FCC PART 22 and 90
TEST REPORT

For

Sepura plc

9000 Cambridge Research Park Beach Drive, Waterbeach, Cambridge, CB25 9TL, UK

FCC ID: XX6SEM8050H

Report Type:	**Product Type:**
Class II permissive change	DMR Mobile Radio

Test Engineer:	Allen Qiao
Report Number:	RDG160217003-00A1
Report Date:	2016-03-09
Reviewed By:	Sula Huang RF Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Sepura plc*'s product, model: *SEM8050H* (*FCC ID: XX6SEM8050H)* (the "EUT") in this report is a *DMR Mobile Radio*, which was measured approximately: 17.8 cm (L) x 19.5 cm (W) x 5.8 cm (H), rated input voltage: 13.6VDC or 15VDC powered from AC/DC adapter.

Adapter information:
Model: GS220A15
Input: AC100-240V, 50/60Hz, 4.0A
Output: DC 15V, 13.4A, 201W max

** All measurement and test data in this report was gathered from production sample serial number: 7PR031530GD0223(Assigned by Applicant). The EUT was received on 2015-08-12.*

Objective

This test report is prepared on behalf of *Sepura plc* in accordance with Part 2, Part 22 and Part 90 of the Federal Communications Commission rules.

This is the CIIPC application of the device. The difference between the original device and new device is as follows:

1. Updated the MPE.
2. Updated the company address.

Please refer to the Permissive Change Declaration Letter.

Related Submittal(s)/Grant(s)

Original submission with FCC ID: XX6SEM8050H which is granted on 2015-12-20.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 22 – Public Mobile Service
Part 90 – Private Land Mobile Radio Service

Applicable Standards: TIA-603-D.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communications Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 06, 2015.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a test mode.

EUT Specification:

Operating Frequency Band	450-520 MHz
Modulation Mode	FM/4FSK
Channel Spacing	12.5 kHz
Rated Output Power	High power level: 40W Low power level: 25W

Equipment Modifications

No modifications were made to the unit tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
/	/	/	/	/	/

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§2.1091	Maximum Permissible Exposure	Compliance
§2.1046; § 22.727;§90.205	RF Output Power	Compliance*
§2.1047;§90.207	Modulation Characteristic	Compliance*
§2.1049;§22.357;§ 22. 731;§90.209; §90.210	Occupied Bandwidth & Emission Mask	Compliance*
§2.1051; §22.861;§90.210	Spurious Emission at Antenna Terminal	Compliance*
§2.1053; §22.861;§90.210	Spurious Radiated Emissions	Compliance*
§2.1055; § 22.355;§90.213	Frequency Stability	Compliance*
§90.214	Transient Frequency Behavior	Compliance*

Compliance*: Please refer to the report number RDG150803006-00 issued on 2015-11-06, with FCC ID: XX6SEM8050H.

FCC §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for Maximum Permissible Exposure (MPE)

Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time |E|, |H| or S (minutes)**
0.3- 3.0	614	1.63	(100)*	6
3.0 - 30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6

f = frequency in MHz;
* = Plane-wave equivalent power density;

MPE Calculation

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Frequency	Max. Target Conducted Output Power	Max. Target Conducted Output Power	PTT Duty Cycle	Assumed Cable Loss	Maximum Antenna Gain		Minimum Distance	Power Density	Limit
MHz	dBm	mW		dB	dBi	numeric	cm	mW/cm^2	mW/cm^2
450.0125	46.5	44668	50%	0	8.15	6.53	89	1.47	1.50

Note: The maximum target power is 40W (46.0 dBm) ±0.5dB = 44668 mW (46.5dBm)

Radio Exposure Statement:

Using the parameters given in the above calculation, a minimum antenna to person distance of 89cm is required to meet the limits for occupational/controlled exposure.

Result: Compliant.

******* END OF REPORT *******