TEST REPORT

Of

JAPAN MIC

Product :   BT module

Brand: Fanstel

Model: BM832; BM832A; BM832E

Model Difference: Please see page 5 model summaries table

Applicant: Fanstel Corporation, Taipei

Address: 10F-10, No. 79, Sec. 1, Hsin Tai Wu Rd., Hsi-Chih, New Taipei City 221 Taiwan

Test Performed by:

International Standards Laboratory Corp.
<LT Lab.>
*Address:
No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
*Tel : 886-3-407-1718; Fax: 886-3-407-1738

Report No.: **ISL-18LR304JAP**

Issue Date : **2018/11/28**

Test results given in this report apply only to the specific sample(s) tested and are traceable to national or international standard through calibration of the equipment and evaluating measurement uncertainty herein.
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VERIFICATION OF COMPLIANCE

Applicant	Fanstel Corporation, Taipei
Product Name:	BT module
Brand Name:	Fanstel
Model No.:	BM832; BM832A; BM832E
Model Difference:	Please see page 5 model summaries table
Date of Test:	2018/10/02 ~ 2018/11/27
Date of EUT Received:	2018/10/02

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
ARIB STD-T66	Complied

The above equipment was tested by International Standards Laboratory Corp. for compliance with the requirements in the Radio equipment stipulated in the certification ordinance article Article 2, Item (19) Appendix 43, B-1 (2). Item 19 of Article 2 Paragraph 1. The results of testing in this report apply to the product system that was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Test By: *Barry Lee*   *Date:*   2018/11/28

Barry Lee / Senior Engineer

Prepared By: *Gigi Yeh*   *Date:*   2018/11/28

Gigi Yeh / Senior Engineer

Approved By: *Dino Chen*   *Date:*   2018/11/28

Dino Chen / Senior Engineer

Version

Version No.	Date	Description
00	2018/11/28	Initial creation of document

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1. Description of Equipment under Test (EUT)

1.1. GENERAL INFORMATION

General:

Product Name	BT module
Brand Name	Fanstel
Model Name	BM832; BM832A; BM832E
Model Difference	Please see page 5 model summaries table
Power Supply	5Vdc

BT:

Bluetooth Version	4.0
Rated Transmit Power	2.5mW
Frequency Range	2.402GHz – 2.480GHz
Modulation Technique	GFSK
Channel number	40 channels
Dwell Time	N/A
Antenna Type	BM832 & BM832A : PCB Antennas BM832E : PCB Antenna
Peak Gain	BM832 & BM832A: 0.24dBi BM832E: 0.54dBi

Model Summaries

module	BM832	BM832A	BM832E
Flash/RAM	512KB/64KB	192KB/24KB	512KB/64KB
Size	10.2x15x1.9mm	10.2x15x1.9mm	10.2x15x1.9mm
GPIO	32	32	32
Antenna	PCB Trace	PCB Trace	u.FL
BT range, antenna at LMPI	340 meters	340 meters	
BT range, antenna at 1.52 M	270 meters	270 meters	
Availability	Sample	Sample	Sample

1.2. Assemble (Not easy to open/access issue)

The shielding is directly soldered to the PCB board. The inner shielding is shown in the illustration below.

2. Description of Test Modes

The EUT has been tested at continuous TX and RX modes. And software was used to control the EUT for staying in above description test modes.
Channel low, mid and High with lowest data rate was chosen for testing.

A software tool or a built-in test-mode needs to be reported with the parameter settings for creating the appropriate selection. The software settings shall be reported because of the traceability requirement of the measurements. The settings are depending upon the IEEE standard & mode and the applied modulation. Most common settings are:

The settings for Bluetooth will be influenced by the throughput and the modulation. Most common settings are:

Bluetooth 4.0: GFSK modulation

Test channels in BT 4.0 LE mode

	TX
Channel Low	2402MHz
Channel Mid	2442MHz
Channel High	2480MHz

Test conditions

Temperature & humidity	Normal
Normal voltage	5.0 Vdc
Lower extreme voltage	5.5 Vdc
Higher extreme voltage	4.5 Vdc

The test kit is powered from 6Vdc battery

3. General Description of Applied Standards

The EUT According to the Specifications, it must comply with the requirements of the following standards:

Radio equipment stipulated in the certification ordinance Article 2, Item (19) Appendix 43, B-1 (2) and Item 19 of Article 2 Paragraph 1.

4. Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of **International Standards Laboratory Corp.** <LT Lab.> No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2009. FCC Registration Number is: TW1036, Canada Registration Number: 4067B-3.

5.   Support Equipment

Fig. 5-1 Configuration of Tested System

```
┌─────────────┐                 ┌─────────────┐
│             │                 │             │
│   EUT+JIG   │─────────────────│     NB      │
│             │                 │             │
└─────────────┘                 └─────────────┘
```
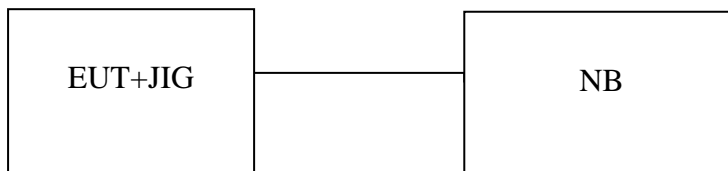
Table 5-1 Equipment Used in Tested System

Item	Equipment	Mfr./Brand	Model name	Series No	Data Cable	Power Cable
1	JIG	NA	NA	NA	Non-shielded	Non-shielded
2	NB	HP	440G1	NA	Non-shielded	Non-shielded

6. Summary of Tests

| Article reference	Report reference	Parameter	Status (Note 1)
General provisions			
5	6.2	Frequency tolerance	C
6	6.3	Occupied bandwidth	C
7	6.5	Spurious emission	C
Transmitting equipment			
14	6.1	Antenna Power	C
14.2	--	SAR	N/A
15	6.2	Frequency stabilization	C
Transmitting equipment			
20	1.2	Type configuration etc of transmitting antenna	C
22	1.2	Directional pattern of transmitting antenna	C
Receiving equipment			
24	6.6	Spurious emission of receiver	C
26	1.2	Refer to all articles for transmitting antenna	C
Operating frequency 2400-2483.5MHz			
49.20(1); a	1.3	High Frequency/modulation section cannot be operated easily	C
49.20(1); b	1.1	Communication method	C
49.20(1); c	1.1	Communication method	C
49.20(1); d	1.1	Spread Spectrum method	N/A
49.20(1); e	6.1	Antenna Power	C
49.20(1); f(1)	1.2	Absolute gain of transmitting antenna	C
49.20(1); f(2)	6.8	Angular width of principal radiation (AWPR)	C
49.20(1); g		Number of carriers within 1MHz bandwidth in OFDM	N/A
49.20(1); h	6.4	Diffusion bandwidth	C
49.20(1); i	6.4	Spreading factor	N/A
49.20(1); j	6.7	Frequency retention time (FH employed)	N/A
Note 1: C=Confirm NC=Not Confirm NT=Not Tested NA= Not Applicable			

6.1. Antenna Power and Tolerance

6.1.1. Limit:

BT 4.0: Antenna power: 10mW
Antenna power tolerance: + 20% to – 80%

6.1.2. Measurement Equipment Used:

Conducted Emission Test Site					
Equipment Type	**MFR**	**Model Number**	**Serial Number**	**Last Cal.**	**Cal Due.**
Power Meter 05	Anritsu	ML2495A	1116010	10/28/2018	10/27/2019
Power Sensor 05	Anritsu	MA2411B	34NKF50	10/28/2018	10/27/2019
DC Power supply	ABM	8185D	N/A	11/16/2018	11/15/2019
AC Power supply	EXTECH	CFC105W	NA	12/25/2017	12/24/2018
Splitter	MCLI	PS4-199	12465	12/26/2017	12/25/2019
Spectrum analyzer	keysight	N9010A	MY56070257	10/15/2018	10/14/2019
Spectrum analyzer	R&S	FSP40	100116	11/02/2018	11/01/2019

6.1.3. Test Setup:

EUT

Spectrum analyzer

Variable AC or DC power supply
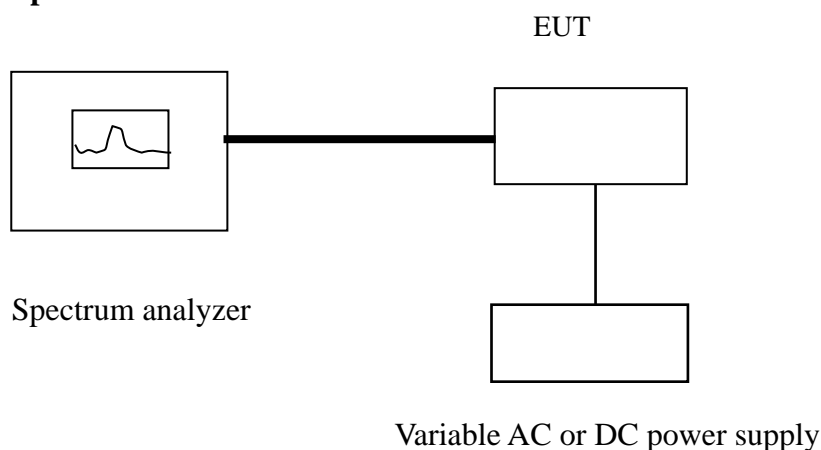
6.1.4. Test Procedure:

1. Set the EUT at hopping off and modulation on.
2. Set the ETU operates at channel low, mid and high and normal/Upper/Lower voltage.
3. Connect the EUT to power meter.
4. Record the power level.
5. Varied input voltage to + 10% and - 10% normal voltage and repeat procedure 1 to 4 again.

