




시험 성적서 TEST REPORT

페이지(page) : (1) / (총(Total) 7)

성적서 번호 Report No.		ICRT-TR-E191921-0A	
신청자 Client	기관명 Name	SENA TECHNOLOGIES.Inc	
	주소 Address	19, Heolleung-ro 569-gil, Gangnam-gu, Seoul, Korea	
시험대상품목 Sample description		50S	
모델명 Type designation		SP75	
정격 Ratings		DC 3.7 V	
시험기간 Date of test		08. Oct. 2019 ~ 21. Oct. 2019	
시험방법/항목 Test Method/Item		FCC rule §1.1310	
시험결과 Test Results		Refer to 3. Maximum Permissible Exposure	
확인 Affirmation	작성자 Tested by	기술책임자 Technical Manager	
	성명 Name Yeong-Hwan, Hong (Signature)	성명 Name Jun-Hui, Lee (Signature)	
<input type="checkbox"/> 위 성적서는 고객이 제공한 시료에 대한 시험결과 이며, 용도 이외의 사용은 금합니다. This is certified that the above mentioned products have been tested for the sample provided by customer and forbid the use except for original purpose.			
<input type="checkbox"/> 위 성적서는 한국인정기구(KOLAS)인정과 관련이 없습니다. The above test report is not related to accreditation by Korea Laboratory Accreditation scheme.			
<input type="checkbox"/> 위 성적서는 주식회사 아이씨알의 승인 없이는 복제 및 재발급이 금지됩니다. No part of this document may be duplicated or reproduced by any means without the express written permission of the ICR.			
2019. 10. 22 주식회사 아이씨알 대표이사 The head of INTERNATIONAL CERTIFICATION REGISTRAR			

본 성적서의 진위 확인은 G4B 혹은 ICR 홈페이지에서 가능합니다.

경기도 김포시 양촌읍 황금3로7번길 112

112, Hwanggeum3-ro 7beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea



Contents

- 1. Applicant & Manufacturer & Test Laboratory Information3
 - 1.1 Applicant information3
 - 1.2 Manufacturer Information3
 - 1.3 Test Laboratory Information3
- 2. Equipment under Test(EUT) Information.....4
 - 2.1 General Information.....4
 - 2.2 Additional Information.....4
 - 2.3 Mode of operation during the test5
 - 2.4 Modifications of EUT5
- 3. Maximum Permissible Exposure6
 - 3.1 RF Exposure calculation6
 - 3.2 Result6

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E191921-0A	22-Oct-2019	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	SENA TECHNOLOGIES.Inc
Address	19, Heolleung-ro 569-gil, Gangnam-gu, Seoul, Korea
Contact Person	Seunghyun Kim
Telephone No.	+82-2-573-7772
Fax No.	+82-2-573-7710
E-mail	shkim77@sena.com

1.2 Manufacturer Information

Manufacturer	SENA TECHNOLOGIES.Inc
Address	19, Heolleung-ro 569-gil, Gangnam-gu, Seoul, Korea

1.3 Test Laboratory Information

Conducted tests were performed at	
Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
RRA No.	KR0165
KOLAS No.	KT652



2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	50S	
Brand Name	-	
Model Name	SP75	
Additional Model Name	-	
FCC ID	S7A-SP75	
Hardware Version	1.0	
Software Version	2.6.0 (CSR Bluetest3)	
Power Supply	DC 3.7 V	
EUT Firmware Version	1.0	
Target Power	Bluetooth BDR	16.0
	Bluetooth EDR	4.0
	Bluetooth LE	4.0
	Mesh	15.0
EUT Serial Number	Test 1	

