시 험 성 적 서

TEST REPORT

성적서 번호 Report No.		ICRT-TR-E240605-0A
신청자 Client	기관명 Name	Sentech Korea Corp.
	주 소 Address	21-6, Jimokro75-gil, Paju-Si, Gyeonggi-Do, 10880, Republic of Korea
시험대상품목 Sample description		Breathalyzer
모델명 Type description		ibLow10PRO
정 격 Ratings		DC 3.7 V
시험장소 Place of test		■ 고정시험실(Permanent Testing Lab) □ 현장시험(On Site Testing) 주소지(Address): 112, 113 Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
시험기간 Date of test		13. Feb. 2024 ~ 23. Feb. 2024
시험방법/항목 Test Method/Item		FCC Part 15 Subpart C
시험결과 Test Results		Refer to 3. Test Summary
확 인 Affirmation	작성자 Tested by 성명 Name: Seong Hun, Jeong (서명) (Signature)	기술책임자 Technical Manager 성명 Name: Tae-Yang, Yoon (서명) (Signature)

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□ The above test report is certified that the above mentioned products have been tested for the sample.

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2024. 02. 27

주식회사 아이씨알 대표이사

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Contents

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E240605-0A	2024. 02. 27	Initial Issue	All

1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	Sentech Korea Corp.
Address	21-6, Jimokro75-gil, Paju-Si, Gyeonggi-Do, 10880, Republic of Korea

1.2 Manufacturer Information

Applicant	Sentech Korea Corp.
Address	21-6, Jimokro75-gil, Paju-Si, Gyeonggi-Do, 10880, Republic of Korea

1.3 Test Laboratory Information

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
KOLAS No.	KT652
KC & FCC	KR0165

1.4 Measurement Uncertainty

Parameter	Uncertainty	Limit
Occupied Channel Bandwidth	2.75%	±5 %
RF output power, conducted	1.39 dB	±1.5 dB
Power Spectral Density, conducted	1.65 dB	±3 dB
Unwanted Emissions, conducted	1.82 dB	±3 dB
Supply voltages	0.06%	±3 %
Time	1.17%	±5 %
All emissions, radiated (Under the 1 GHz)	3.22 dB	±6 dB
All emissions, radiated (Above the 1 GHz)	3.67 dB	±6 dB

2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Breathalyzer
Model Name	ibLow10PRO
Additional Model Name	-
FCC ID	2ARV5IBLOW10PRO
Power Supply	DC 3.7 V

2.2 Additional Information

Equipment Class	DTS-Digital Transmission System	
Device Type	Stand-alone	
Adaptive/Non-Adaptive	Non-Adaptive Equipment	
Operating Frequency	Bluetooth LE	2 402 MHz ~ 2 480 MHz
RF Output Power	Bluetooth LE	-9.83 dBm
Number of Channel	Bluetooth LE	40
Modulation Type	GFSK	
Antenna Type	Chip Antenna	
Antenna Gain	4.59 dBi	

3. Test Summary

3.1 Test standards and results

FCC Part 15 Subpart C			
Clause	Test items	Applied	Results
§15.247 (a) (2)	6 dB Bandwidth	■	PASS
§15.247 (b) (3)	Maximum Conducted Output Power	■	PASS
§15.247 (e)	Power Spectral Density	■	PASS
§15.247 (d)	Conducted Spurious Emission & band Edge	■	PASS
§15.247 (d) & §15.209 & §15.205	Radiated Spurious Emission	■	PASS

3.2 Purpose of the test

- To determine whether the equipment under test fulfills the requirements of the standards stated in FCC Part 15 Subpart C Section 15.247.

3.3 Test Methodology

- Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

3.4 Configuration of Test System

- Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

3.4.1 Radiated emission test

- Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber. The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

3.5 Antenna requirement

- According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section.
The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
And according to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.
Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Result: Pass

The transmitter has a **Chip Antenna**. The directional gain of the antenna is 4.59 dB**i**.