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6.1.5. Test results:

BT LE:
Ambient temperature: 20 ℃   Relative humidity: 65 %   Test Date: 2018/10/19

Model: BM832
Rated Power Density =   2.50 mW
Antenna Gain=   0.24 dBi

		Channel Low	Channel Mid	Channel High	Limit
Normal Voltage 5 V	Conducted Power (dBm)	3.97	3.94	4.04	N/A
	Conducted Power (mW)	2.49	2.48	2.53	10mW
	Power Tolerance	-0.31	-0.83	1.31	+20% to -80%
Upper Voltage 5.5 V	Conducted Power (dBm)	3.95	3.94	4.04	N/A
	Conducted Power (mW)	2.48	2.48	2.53	10mW
	Power Tolerance	-0.63	-0.97	1.38	+20% to -80%
Lowerl Voltage 4.5 V	Conducted Power (dBm)	3.95	3.94	4.03	N/A
	Conducted Power (mW/)	2.48	2.48	2.53	10mW
	Power Tolerance	-0.67	-0.83	1.24	+20% to -80%

Remark:
1. Conducted Power (mW)= 10^(Conducted Power(dBm/MHz)/10)

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Model: BM832E

Rated Power Density = 2.50 mW

Antenna Gain= 0.54 dBi

		Channel Low	Channel Mid	Channel High	Limit
Normal Voltage 5 V	Conducted Power (dBm)	3.97	3.94	4.04	N/A
	Conducted Power (mW)	2.49	2.48	2.53	10mW
	Power Tolerance	-0.31	-0.83	1.31	+20% to -80%
Upper Voltage 5.5 V	Conducted Power (dBm)	3.95	3.94	4.04	N/A
	Conducted Power (mW)	2.48	2.48	2.53	10mW
	Power Tolerance	-0.63	-0.97	1.38	+20% to -80%
Lowerl Voltage 4.5 V	Conducted Power (dBm)	3.95	3.94	4.03	N/A
	Conducted Power (mW/)	2.48	2.48	2.53	10mW
	Power Tolerance	-0.67	-0.83	1.24	+20% to -80%

6.2. Frequency Tolerance

6.2.1. Limit:
50ppm

6.2.2. Measurement Equipment Used:
Refer to section 6.1.2 for detail.

6.2.3. Test Setup:
Refer to section 6.1.3 for detail.

6.2.4. Test Procedure:
1. Set the EUT modulation off.
2. Set the ETU operates at channel low, mid and high and normal voltage.
3. Set the spectrum analyzer RBW = 300Hz, VBW=300Hz and Span = 20kHz
4. Max hold, View, Peak High, Mark and snap the screen and record the mark.
5. Varied input voltage to + 10% and - 10% normal voltage and repeat procedure 1 to 4 again.

6.2.5. Test results:

Ambient temperature: 20 ℃   Relative humidity: 65 %   Test Date: 2018/10/19

BT LE mode:

		Channel Low	Channel Mid	Channel High	Limit
Normal Voltage 5 V	Measured Frequency (MHz)	2401.96740	2441.96660	2479.96620	+/-50ppm
	Frequency Tolerance (ppm)	-13.57	-13.68	-13.63	
Upper Voltage 5.5 V	Measured Frequency (MHz)	2401.96720	2441.96660	2479.96620	+/-50ppm
	Frequency Tolerance (ppm)	-13.66	-13.68	-13.63	
Lower Voltage 4.5 V	Measured Frequency (MHz)	2401.96720	2441.96660	2479.96620	+/-50ppm
	Frequency Tolerance (ppm)	-13.66	-13.68	-13.63	

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6.3. Occupied Bandwidth

6.3.1. Limit:
802.11 b/g /n(HT20), BT(LE) < 26MHz
802.11 n(HT40)<38MHz
BT normal mode<83.5MHz
BT(LE) < 26MHz

6.3.2. Measurement Equipment Used:
Refer to section 6.1.2 for detail.

6.3.3. Test Setup:
Refer to section 6.1.3 for detail.

6.3.4. Test Procedure:
1. Set the EUT modulation on.
2. Set the ETU operate at channel low, mid and high and normal voltage.
3. Set the spectrum analyzer RBW = 300kHz, VBW=300kHz, center frequency = 2402MHz, 2442MHz, 2484MHz and Span = 5MHz
4. Turn on 99% spectrum OBW function on, Max hold, View, and snap the screen and record the mark.
5. Varied input voltage to + 10% and - 10% normal voltage and repeat procedure 1 to 4 again.
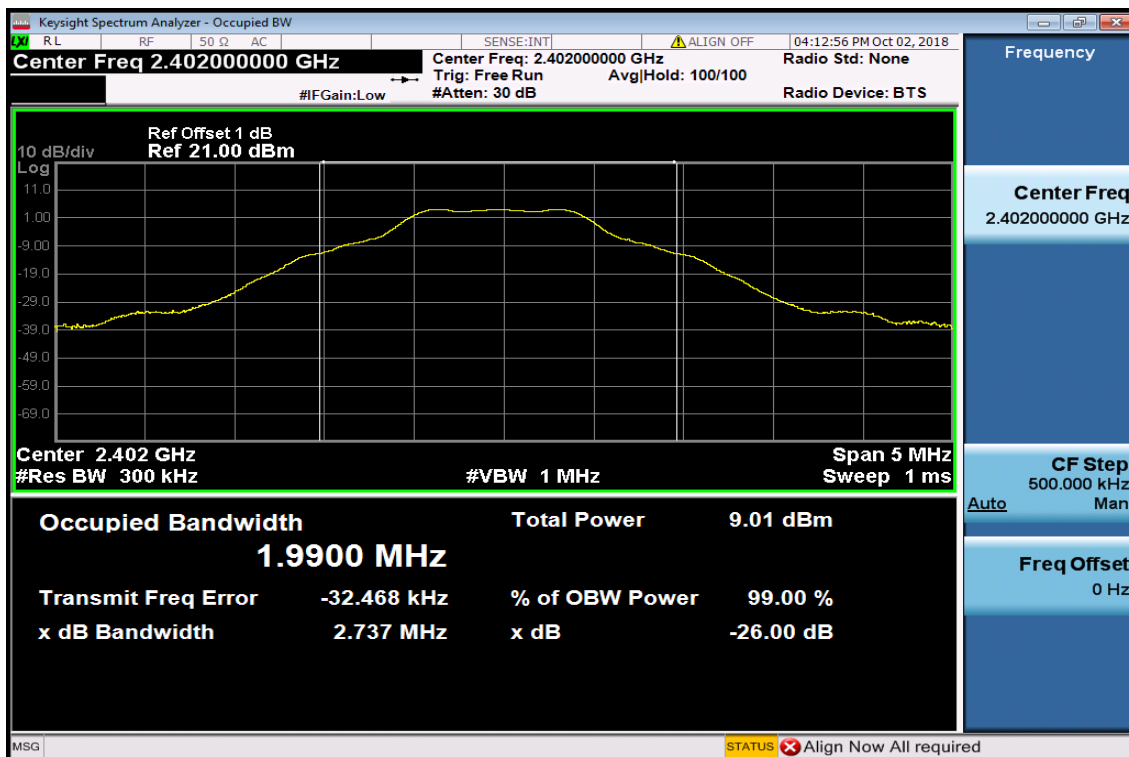
6.3.5. Test results:
Ambient temperature: 20 ℃   Relative humidity: 65 %   Test Date: 2018/10/19

