EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a 40 Channel mobile citizen Band (CB) transceiver with model: 21-1702. The unit is powered from 13.8 Vdc.

Transmitter portion:
i) Type of emission: 6K00A3E
ii) Frequency Range: 26.965 MHz to 27.405 MHz
iii) Maximum Power Rating: 4 Watt

Receiver Portion:
i) Type of Receiver: Superheterodyne receiver
ii) Tuning Frequency: 26.965 MHz to 27.405 MHz
iii) Local oscillator: 26.965MHz
iv) IF: 10.695 MHz, 455kHz

The brief circuit description is listed in the following pages.

CIRCUIT DESCRIPTION

General

The 21-1702 is a 40-channel, crystal controlled mobile transceiver which consists of a PLL-synthesizer circuit, a receiver circuit and a transmitter circuit. Diode D12 is a polarity-protector. Power is supplied by a car battery (13.8 VDC). Refer to the Block Diagram and the Schematic Diagram as you read the following descriptions.

PLL Synthesizer Section

The 21-1702 uses a Phase-Locked-Loop (PLL) circuit to synthesize the local-oscillator frequencies for receiving and transmitting. It employs one IC and only one crystal. IC1 is a CMOS large scale integrated circuit containing a reference oscillator, phase detector, active low pass filter, reference divider (1/4096 for transmit and receive) and a programmable divider.

The programmable divider directly divides the output of the VCO (voltage controlled oscillator) down to a 2.5 kHz signal. Crystal X1 provides a reliable frequency standard which controls the local-oscillator frequencies. The reference-frequency divider inside IC1 counts down the oscillator signal to 1/4096, and passes it on to the phase detector, where it is compared with the 2.5 kHz signal from the programmable divider. An error voltage is generated by the phase detector, which is proportional to the phase difference between the two 2.5 kHz signals.

This error voltage appears at collector of PJN17 and passes through the RC LPF (low pass filter), where the error voltage is integrated and harmonics and noise are filtered out. The resulting DC voltage is applied to the varicap diode D8. Its capacity varies with the applied DC voltage. Because of this capacity change, the output frequency of the VCO is corrected. With proper circuit design and precise adjustments, the VCO frequency is accurate and precise when the system is "locked".

This means that the phase detector senses no phase differences between the two 2.5 kHz signals, and the VCO generates a frequency that is as accurate and stable as the reference crystal oscillator. The VCO circuit consists of D8, Q13 and T6

The circuit is connected in the form of a Hartley oscillator with varicap diode D8 as part of the tank circuit. The VCO circuit generates a signal ranging from 13.4825 to 16.710 MHz. The IC1 also includes and unlock-signal-detector circuit. Should the condition occur, the output at pin 8 of IC1, which is normally open, will be shorted to ground. This means that VCO frequency (1/2 carrier for transmitting) is "sunk" to pin 18 of IC1 and the transmitter circuit are inhibited.

Transmitter Circuit

RF Amplication

The output of doubler amp Q16 is fed through doubler tuning (27 MHz) T7 and T8 to the base of buffer amp Q17. The output is then supplied through tuning circuit T9 to RF driver amp Q18. The Q18 output capacitance is divided by tuning circuit L87, C94 and passed through tuning circuit L8 and C95 to the base of final RF stage Q19 The Q19 output is supplied to the antenna through L-C turning circuit.

Suppression of Spurious Radiation

The tuning circuit between frequency synthesizer and final amp Q19, and 3-stage "PI" network C97, L10, C98, C99, L11, and C1 in the Q19 output circuit serve to suppress spurious radiation. This network serves to impedance match Q19 to the antenna and to reduce spurious content to acceptable levels. In-band spurious is reduced to acceptable levels by filtering.

Limiting Power

During factory alignment, the series base resistor of final Q17 (R 114) is selected to limit the available power to slightly more than 4 watts. The tuning is adjusted so the actual power is from 3.6 to 3.9 watts, and there are no other controls for adjusting power.

Modulation

The mic input is fed to mic amp Q 10 and then to audio power IC3, which feeds the signal to the modulation transformer T5. The audio output at the step-up transformer of T5 is fed in series with the B+voltage through diode D 11 to the collectors of Q 18 and final Q19 to collector modulate both these stages.

Limiting Modulation

A portion of the modulating voltage is fed through base of Q 8 which turns on Q 9 which attenuates the mic input to mic amp Q 10. The resulting feedback loop keeps the modulation from exceeding 100 percent for inputs approximately 40 dB greater than that required to produce 50 precent modulation. The attack time is about 18 milli seconds, and the release time is about 350 milli seconds.

Receiver Circuit

Receiver

The receiver is a double conversion superheterodyne with first IF at 10.695 MHz and the second IF at 455 kHz. The synthesizer supplies the first local oscillator 10.695 Mhz below the received frequency and the second local oscillator at 10.240 MHz.

The detector output provides reverse AGC to all previous stages except Q6. The detect and AGC voltage is also amplified by Q7, used to feed RF attenuator Q1, and squelch amp IC2 (2/2).

Indicators

Channel Indication

Indicates the selected channel by 2-digit segment LEDs. The LEDs light dynamically by the outputs from IC1.

The output ports of IC1; from pin 1 (SA) to pin 7 (SG), control the lighting of each segment of each digit.

TX / RX Indication

TX Mode indication:

When the PTT switch is pressed, LD201 lights.

1.2 Related Submittal(s) Grants

This is an Application for Type Acceptance of the transmitter portion of a CB Transceiver. The receiver section of the CB Transceiver is subject to certification process and the same FCC ID: AAO21-1702 is used. A separate application has been prepared for the receiver section.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). All measurement were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. For each scan, the procedure of maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna the EUT distance of 3 meters, unless stated otherwise in the **"Justification Section"** of this Application.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the emission data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. The test facility and site measurement data have been fully placed on file with the FCC.