2.2 Additional Information

Equipment Class	Bluetooth BDR/EDR	DSS-Part 15 Spread Spectrum Transmitter / Frequency hopping systems (FHS)
	Bluetooth LE / Mesh	DTS-Digital Transmission System
Device Type	Stand-alone	
Operating Frequency	Bluetooth BDR/EDR/LE	2 402 MHz ~ 2 480 MHz
	Mesh	2 405 MHz ~ 2 475 MHz
RF Output Power	Bluetooth BDR/EDR	16.16 dBm
	Bluetooth LE	5.91 dBm
	Mesh	17.86 dBm
Number of Channel	Bluetooth BDR/EDR	79
	Bluetooth LE	40
	Mesh	100
Modulation Type	Bluetooth BDR/EDR	GFSK / $\pi/4$ -DQPSK / 8DPSK
	Bluetooth LE / Mesh	GFSK
Antenna Type	PCB Pattern Antenna	
Antenna Gain	Bluetooth BDR/EDR/LE	0.93 dBi
	Mesh	0.46 dBi
Antenna Operating Mode	Single Antenna Equipment with only one antenna	



2.3 Mode of operation during the test

- The EUT is continuous transmission mode during the test with set at Low Channel, Middle Channel, and High Channel. To get a maximum radiated emission levels from the EUT, the EUT was moved throughout the XY, YZ, XZ planes.

2.4 Modifications of EUT

- None



3. Maximum Permissible Exposure

3.1 RF Exposure calculation

According to the FCC rule §1.1310 the limit for General Population/Uncontrolled exposure is 1 mW/cm² for the device operating 1 500 MHz ~ 100 000 MHz.

Kind of EUT	50S	
Operating Frequency Band	<input type="checkbox"/> WLAN(802.11b/g/n(HT20)): 2 412 MHz ~ 2 462 MHz <input type="checkbox"/> WLAN(802.11n(HT40)): 2 422 MHz ~ 2 452 MHz <input type="checkbox"/> WLAN: 5 180 MHz ~ 5 320 MHz / 5 500 MHz ~ 5 700 MHz <input type="checkbox"/> WLAN: 5 745 MHz ~ 5 825 MHz <input checked="" type="checkbox"/> Bluetooth: 2 402 MHz ~ 2 480 MHz <input checked="" type="checkbox"/> Mesh: 2 405 MHz ~ 2 480 MHz	
Max. Output Power	Bluetooth BDR	16.16 dBm
	Bluetooth EDR	9.41 dBm
	Bluetooth LE	5.91 dBm
	Mesh	17.86 dBm
Exposure Evaluation Applied	<input type="checkbox"/> MPE <input type="checkbox"/> SAR <input checked="" type="checkbox"/> N/A	

3.2 Result

According to the procedure, KDB 447498 D01, the standalone SAR test exclusion threshold is

$$[(\text{Max. Power of channel, including tune-up tolerance, mW}) / (\text{Min. test separation distance, mm})] \times [\sqrt{f(\text{GHz})}] < 3$$

$$= (32.14/30) \times \sqrt{2.480} = 1.687 \text{ at Bluetooth BDR}$$

$$= (3.84/30) \times \sqrt{2.480} = 0.201 \text{ at Bluetooth EDR}$$

$$= (2.45/30) \times \sqrt{2.480} = 0.129 \text{ at Bluetooth LE}$$

$$= (7.36/30) \times \sqrt{2.475} = 0.386 \text{ at Mesh}$$

Conclusion: The SAR test exclusion threshold is less than 3, so the device meets the RF Exposure Requirement and excluded SAR Test.



Operating Mode	Frequency (MHz)	Target Power (Average power) W / tolerance	Max tune up power		Separation distance (mm)	RF exposure	Limit
		(dBm)	(dBm)	(mW)			
Bluetooth BDR	2 480	14.57 ± 0.5	15.07	32.14	30	1.687	3.00
Bluetooth EDR	2 480	5.34 ± 0.5	5.84	3.84	30	0.201	3.00
Bluetooth LE	2 480	3.40 ± 0.5	3.90	2.45	30	0.129	3.00
Mesh	2 475	8.17 ± 0.5	8.67	7.36	30	0.386	3.00

- END OF REPORT.