4. Test Result

4.1. 6 dB Bandwidth

4.1.1 Test procedure

ANSI C63.10-2013 Clause 11.8

4.1.2 Limit

§15.247 (a) (2)

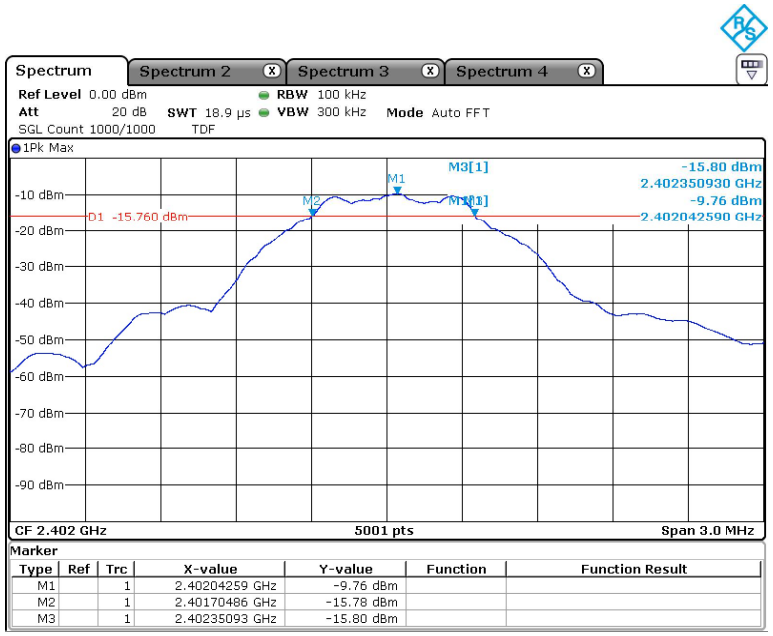
Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

4.1.3 Test data

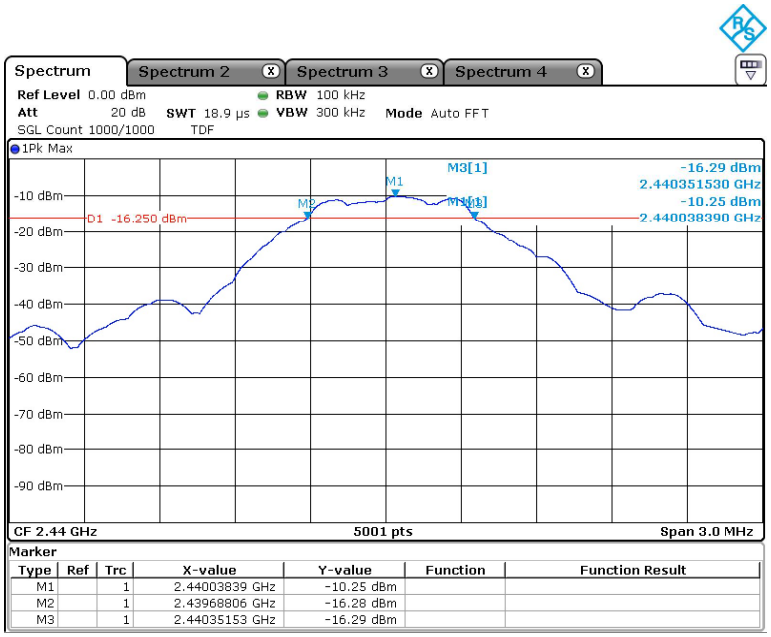
Result : Pass

Mode	Frequency (MHz)	Measured Value (kHz)	Limit (kHz)
Bluetooth LE 1M	2 402	646.07	at least 500
	2 440	663.47	
	2 480	674.26	

