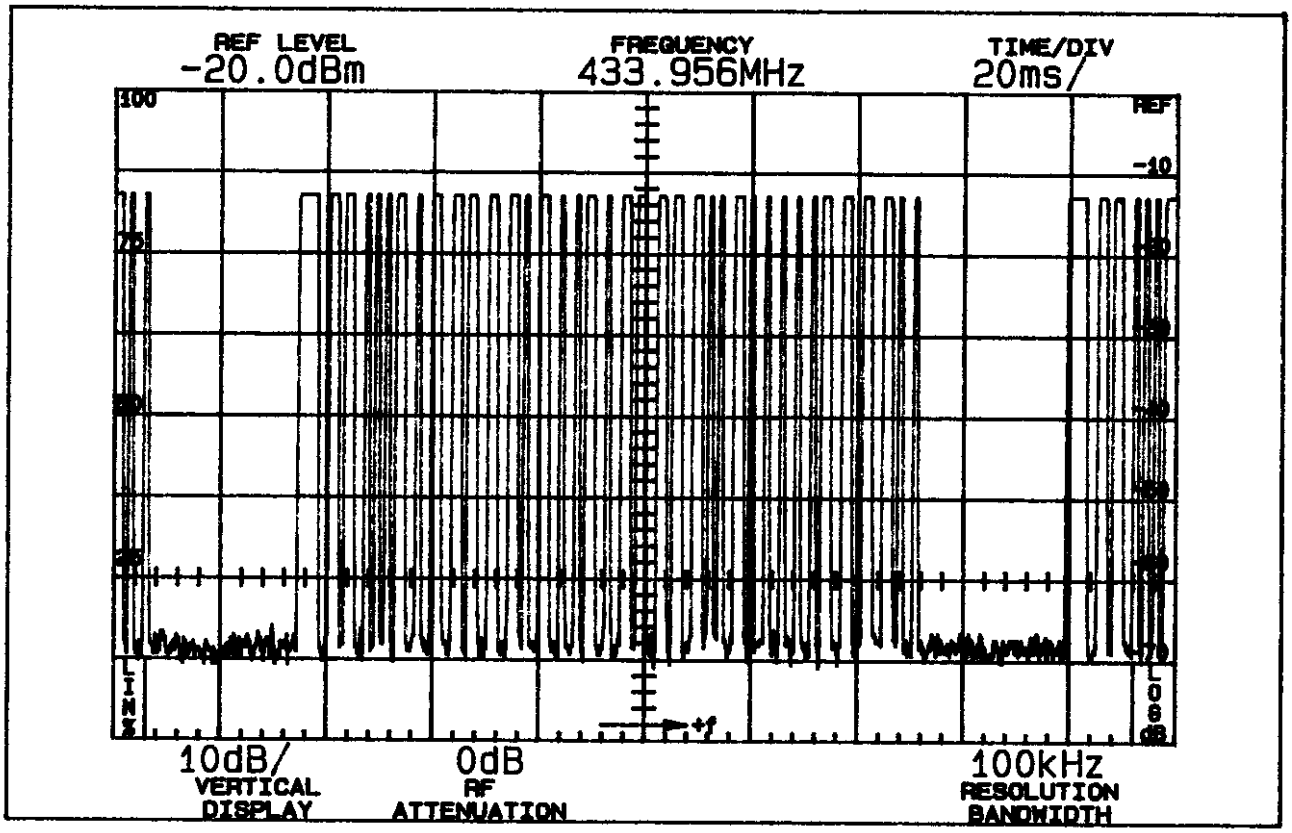
MULTIPLE WORD TRANSMISSION

Horizontal: 100 milliseconds/Div
Vertical: 10 dB/Div.
Resolution: 10 kHz

(Time domain)