BT LE mode	Low channel (MHz)	Mid channel (MHz)	High channel (MHz)	Limit	Remark
Normal Voltage 5 V	1.99	2.01	2.01	<26MHz	Pass
Upper Voltage 5.5 V	1.99	2.01	2.01	<26MHz	Pass
Lower Voltage 4.5 V	1.99	2.01	2.01	<26MHz	Pass

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Normal voltage for BT LE mode:

Low

Mid

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High

Keysight Spectrum Analyzer - Occupied BW

R L   RF   50 Ω   AC   SENSE:INT   ALIGN AUTO   10:40:24 AM Nov 30, 2018

Center Freq 2.480000000 GHz   Center Freq: 2.480000000 GHz   Radio Std: None

Trig: Free Run   Avg|Hold:>10/10

#IFGain:Low   #Atten: 30 dB   Radio Device: BTS

Ref Offset 1 dB
Ref 21.00 dBm

10 dB/div
Log

11.0
1.00
-9.00
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0

Center 2.48 GHz   Span 5 MHz
#Res BW 300 kHz   #VBW 1 MHz   Sweep 1 ms

Occupied Bandwidth	Total Power	9.35 dBm
2.0106 MHz		
Transmit Freq Error -30.135 kHz	% of OBW Power	99.00 %
x dB Bandwidth 2.761 MHz	x dB	-26.00 dB

Frequency

Center Freq
2.480000000 GHz

CF Step
500.000 kHz
Auto   Man

Freq Offset
0 Hz

MSG   STATUS

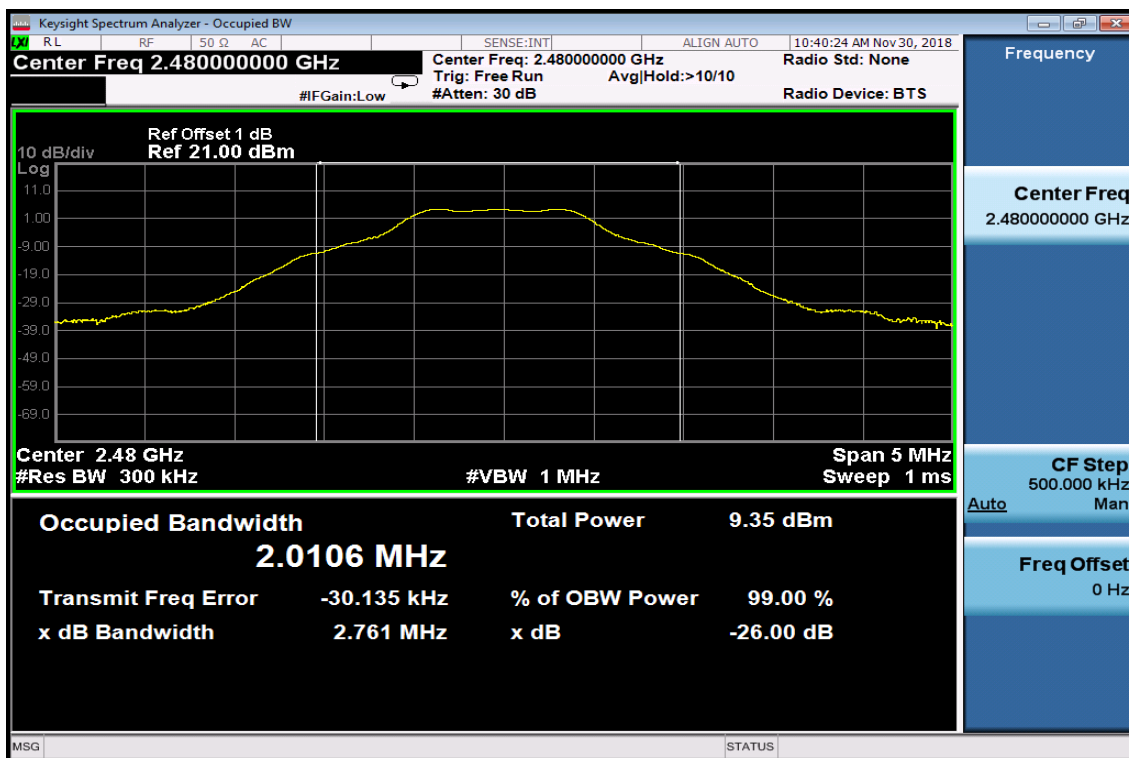**International Standards Laboratory Corp.**   **Report Number: ISL-18LR304JAP**

6.4. Spreading Bandwidth (90%)

6.4.1. Limit:
> 500kHz
Wifi: Spread Factor: 1~13ch>5, 14ch >10

6.4.2. Measurement Equipment Used:
Refer to section 6.1.2 for detail.

6.4.3. Test Setup:
Refer to section 6.1.3 for detail.

6.4.4. Test Procedure:
1. Set the EUT modulation on.
2. Set the ETU operate at channel low, mid and high and normal voltage.
3. Set the spectrum analyzer RBW = 300kHz, VBW=300kHz, center frequency =2402MHz, 2442MHz, 2480MHz and Span = 5MHz
4. Turn on 90% spectrum OBW function, Max hold, View, and snap the screen and record the mark.
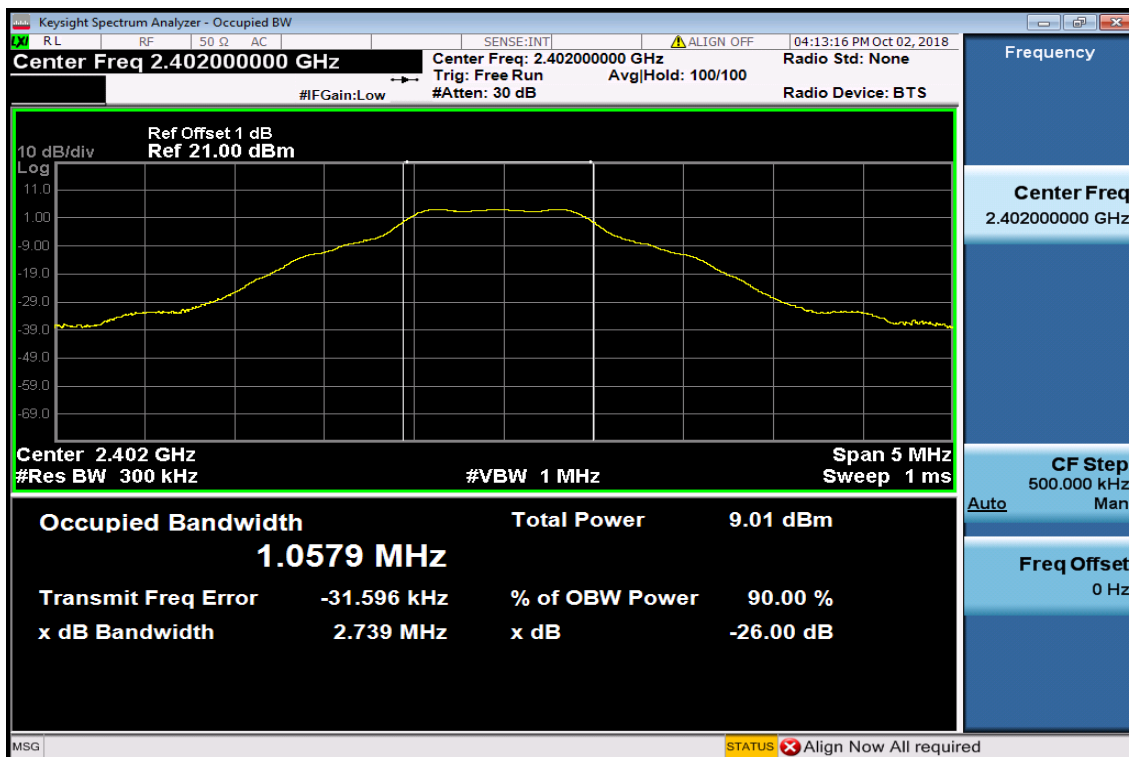5. Varied input voltage to + 10% and - 10% normal voltage and repeat procedure 1 to 4 again.