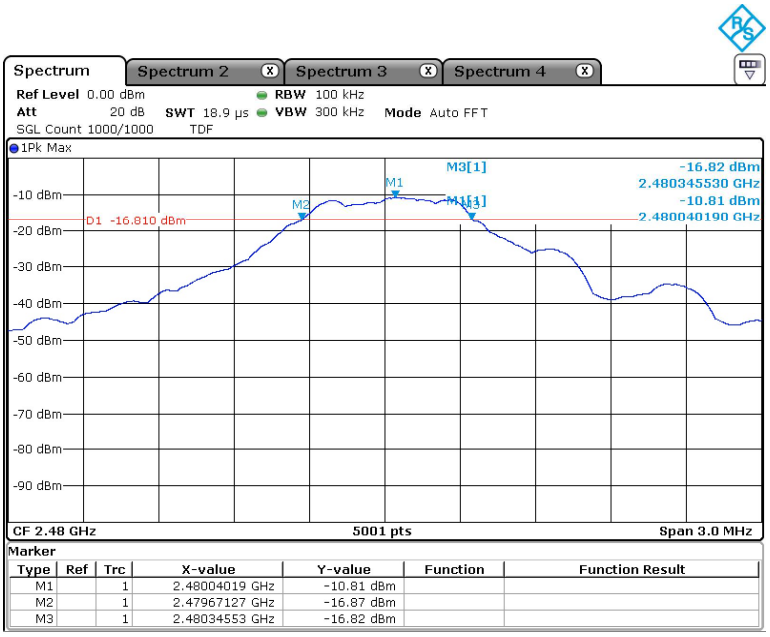
Low ch_6 dB Bandwidth



Mid ch_6 dB Bandwidth



High ch_6 dB Bandwidth



4.2 Maximum Conducted Output Power

4.2.1 Test procedure

ANSI C63.10-2013 Clause 11.9

4.2.2 Limit

§15.247 (b) (3)

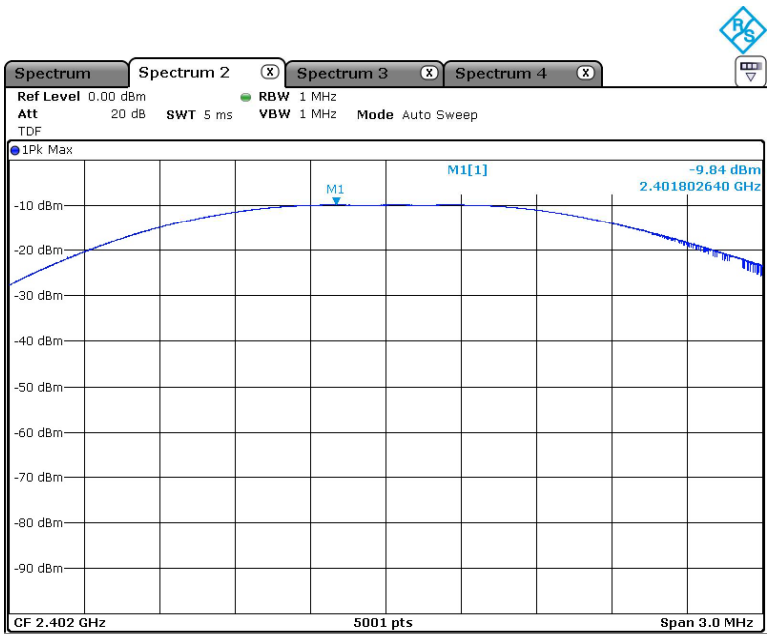
For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

