




시험 성적서

TEST REPORT

페이지(page) : (1) / (총(Total) 7)

성적서 번호 Report No.		ICRT-TR-E191922-0A	
신청자 Client	기관명 Name	SENA TECHNOLOGIES.Inc	
	주소 Address	19, Heolleung-ro 569-gil, Gangnam-gu, Seoul, Korea	
시험대상품목 Sample description		50R	
모델명 Type designation		SP76	
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)	
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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E191922-0A	22-Oct-2019	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	SENA TECHNOLOGIES.Inc
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Contact Person	Seunghyun Kim
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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
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RRA No.	KR0165
KOLAS No.	KT652



2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	50R	
Brand Name	-	
Model Name	SP76	
Additional Model Name	-	
FCC ID	S7A-SP76	
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 2	

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	15.30 dBm
	Bluetooth LE	10.13 dBm
	Mesh	17.81 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	50R	
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	15.30 dBm
	Bluetooth EDR	9.58 dBm
	Bluetooth LE	10.13 dBm
	Mesh	17.81 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

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

$$= (24.66/30) \times \sqrt{2.480} = 1.295 \text{ at Bluetooth BDR}$$

$$= (3.60/30) \times \sqrt{2.480} = 0.189 \text{ at Bluetooth EDR}$$

$$= (6.43/30) \times \sqrt{2.480} = 0.337 \text{ at Bluetooth LE}$$

$$= (8.69/30) \times \sqrt{2.475} = 0.456 \text{ at Mesh}$$

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	13.42 ± 0.5	13.92	24.66	30	1.295	3.00
Bluetooth EDR	2 480	5.06 ± 0.5	5.56	3.60	30	0.189	3.00
Bluetooth LE	2 480	7.58 ± 0.5	8.08	6.43	30	0.337	3.00
Mesh	2 475	8.89 ± 0.5	9.39	8.69	30	0.456	3.00

- END OF REPORT.