6.4.5. Test results:

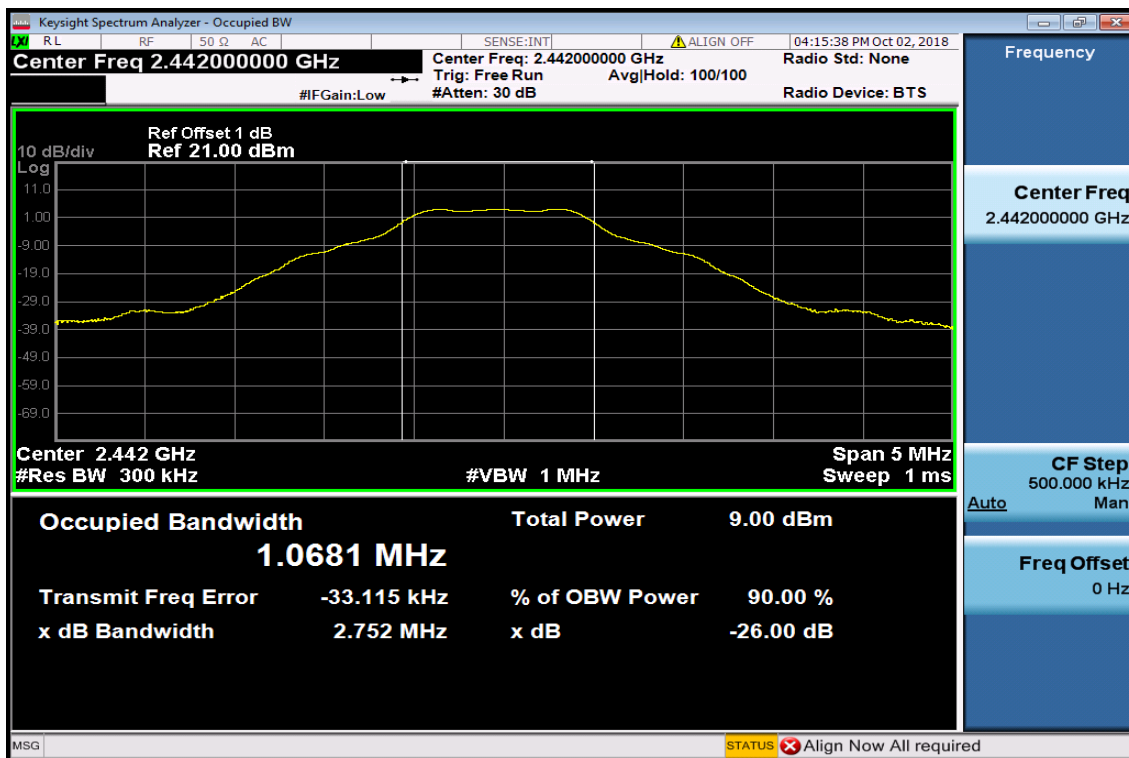**Ambient temperature: 20 ℃   Relative humidity: 65 %   Test Date: 2018/10/19**

Mode: LE	Low channel (MHz)	Mid channel (MHz)	High channel (MHz)	Limit
Normal Voltage 5 V	1.06	1.07	1.08	>500kHz
Upper Voltage 5.5 V	1.06	1.07	1.07	>500kHz
Lower Voltage 4.5 V	1.06	1.06	1.08	>500kHz

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Normal voltage for BT 4.0 LE mode:

Low

Mid

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High


```
Keysight Spectrum Analyzer - Occupied BW

LXI  R L        RF      50 Ω   AC                    SENSE:INT              ⚠ ALIGN OFF    04:20:12 PM Oct 02, 2018
Center Freq 2.480000000 GHz                 Center Freq: 2.480000000 GHz    Radio Std: None
                                            Trig: Free Run      Avg|Hold: 100/100
                            #IFGain:Low      #Atten: 30 dB                   Radio Device: BTS

        Ref Offset 1 dB
        Ref 21.00 dBm
10 dB/div
Log
 11.0
 1.00
-9.00
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
Center  2.48 GHz                                                           Span 5 MHz
#Res BW  300 kHz                        #VBW  1 MHz                         Sweep  1 ms
```

Occupied Bandwidth		Total Power	9.20 dBm
1.0752 MHz			
Transmit Freq Error	-29.938 kHz	% of OBW Power	90.00 %
x dB Bandwidth	2.753 MHz	x dB	-26.00 dB

MSG   STATUS ❌ Align Now All required

Frequency

Center Freq
2.480000000 GHz

CF Step
500.000 kHz
Auto   Man

Freq Offset
0 Hz

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6.5. Transmitter Spurious Emissions

6.5.1. Limit:
Frequency below 2.387 and above 2.4965GHz :2.5uW
Frequency between 2.387 – 2.400GHz, 2.4835-2.4965GHz: 25uW

6.5.2. Measurement Equipment Used:
Refer to section 6.1.2 for detail.

6.5.3. Test Setup:
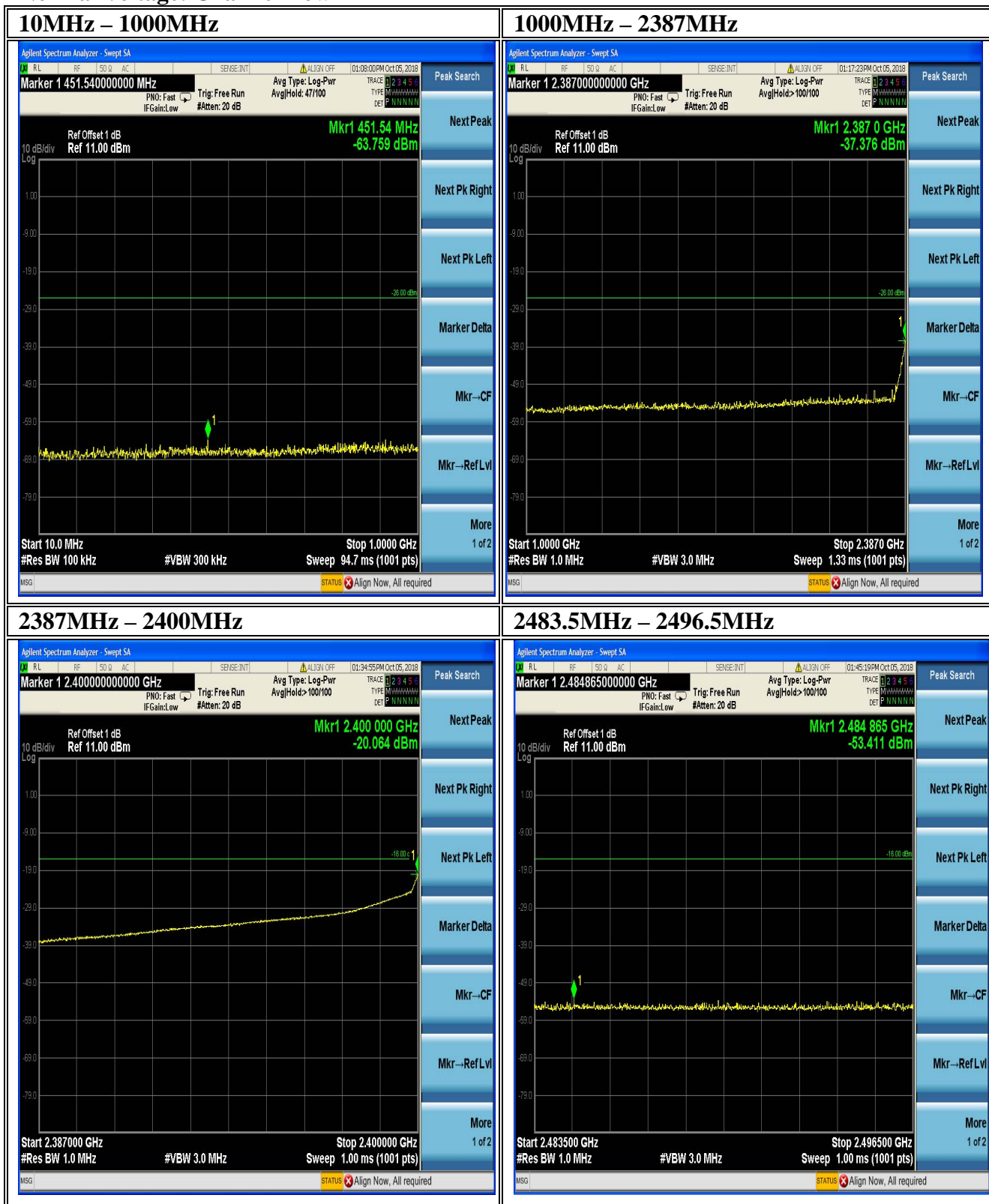Refer to section 6.1.3 for detail.

6.5.4. Test Procedure:
1. Set the EUT at hopping off and modulation on.
2. Set the ETU operate at channel low, mid and high and normal voltage.
3. Set the spectrum analyzer Ref level= -10dBm; attenuation=0dB;RBW=100kHz, BW=100kHz , Sweep = auto Start=10MHz, Stop=1000MHz. Max hold view, mark highest level.
4. Set the spectrum analyzer Ref level= -10dBm; attenuation=0dB;RBW=1MHz, BW=1MHz , Sweep = auto Start=1000MHz, Stop=2387MHz. Max hold view, mark highest level.
5. Set the spectrum analyzer Ref level= -10dBm; attenuation=0dB; RBW=1MHz, RBW=1MHz, Sweep = auto, Start=2387MHz, Stop=2400MHz. Max hold view, mark highest level.
6. Set the spectrum analyzer Ref level= -10dBm; attenuation=0dB; RBW=1MHz, BW=1MHz, Sweep = auto Start=2483.5MHz, Stop=2496.5MHz. Max hold view, mark highest level.
7. Set the spectrum analyzer Ref level= -10dBm; attenuation=0dB; RBW=1MHz, BW=1MHz, Sweep = auto, Start=2496.5MHz, Stop=26GHz.Max hold view, mark highest level.
8. Varied input voltage to + 10% and - 10% normal voltage and repeat procedure 1 to 7 again.
9. The Worst data was report.