4.2.3 Test data

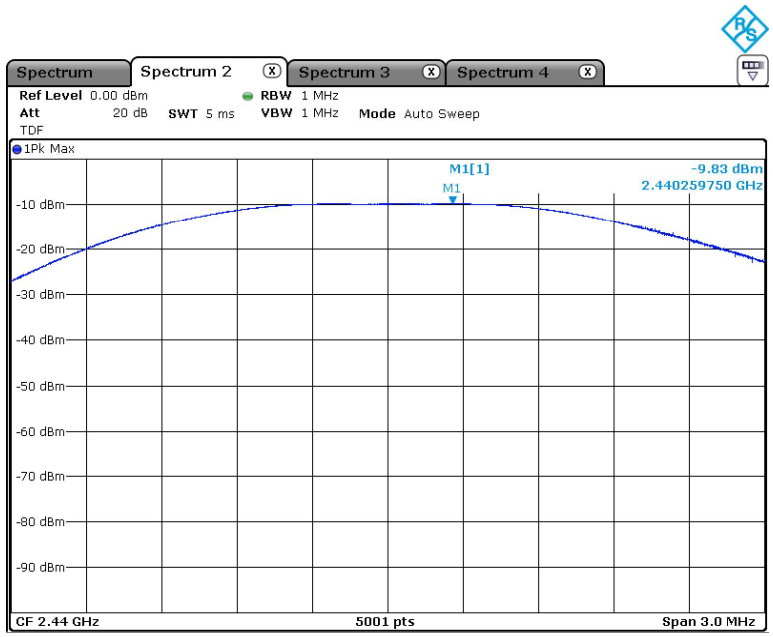
Result : Pass

Mode	Frequency (MHz)	Measured Value (dBm)	Limit (dBm)
Bluetooth LE 1M	2 402	-9.84	30
	2 440	**-9.83**	
	2 480	-10.56	

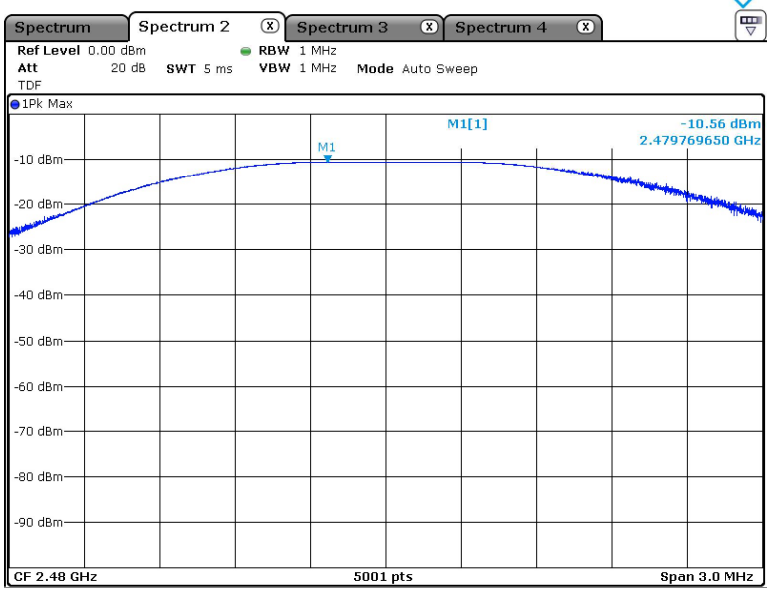
Low ch_Maximum Conducted Output Power



Mid ch_Maximum Conducted Output Power



High ch_Maximum Conducted Output Power



4.3 Power Spectral Density

4.3.1 Test procedure

ANSI C63.10-2013 Clause 11.10

4.3.2 Limit

§15.247 (e)

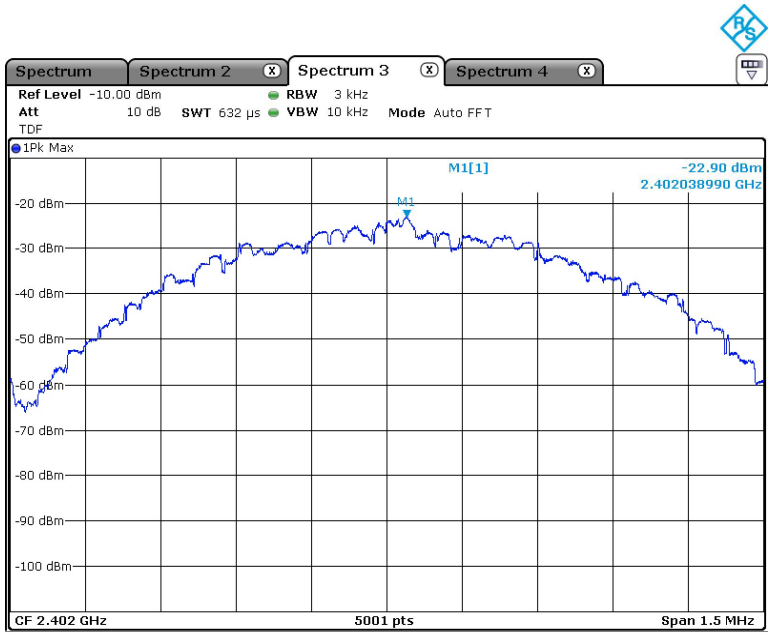
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

