

BotCorp

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Exhibit 5:

General Description

Of the

S-SMS/CT2A L-band Transceiver

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1 SCOPE

This document is intended to describe to provide a general description of the S-SMS L-band transceiver Type S-SMS Model CT2A as manufactured by BotCorp as required for FCC Equipment Certification.

2 PRODUCT DESCRIPTION

The mobile terminals will be used to provide two-way data services to mobile platforms. A mobile terminal consists of receive and transmit antennas and a radio transceiver unit (Figure 1) to which sensors may be attached. The terminals use low-cost omni-directional antennas. The receive antenna is an active antenna, while the transmit antenna is of a passive type. The antennas are connected to the terminal via SMA connector ports.

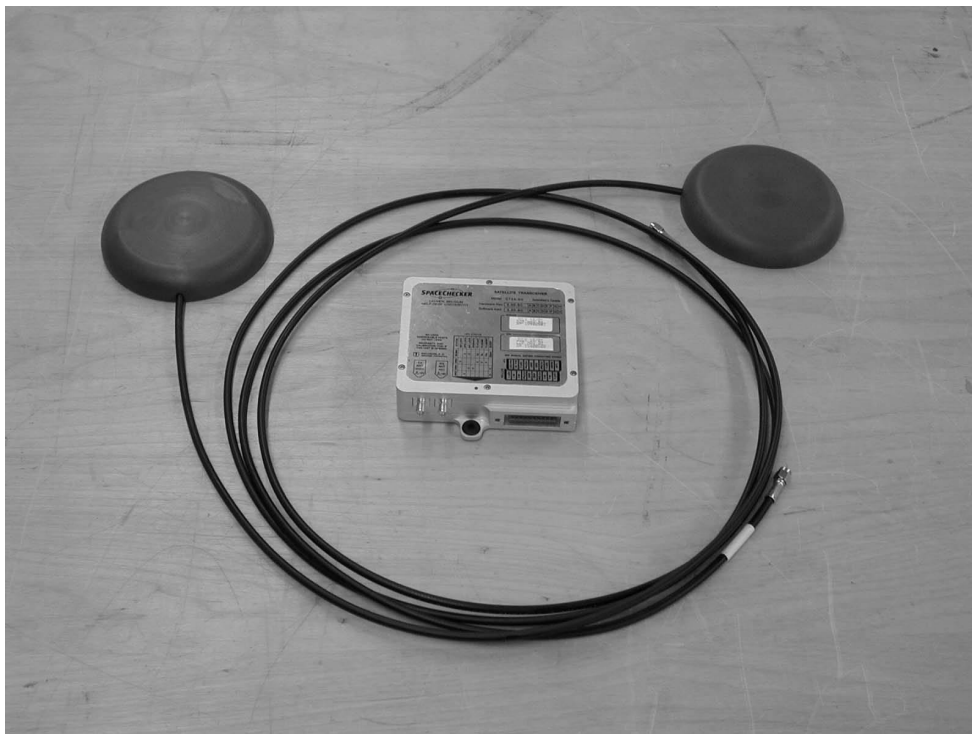


Figure 1

The terminal is powered from a DC voltage source with a nominal value of 12V. The power supply range is between 10V (minimum) and 18V (maximum).

The terminals are designed to operate over a network conforming to the Satellite Short Messaging System (S-SMS) protocols.

GPS location is used to provide real-time location of the each terminal. Each terminal also has a unique ID that is transmitted as part of the transmit protocol. These two features allow the Network Operational Centre (NOC) to locate individual terminals at any given time.

The S-SMS terminals are full duplex terminals. The terminal design is such that the terminal is capable of transmitting while simultaneously receiving a 'cease transmission' command. When the terminal receives a cease transmission command or the TDM signal is cut, transmission is pre-empted.

Each mobile terminal is tuned to a channel which uses Time Division Multiplexing (TDM) to communicate with the mobile terminals. This channel originates at the NOC. A mobile terminal will not be allowed to transmit unless it is properly receiving the TDM channel. The mobile terminal will receive information over the TDM channel about the state of the network, access channel centre frequency for transmitting, and other information required for proper network operation. The hub is based on a pre-licensed earth station, which is dedicated to use with the L-Band satellite. The hub uplink frequency range is dictated by the particular satellite and is of no concern to the proposed system.

Each terminal will be assigned a time slot no longer than 200 milliseconds transmit time and such assignment will occur at a maximum frequency of every 15 seconds. The terminals can initiate transmissions on their own if need be but only if the receive TDM channel allows such activity.

The terminal operates on a channel in the radio frequency band 1631.5 MHz to 1660.5 MHz for transmit, and 1530 MHz to 1559 MHz for receive. The channel frequency is pre-programmed in the mobile terminal by the service provider (satellite operators) and cannot be modified by the end-user.

The channel is assigned by the satellite operator, being an international co-ordinated frequency.

The operational band (allocated bandwidth) of the S-SMS network is 6 kHz.

The maximum radiated power the terminal transmits is 12.5 dBW EIRP (worst case). The transmit power level is pre-programmed in the radio during manufacture. The power at the transceiver transmit terminal is 34 dBm \pm 1dB. The transmit antenna gain is maximum 7.5 dBi.

The occupied bandwidth (defined, as the bandwidth outside whose the emissions power is 1 % of the transmitted power) is 5.4 kHz.

The NOC can prevent any terminal from transmitting either by terminating the TDM signal which disables the complete network or by sending a 'cease transmit' signal to selected terminals. It is therefore possible to turn-off terminals in select locations at the command of the NOC.

In addition, the mobile terminal has built-in automatic self-test and monitoring capability. The monitoring will include transmit inhibit interlocks to prevent transmissions if the tests or required state conditions are not met.

3 NOTES

None.

Appendix **A**

Applicable Documents & References

1 APPLICABLE DOCUMENTS

<u>Document</u>	<u>Release</u>	<u>Date</u>	<u>Title & Author/Publisher</u>
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2 REFERENCES

<u>Document</u>	<u>Release</u>	<u>Date</u>	<u>Title & Author/Publisher</u>
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None.

Appendix B

Acronyms & Glossary

1 ACRONYMS

GPS	- Global Positioning System
MOB	- Mobile Terminal (Transceiver)
S-SMS	- Space-based Short Messaging System
TAMs	- Track and Manage Service

2 GLOSSARY

None