PULSE CHARACTERISTICS
FCC ID: F6QTXSHS

FIGURE 1



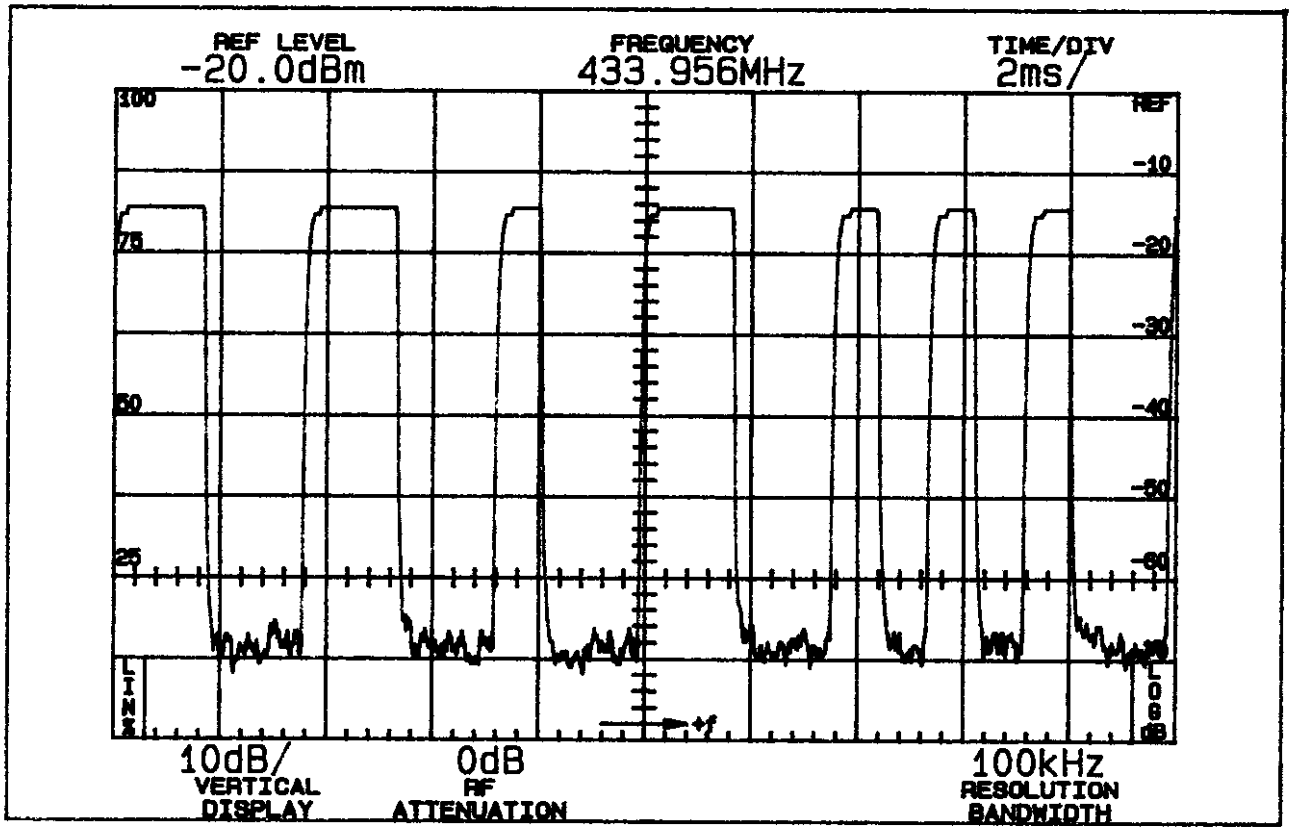
SINGLE WORD TRANSMISSION

Horizontal: 20 mS/Div.
Vertical: 10 dB/Div.
Resolution: 100 kHz

(Time domain)

PULSE CHARACTERISTICS
FCC ID: F6QTXSHS

FIGURE 2



BIT DETAIL

Horizontal: 2 mS/Div.
Vertical: 10 dB/Div.
Resolution: 100 kHz

(Time domain)