4.3.3 Test data

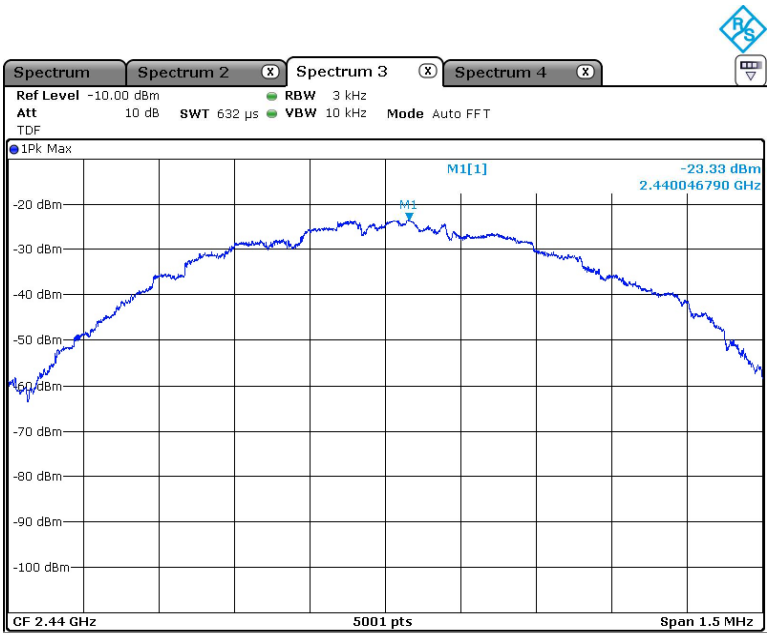
Result : Pass

Mode	Frequency (MHz)	Measured Value (dBm)	Limit (dBm/3 kHz)
Bluetooth LE 1M	2 402	-22.90	8
	2 440	-23.33	
	2 480	-24.90	

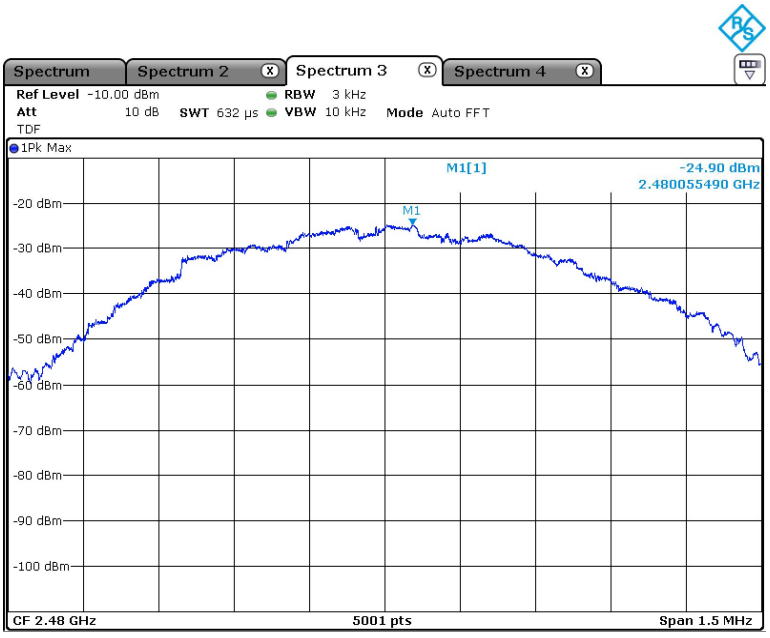
Low ch_Power Spectral Density



Mid ch_Power Spectral Density



High ch_Power Spectral Density



4.4 Conducted Spurious Emission & Band Edge

4.4.1 Test procedure

ANSI C63.10-2013 Clause 11.11, 11.13

4.4.2 Limit

§15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

4.4.3 Test data

Result : Pass

Low ch_Reference Level