SAR Analysis

In this section, the **Smart Communications Ltd. O78SCU99BL** is compared against comparable equipment that has been tested in detail under procedures specified in FCC Part 2.1093, ET Docket 96-326 (Rules for controlled exposure for mobile and portable devices.) These units manufactured by other corporations have been tested using procedures as described in American National Standards Institute C95.1-1992 (1), FCC OET Bulletin 65-1997 and the data has been posted on the FCC internet site. Exposure from a portable radio is primarily controlled by the radio's power output, antenna and case size, accessories, and position to the human body. There is no circuitry that would affect the exposure. It is a physical property asstated. Therefore, Smart Communications Ltd. believes it's equipment is so similar that the radiated fields would be so nearly identical or less than the ICOM IC-F40GT-2 (other than the Face-Held configuration which was closer than what is recommended in the manual or what is normal in the industry), that detailed expensive testing should not be necessary.

Smart Communications Ltd.'s equipment, O78SCU99BL, is to be used only in controlled environments which are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure. This environment is typical of the business and public safety sections of the land mobile radio industry which is the market for this equipment.

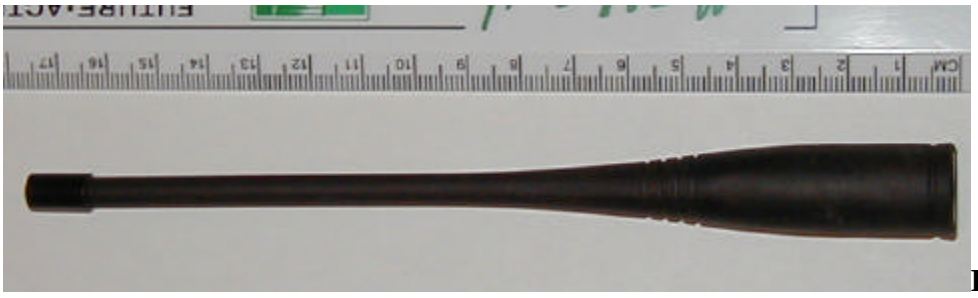
Exposure Limits	SAR (W/Kg)	
	General Population/ Uncontrolled Exposure Environment	Occupational/Controlled Exposure Environment
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1g of tissue)	1.60	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10g)	4.0	20.0

Smart Communications Ltd. Transceiver and Accessories

Drop In Battery Charger RSC-27 Dual Slot

Full Transceiver with antenna and battery…

Separate Components…



RDSCU Antenna

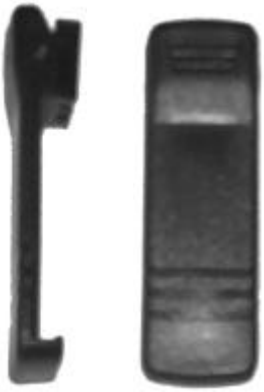
Radio Assembly
(Variation shown with keypad)

Battery Assembly
BPSC11 Ni-Cad
or BPSC15L NiMH

Side View with Radio

Case only front view

Speaker Microphone



Plastic Belt Clip (Enlarged)

SAR Safety Label Information.

This label will be affixed to every unit.

Caution
Device restricted to occupational use to satisfy FCC RF exposure compliance. See owner's manual for full details.

Enlarged Label

Comparison of Smart Communications Ltd. Unit to other equipments…

Parameter	Smart Communications Ltd.	VERTEX Standard	ICOM
FCC ID:	O78SCU99BL	K66VX-900U	IC-F40GT-2
FCC Approval	Applied	Granted	Granted
SAR Testing		PCTEST Engr Lab	Ultratech Group of Labs
Equipment Type	UHF Portable Radio	UHF Portable Radio	UHF Portable Radio
Tx Frequency Range	450-490 MHz	450-490 MHz	450-490 MHz
Maximum RF Output	4 watts	5 watts	4 watts
Duty Cycle	50% or less	50% or less	50% or less
Modulation	FM	FM	FM
Service	Occupational/Controlled Exposure Environment	Occupational/Controlled Exposure Environment	Occupational/Controlled Exposure Environment
Power Supply	Battery Pack, NiCad	Battery Pack, Lithium Ion	Battery Pack, NiCad, NiMH
Antenna Type	Monopole, Helical	Monopole, Helical	Monopole, Helical
Antenna Length	175 mm	175 mm	170 mm
Radio/Battery Length	130 mm (less knobs)	140 mm (less knobs)	150 mm (less knobs)
Belt Clip	Plastic	Plastic	Plastic

Operation of these portable radio units is common to the two way radio industry. The unit is typically used in a face-held configuration with the front of the device placed parallel to and at a

nominal dstance of two inches (79 mm) from the face. (SAR testing on the Vertex unit was done at 40 mm while the ICOM unit was done at 20 mm for this mode of operation. This close distance of the ICOM is not normal in the industry.)

Antenna supplied by **Smart Communications Ltd.** is a ¼ wave monopole with 0 dBd gain which is the same type of antenna supplied by the other units. (This is the typical "rubber duck" style.)

Operation in a body-worn configuration with the rear of the device placed parallel to the surface of the body, with the attached belt-clip touching the outer surface and with a 1.0 cm separation distance between the rear of the unit and the body. (SAR testing on the Vertex and ICOM units was done in this manner.)

The results of the Vertex and ICOM SAR measurements (worst case) is shown below. The Smart Communications Ltd. Inc **O78SCU99BL** is operated much like the Vertex unit as the Smart Communications Ltd. microphone is located in the same area on the radio body as the Vertex unit. The microphone audio circuitry has been designed for the user to operate the unit with several inches distance between the microphone and user and thus would be represented by the Vertex Face-Held radiated. The body worn measurement should be nearly identical to the ICOM measurements as the antenna is the same length and the radiated power is the same between the Smart Communications Ltd. and ICOM units.

Spatial Peak Measurement (Limit 8 W/Kg)	Vertex Measurement (5 watt Unit)	ICOM Measurement (4 watt Unit)
Face-Held SAR	**4.085 w/kg**	**1.393 w/kg**
Body Worn antenna	**5.600 w/kg**	**5.417 w/kg**

In Summary…

Based on the identical or lower radiated power between these three units, the similar size, and mode of operation, Smart Communications Ltd. Inc. contends that the Smart Communications Ltd. **O78SCU99BL** unit meets the FCC requirements for SAR.

The radiated power is the same as the approved ICOM units and lower than the Vertex unit.

The antenna length is the same as the other units.

The physical length of the unit is about the same as the ICOM and Vertex units.

The belt clips are nearly identical in size and all made out of plastic.

An updated user manual has been also provided with improved SAR information.