PULSE CHARACTERISTICS
FCC ID: F6QTXSHS

FIGURE 3

SAMPLE COMPUTATIONS

Using the time domain plots of Figures 1 through 3, maximum "on" time over any 100 mS interval is:

"On" Pulses:

Short (0.8 mS) x 14 = 11.2
Long (1.6 mS) x 18 = 28.8

Total 40.0

Duty Cycle: 40.0/100 = 0.40

20 Log 0.40 = -8 dB

SAMPLE COMPUTATIONS
FCC ID: F6QTXSHS

FIGURE 4

TABLE 1

RADIATED FIELD INTENSITY
Measured at 3 meters
15.231(b)

Frequency (MHz)	Meter[1] Reading (dBm)	Antenna Factor (dB)	Field[2] Intensity uV/m @ 3m	Calc. Field[3] Intensity uV/m @ 3m	FCC Limit uV/m @ 3m	dB to Limit
433.956	-46.0	17.0	7943.3	3162.3	10998.2	-10.8
867.912	-75.6	22.4	489.8	195.0	1099.8	-15.0
1301.866	-82.4	22.7	231.7	92.2	500.0*	-14.7
1301.864	-78.0	22.7	384.6	153.1	500.0*	-10.3
1735.818	-84.4	24.1	216.3	86.1	1099.8	-22.1
2169.774	-74.8	25.5	767.4	305.5	1099.8	-11.1
2603.724	-68.0	24.1	1428.9	568.9	1099.8	- 5.7
3037.680	-67.6	24.8	1621.8	645.7	1099.8	- 4.6
3471.640	-68.8	25.4	1513.6	602.6	1099.8	- 5.2
3905.588	-74.0	25.6	851.1	338.8	500.0*	- 3.4
4339.542	-82.8	25.7	312.6	124.4	500.0*	-12.1

Note 1: Peak detector reading without averaging.

Note 2: $uV/m = Log^{-1}\frac{dBu/m}{20}$

$dBu = dBm + antenna\ factor + 107$

Note 3: Field Intensity calculated from peak value and -8 dB peak/average factor.

*Forbidden Band

All other emissions to the tenth harmonic were below FCC limits.

(Unit was measured on 3 major planes)

D. REPORT OF RADIATED MEASUREMENTS

Table 1 lists the frequency and amplitude of all signals observed from 30 to the 10th harmonic that were within 20 dB of the limits of FCC Rules. The averaging factor is included as noted.

E. FORBIDDEN BAND MEASUREMENTS

Any spurious signals from the transmitter that fell in a forbidden band are identified in Table 1. All forbidden bands, per Paragraph 15.205, from 73 MHz to 4.4 GHz were searched and any applicable emissions above noise or interference levels are shown in Table 1.

F. OCCUPIED BANDWIDTH

A plot of occupied bandwidth is shown in Figure 5. The device meets bandwidth restriction of Paragraph 15.231(c); 20 dB points are less than 30 kHz with worst-case modulation. (Limit is 0.25% of 433.9 MHz or 1.08 MHz).

G. POWER LINE CONDUCTED MEASUREMENTS

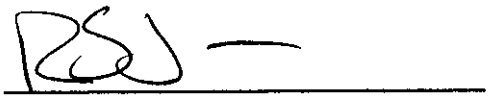
AC line conducted spurious measurements were not made since the device does not use the public power supply system.

H. EXHIBITS

Label; Exhibit 1.
Photographs; Exhibit 2.
Schematic Diagrams; Exhibit 3.
User Instructions; Exhibit 4.
Block Diagram; Exhibit 5.
Circuit Description; Exhibit 6.

