



## ***RF Exposure Evaluation Report***

**Application No.:** SZEM2010010522CR  
**Applicant:** Leax Arkivator Telecom USA Inc.  
**Address of Applicant:** 833 E Arapaho Rd, Suite 203, Richardson, TX, 75081  
**Manufacturer:** Leax Arkivator Telecom USA Inc.  
**Address of Manufacturer:** 833 E Arapaho Rd, Suite 203, Richardson, TX, 75081  
**Equipment Under Test (EUT):**  
**EUT Name:** Distributed Band41 Macro Base Station/Band41  
**Model No.:** LAU9560  
**Trade Mark:** LEAX ARKIVATOR TELECOM  
**FCC ID:** 2AVFNLAU9560  
**Standard(s) :** 47 CFR Part 2  
 47 CFR Part 27  
**Date of Receipt:** 2020-10-26  
**Date of Test:** 2020-10-29 to 2020-12-29  
**Date of Issue:** 2021-02-19

<b>Test Result :</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu  
 EMC Laboratory Manager



## 2 Version

<b>Revision Record</b>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2021-02-19		Original

<b>Authorized for issue by:</b>			
			
		<hr/> <b>Leo Lai/Project Engineer</b>	
			
		<hr/> <b>Eric Fu /Reviewer</b>	



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## 4 General Information

### 4.1 General Description of EUT

Power supply:	-57VDC to -40VDC (nominal: -48.0VDC)
Test Voltage:	DC -48V
Cable:	RJ45 Cable: 100cm DC cable: 150cm unshielded
Sample Type:	Fixed production
LTE Operation Frequency Band:	41
Frequency range:	2496-2690 MHz
Number of antenna ports:	64 Tx / Rx ports
Maximum Number of supported carriers per port:	1
Modulation Type:	QPSK, 16QAM, 64QAM
Working Bandwidth:	10M, 15M, 20M
Antenna Gain:	17 dBi (per antenna port, max.)
Hardware:	LAU9560
Software:	LEAX_AAU_V1.00
Extreme temp. Tolerance:	-30°C to +50°C



## 4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

## 4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

## 4.4 Deviation from Standards

None.

## 4.5 Abnormalities from Standard Conditions

None.

## 4.6 Other Information Requested by the Customer

None.





## 5 RF Exposure Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300 .....	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

For Uncontrolled Environment, the MPE limit of 1500MHz to 100000MHz is 1.0 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

#### 5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



### 5.1.3 EUT RF Exposure Evaluation

#### 1) Test Results

For LTE Band 41:

The max tune-up tolerance power Into Antenna & RF Exposure Evaluation Distance:

Max Antenna Gain (dBi)	Max Antenna Gain (Numeric)	Max tune-up tolerance power (dBm)	Max tune-up Tolerance power to Antenna (mW)	Power Density at R = 1000 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	MPE Ratios	Result
17	50.119	53.8	239883.3	0.9567	1.0	0.9567	PASS

Note: Refer to report No. SZEM201001052202 or EUT test Max Conducted Peak Output Power value.

The distancer (5th column) calculated from the Fries transmission formula is far greater than 1000 cm separation requirement.

Since the SAR Exclusion Threshold Level is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.

- End of the Report -

