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REPORT ON RF EXPOSURE CALCULATIONS

Performed at:
TWENTY PENCE TEST SITE

Twenty Pence Road,
Cottenham,
Cambridge
U.K.
CB24 8PS

on

Sepura PLC

SRG3900 XN

dated

3rd November 2014

Document History

Issue	Date	Affected page(s)	Description of modifications	Revised by	Approved by
1	3/11/14		Initial release		
2	11/12/14	All	Added calculations for lower gain antenna	DS	DB

Based on report template:
v090319

Equipment Under Test (EUT):	SRG3900 XN
Test Commissioned by:	Sepura PLC Radio House St Andrews Road Cambridge Cambridgeshire CB4 1GR
Representative:	Steve Wood
Test Started:	27th August 2014
Test Completed:	30th October 2014
Test Engineer:	Dave Smith
Date of Report:	3rd November 2014
Written by:	Dave Smith
Signature:	D. A. Smith
Date:	3rd November 2014

dB Technology can only report on the specific unit(s) tested at its site. The responsibility for extrapolating this data to a product line lies solely with the manufacturer.

1 EUT Details

1.1 General

The EUT was a TETRA Voice + Data Mobile Station.

The nominal output power is 40dBm (10W).

RF Exposure Evaluation: OET Bulletin 65 97-01 CFR 47 1.1310

Manufacturer: Sepura

Product: SRG3900XN

		Numeric Gain	
Antenna 1:	300-00390 5dBi	3.16	Tetra only

Frequency (MHz)	809		869	
Output Power (mW):	10000		10000	
Numerical Antenna Gain:	3.16		3.16	
Duty cycle (%):	25		25	
Distance (cm):	35		35	
Power Density (mW/cm2):	**0.513**		**0.513**	
FCC Limits: (mW/cm2)				
General:(f/1500)	**0.54**	**PASS**	**0.58**	**PASS**

Output power is nominal output as specified by the manufacturer and verified in the test report.

Antenna gain is taken from the supplied data sheets.

Duty Cycle is based on Tetra System in which each channel is divided into 4 slots - with equal time allocation.

$$Total\ Power, P(Watts) = Output\ Power \times Antenna\ Gain \times \frac{Duty\ Cycle}{100}$$

$$Power\ at\ a\ Distance, d(metres) = \frac{P}{4\Pi d^2}$$

Conclusion:

At a distance of 35cm the maximum power density is 0.513 mW/cm2 which is below the general environment limit of 0.54 mW/cm2

RF Exposure Evaluation: OET Bulletin 65 97-01 CFR 47 1.1310

Manufacturer: Sepura

Product: SRG3900XN

		Numeric Gain	
Antenna 2:	300-00993 0dBd	1.64	For use with DMU configuration

Frequency (MHz)	809		869	
Output Power (mW):	10000		10000	
Numerical Antenna Gain:	1.64		1.64	
Duty cycle (%):	25		25	
Distance (cm):	35		35	
Power Density (mW/cm2):	**0.266**		**0.266**	
FCC Limits: (mW/cm2)				
General:(f/1500)	**0.54**	**PASS**	**0.58**	**PASS**

Output power is nominal output as specified by the manufacturer and verified in the test report.

Antenna gain is taken from the supplied data sheets.

Duty Cycle is based on Tetra System in which each channel is divided into 4 slots - with equal time allocation.

$$Total\ Power, P(Watts) = Output\ Power \times Antenna\ Gain \times \frac{Duty\ Cycle}{100}$$

$$Power\ at\ a\ Distance, d(metres) = \frac{P}{4\Pi d^2}$$

Conclusion:

At a distance of 35cm the maximum power density is 0.266 mW/cm2 which is below the general environment limit of 0.54 mW/cm2