6.5.5. Test Results:
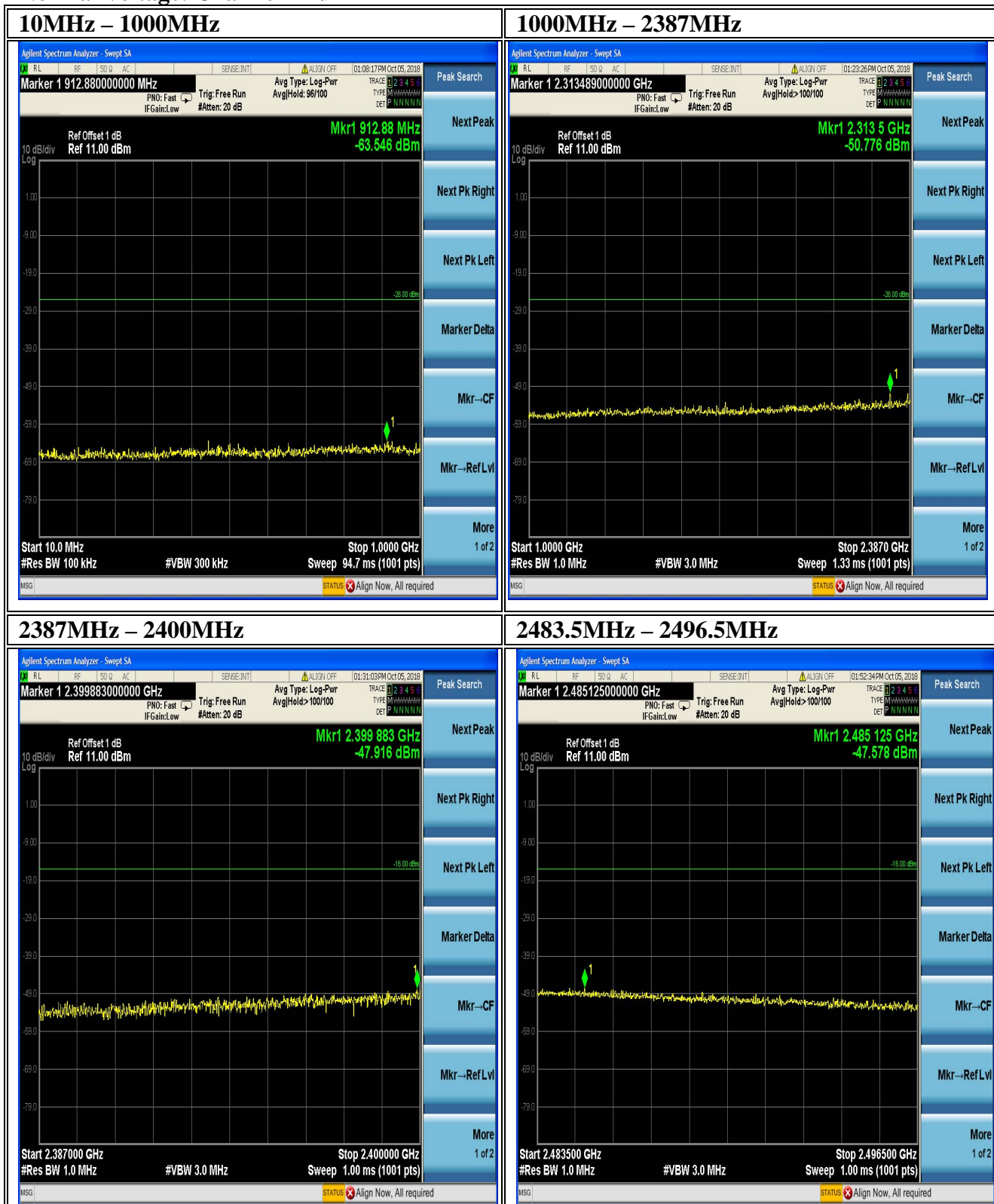
Refer to next page for plots.

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Ambient temperature: 20 ℃   **Relative humidity:** 65 %   **Test Date: 2018/10/05**

BT 4.0 LE mode:
Normal Voltage: Channel Low

10MHz – 1000MHz	1000MHz – 2387MHz

2387MHz – 2400MHz	2483.5MHz – 2496.5MHz

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2496.5MHz –26GHz	

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Normal Voltage: Channel Mid

10MHz – 1000MHz	1000MHz – 2387MHz

2387MHz – 2400MHz	2483.5MHz – 2496.5MHz

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2496.5MHz –26GHz	

Normal Voltage: Channel High

10MHz – 1000MHz	1000MHz – 2387MHz

2387MHz – 2400MHz	2483.5MHz – 2496.5MHz

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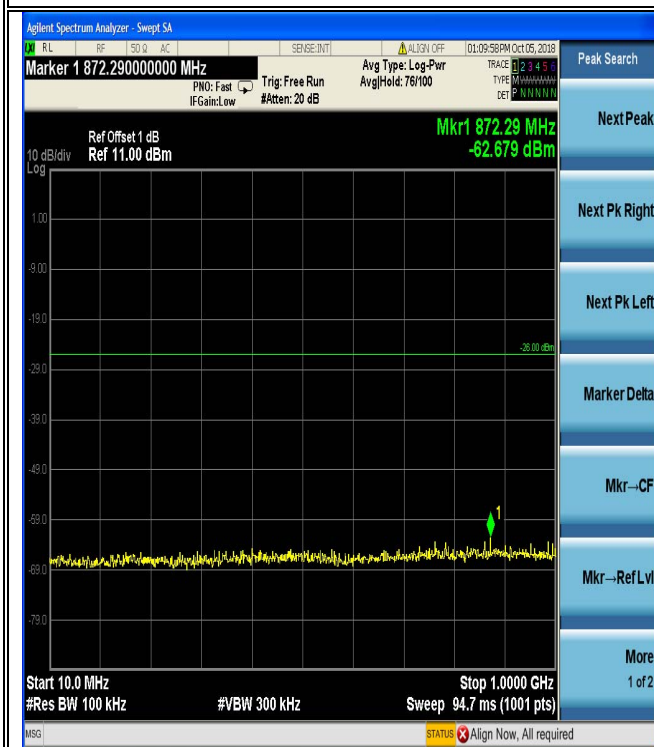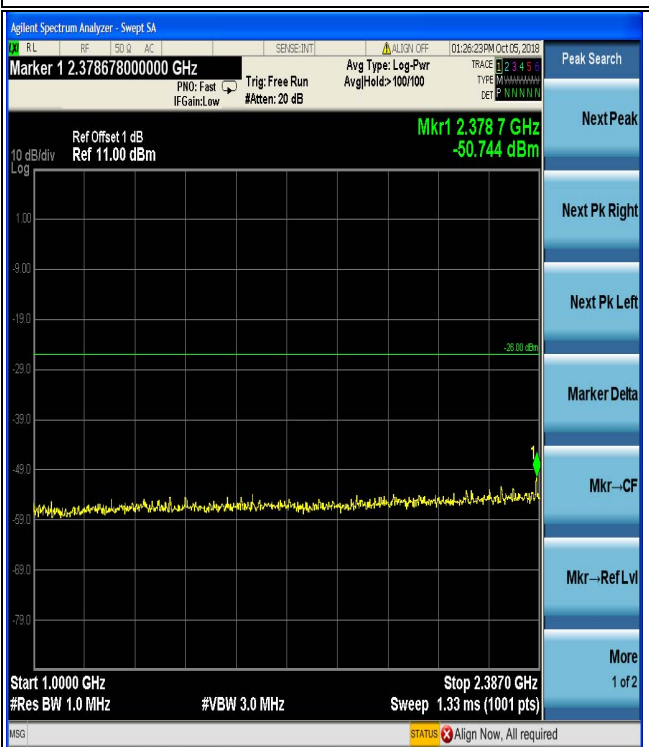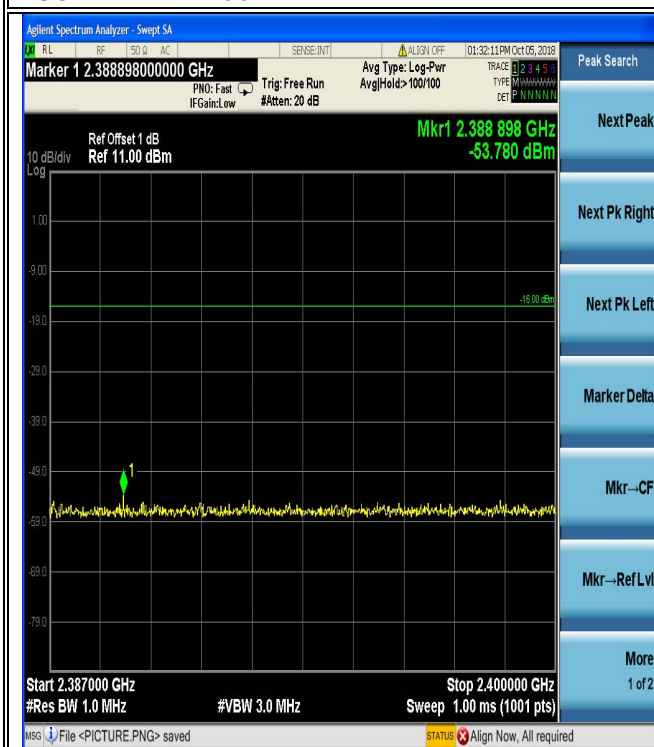
2496.5MHz –26GHz	