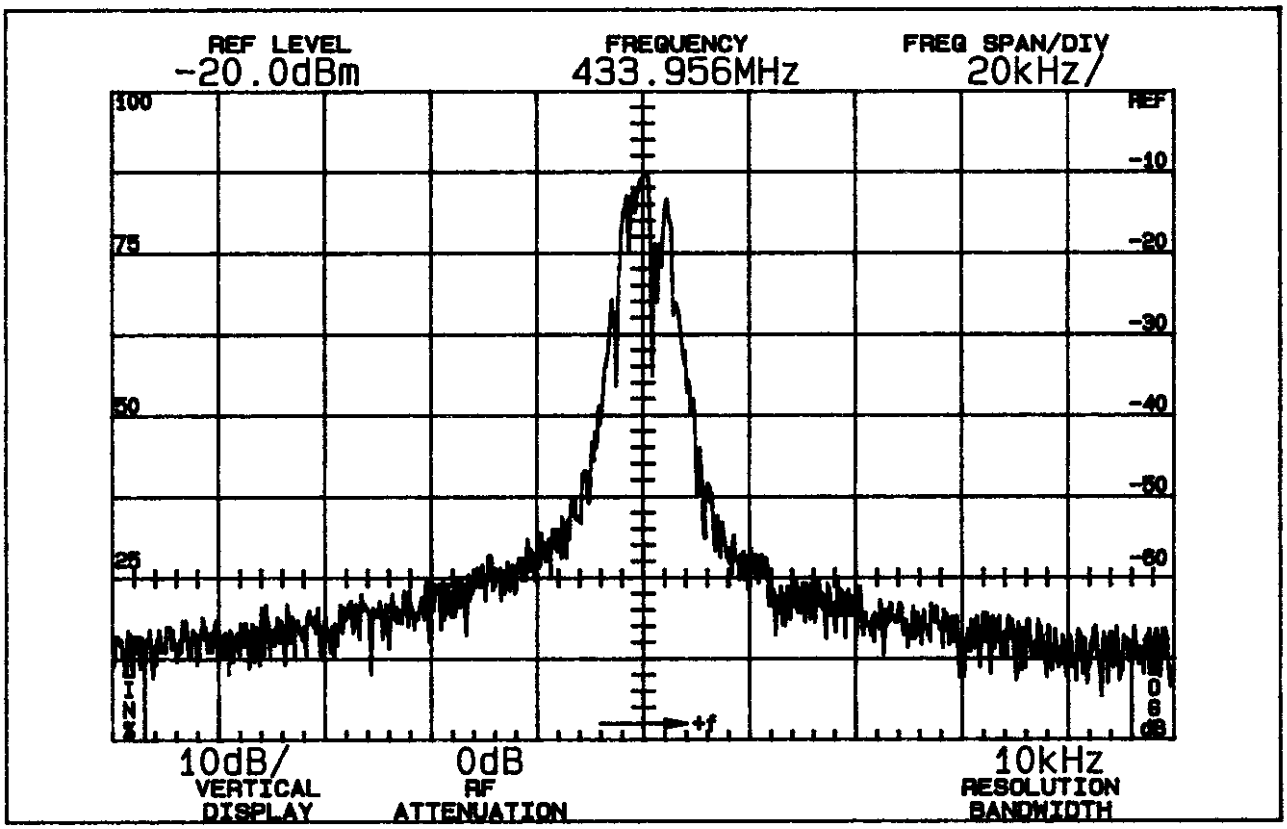
I. STATEMENT

Technical test data are from tests performed by me or under my supervision. My qualifications are a matter of record with the Federal Communications Commission. I personally attest to the accuracy of the test data submitted as a part of this engineering statement.



Rowland S. Johnson

Dated: February 24, 1999



Center Frequency 433.9 MHz

Horizontal: 20 kHz
Vertical: 10 dB/Div.
Resolution: 10 kHz

No video filtering.

OCCUPIED BANDWIDTH
FCC ID: F6QTXSHS

FIGURE 5

LIST OF EXHIBITS

1. FCC ID LABEL
2. PHOTOGRAPHS
3. SCHEMATIC DIAGRAM
4. USER INSTRUCTIONS
5. BLOCK DIAGRAM & CIRCUIT DESCRIPTION