6.6. Limitation of Collateral Emission of Receiver

6.6.1. Limit:
Frequency below 1GHz : 4nW
Frequency above 1GHz : 20nW

6.6.2. Measurement Equipment Used:
Refer to section 6.1.2 for detail.

6.6.3. Test Setup:
Refer to section 6.1.3 for detail.

6.6.4. Test Procedure:
1. Setup the EUT at hopping off and modulation on.
2. Setup the ETU operate at channel low, mid and high and normal voltage.
3. Set the spectrum analyzer Ref level: -10dBm; attenuation=0dB;RBW=100kHz, VBW=100kHz, Sweep = auto, Start=10MHz, Stop=1GHz. Max hold view, mark highest level.
4. Set the spectrum analyzer Ref level: -10dBm, attenuation=0dB;RBW=1MHz, VBW=1MHz, Sweep = auto, Start=1GHz, Stop=13GHz. Max hold view, mark highest level
5. Varied input voltage to + 10% and - 10% normal voltage and repeat procedure 1 to 4 again.
6. The Worst data was report.

6.6.5. Test Results:

Refer to next page for plots.

Ambient temperature: 20 ℃   Relative humidity: 65 %   Test Date: 2018/10/05

Normal Voltage for BT 4.0 LE mode:

Channel Low

Below 1GHz	Above 1GHz

Channel Mid

Below 1GHz	Above 1GHz

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Channel High

Below 1GHz	Above 1GHz

6.7. Hopping Dwell Time

6.7.1. Limit:
≤ 0.4s in one 28.5 sec period

6.7.2. Measurement Equipment Used:
Refer to section 6.1.2 for detail.

6.7.3. Test Setup:
Refer to section 6.1.3 for detail.

6.7.4. Test Procedure:
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz , Adjust Sweep = 30s.
5. Repeat above procedures until all frequency measured were complete.

6.7.5. Test Results:
N/A

6.8. Angular Width of Principal Radiation (AWPR)

The angular width of principal radiation (AWPR), which follows from the antenna pattern specifications, shall satisfy the expression 360/A degree.

To be assessed:
AWPR < 360/A (degree)
A represent the value determined by dividing equivalent isotropic radiated power by the value obtained by applying an antenna power with the mean power of 3 mW to the transmitting antenna with its absolute gain being 2.14 dBi.

BT 4.0 LE mode:
Model: BM832

Antenna gain=		0.24	dBi	
		Channel Low	Channel Mid	Channel High
Normal Voltage 5 V	Conducted power (mW)	2.492	2.479	2.533
	Radiated power (dBm)	4.21	4.18	4.28
	Radiated power (mW)	2.634	2.620	2.677
	Constant A	2.634 /16.4<1	2.620 /16.4<1	2.677 /16.4<1
Upper Voltage 5.5 V	Conducted power (mW)	2.484	2.476	2.535
	Radiated power (dBm)	4.19	4.18	4.28
	Radiated power (mW)	2.625	2.616	2.679
	Constant A	2.625 /16.4<1	2.616 /16.4<1	2.679 /16.4<1
Lower Voltage 4.5 V	Conducted power (mW)	2.483	2.479	2.531
	Radiated power (dBm)	4.19	4.18	4.27
	Radiated power (mW)	2.624	2.620	2.675
	Constant A	2.624 /16.4<1	2.620 /16.4<1	2.675 /16.4<1

In these cases, according to article 49.20 (f)(2) of the Regulations the constant A should be equalized to 1.

As a result AWPR, 360 degrees, which is always satisfied.

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BT 4.0 LE mode:

Model: BM832E

Antenna gain=		0.54	dBi	
		Channel Low	Channel Mid	Channel High
Normal Voltage 5 V	Conducted power (mW)	2.492	2.479	2.533
	Radiated power (dBm)	4.51	4.48	4.58
	Radiated power (mW)	2.822	2.807	2.868
	Constant A	2.822 /16.4<1	2.807 /16.4<1	2.868 /16.4<1
Upper Voltage 5.5 V	Conducted power (mW)	2.484	2.476	2.535
	Radiated power (dBm)	4.49	4.48	4.58
	Radiated power (mW)	2.813	2.803	2.870
	Constant A	2.813 /16.4<1	2.803 /16.4<1	2.870 /16.4<1
Lower Voltage 4.5 V	Conducted power (mW)	2.483	2.479	2.531
	Radiated power (dBm)	4.49	4.48	4.57
	Radiated power (mW)	2.812	2.807	2.866
	Constant A	2.812 /16.4<1	2.807 /16.4<1	2.866 /16.4<1

In these cases, according to article 49.20 (f)(2) of the Regulations the constant A should be equalized to 1.

As a result AWPR, 360 degrees, which is always satisfied.

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6.9. Carrier Sense Capability

6.9.1. Limit:
Shall not transmit when received signal level is above 100 mV

Automatic cessation of transmitting is required when the electric field strength is exceeding E (mV/m):
Antenna Voltage (in dBm) = 22.79 + max. antenna Gain - 20 x Log f (f in MHz)
This voltage will be generated in de direction of the max. Gain.

2.4GHz
Model: BM832

					Antenna Gain(dBi)				dBm
Channel Low	2402 MHz:	Pcs=	22.79	+	0.24	-	20log(2402)	=	-44.58
Channel Mid	2442 MHz:	Pcs=	22.79	+	0.24	-	20log(2442)	=	-44.72
Channel High	2480 MHz:	Pcs=	22.79	+	0.24	-	20log(2480)	=	-44.86

Model: BM832E

					Antenna Gain(dBi)				dBm
Channel Low	2402 MHz:	Pcs=	22.79	+	0.54	-	20log(2402)	=	-44.28
Channel Mid	2442 MHz:	Pcs=	22.79	+	0.54	-	20log(2442)	=	-44.42
Channel High	2480 MHz:	Pcs=	22.79	+	0.54	-	20log(2480)	=	-44.56

6.9.2. Measurement Equipment Used:
Refer to section 6.1.2 for detail.

6.9.3. Test Setup:
Refer to section 6.1.3 for detail.

6.9.4. Test Procedure:
1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port through splitter to spectrum
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 50MHz , Sweep = Auto.
4. EUT link to device set it in normal mode
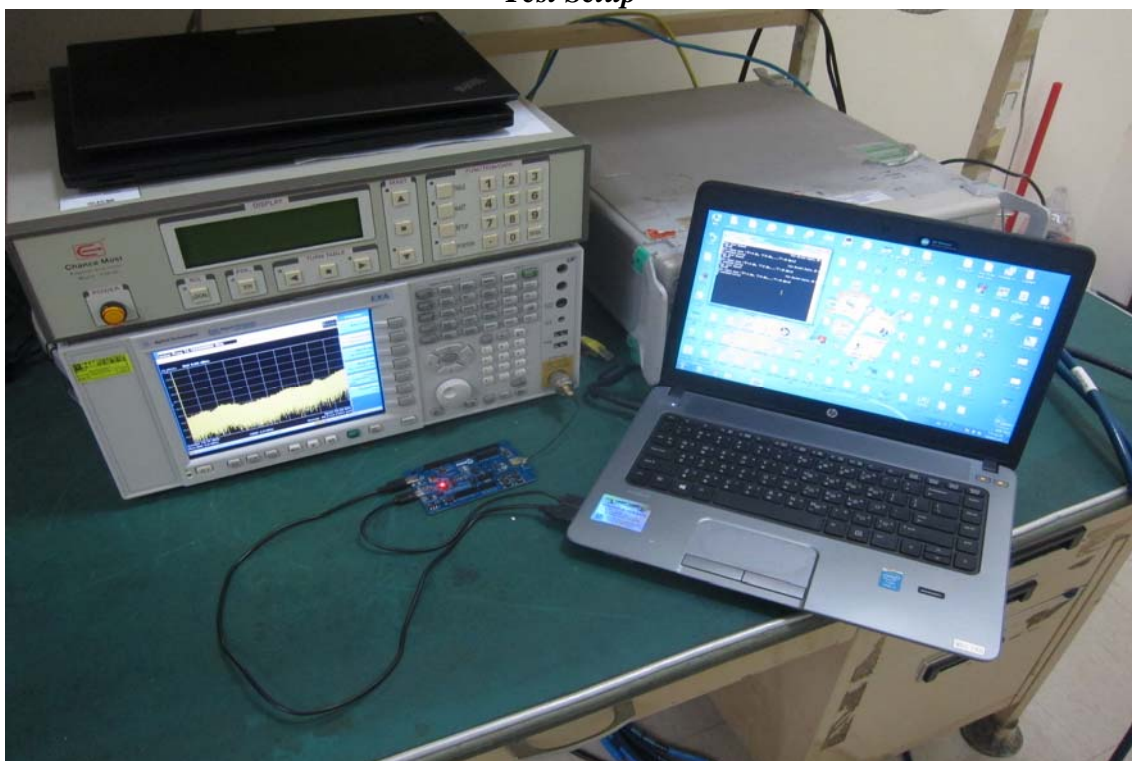5. used spectrum analyzer trigger function and delta mark function
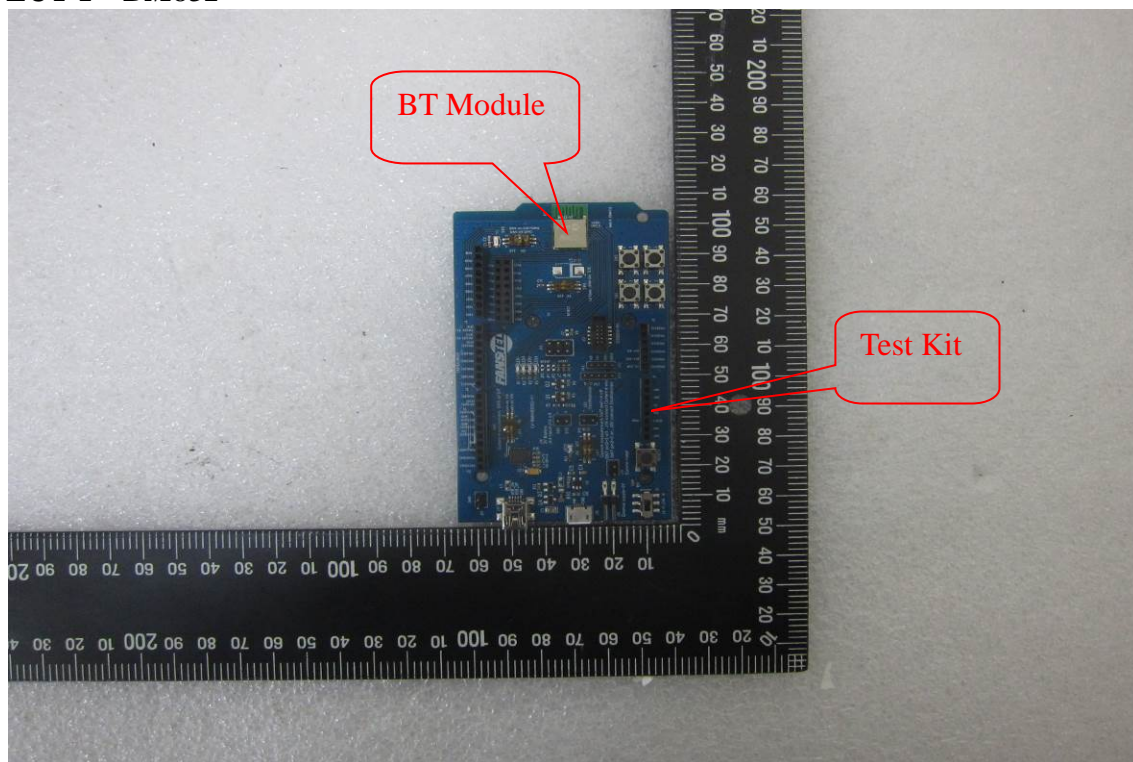
6.9.5. Test Results:
PASS

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APPENDIX 1

PHOTOGRAPHS OF SETUP

Test Setup

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APPENDIX 2

PHOTOGRAPHS OF EUT

EUT 1   BM832

EUT 2   BM832A

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EUT 3   BM832E

EUT 4   BM832

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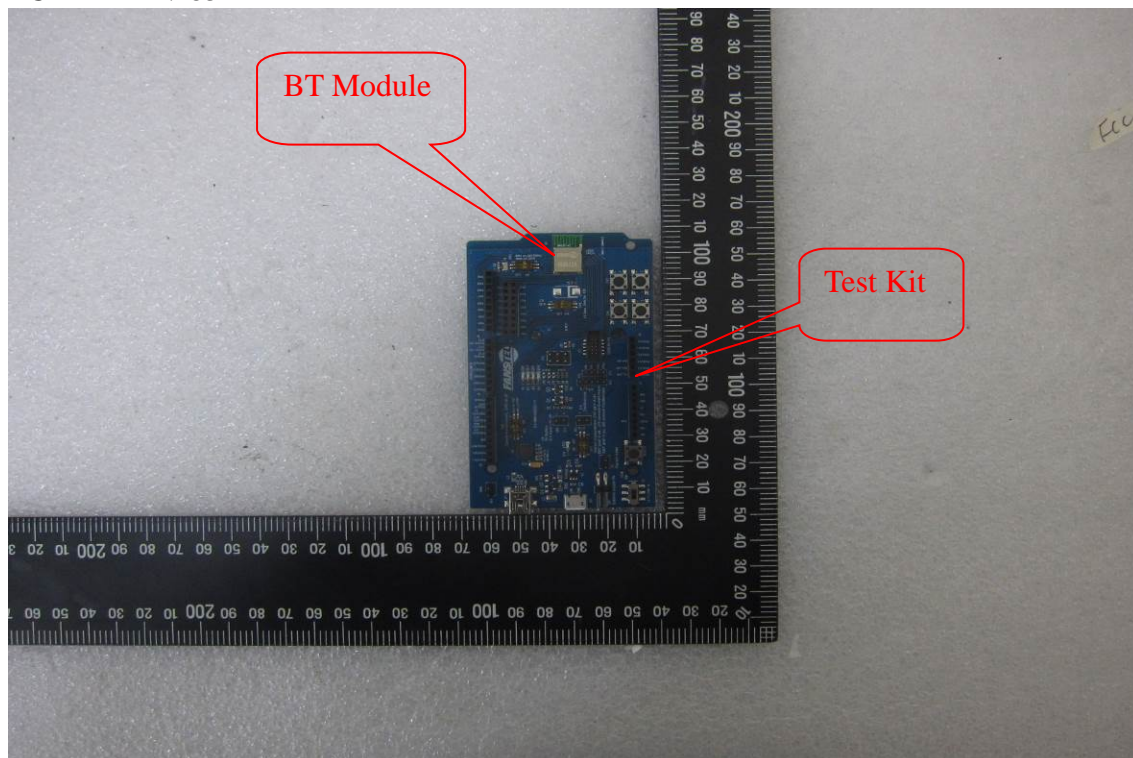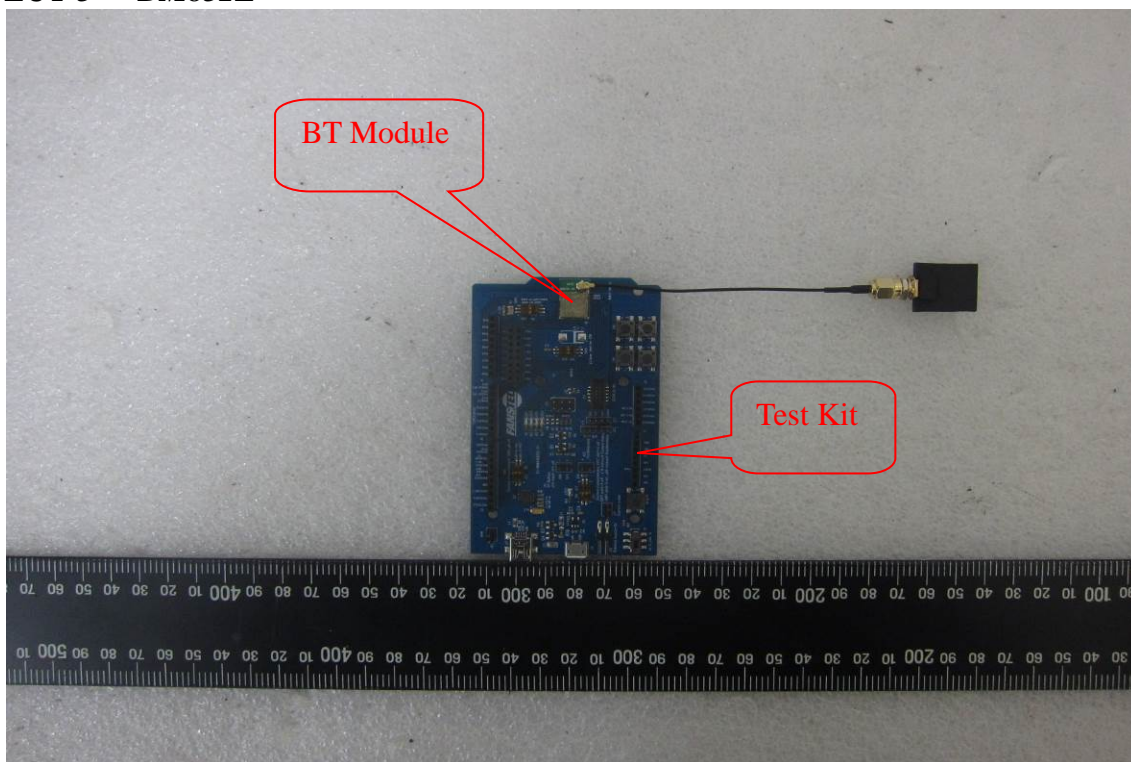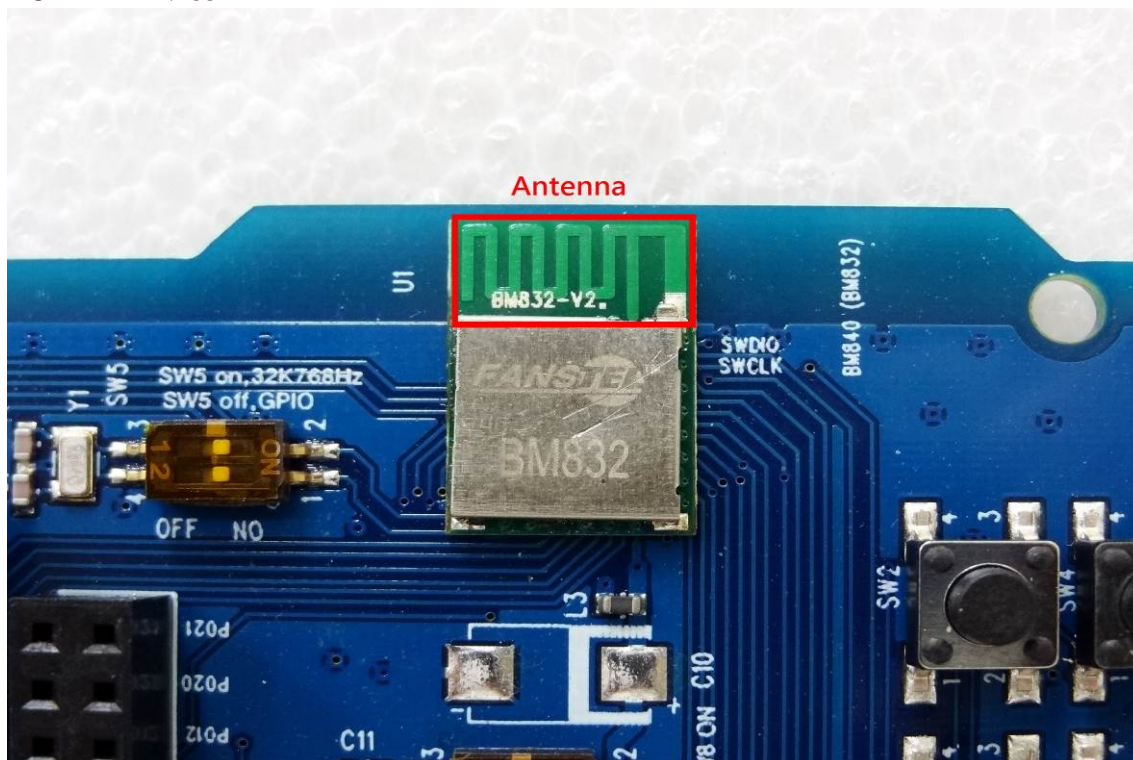
EUT 5   BM832
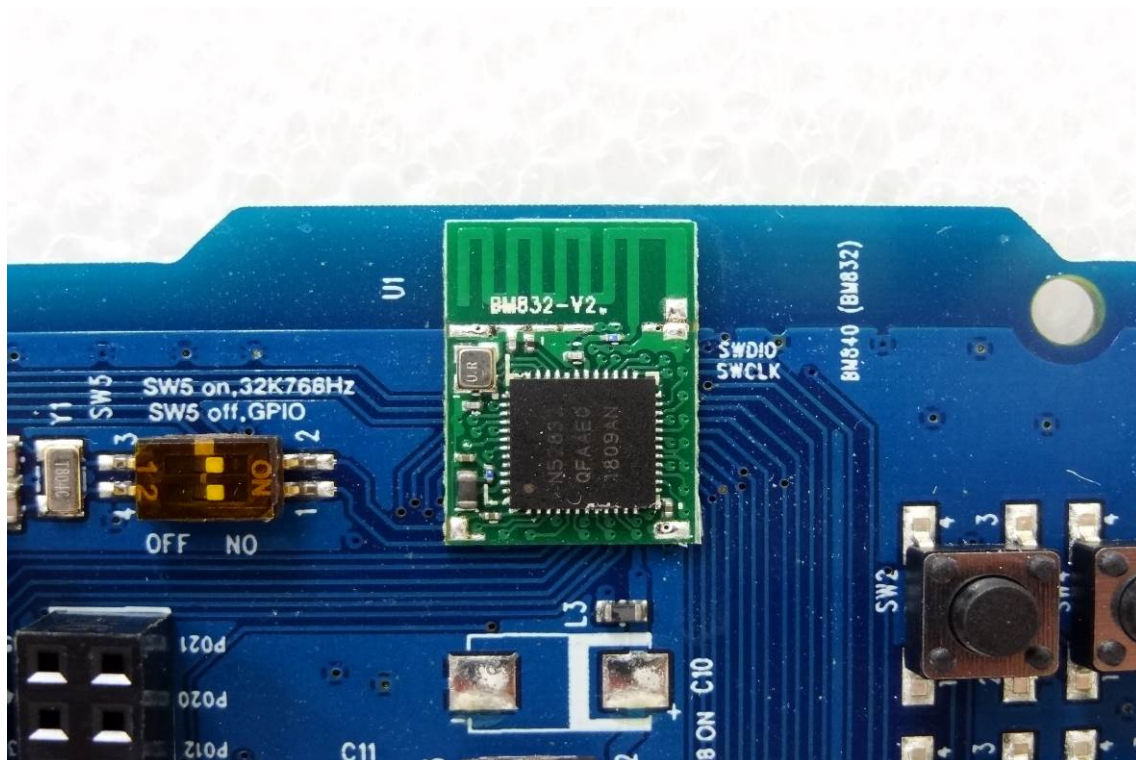
EUT 6   BM832A

EUT 7   BM832

EUT 8   BM832E

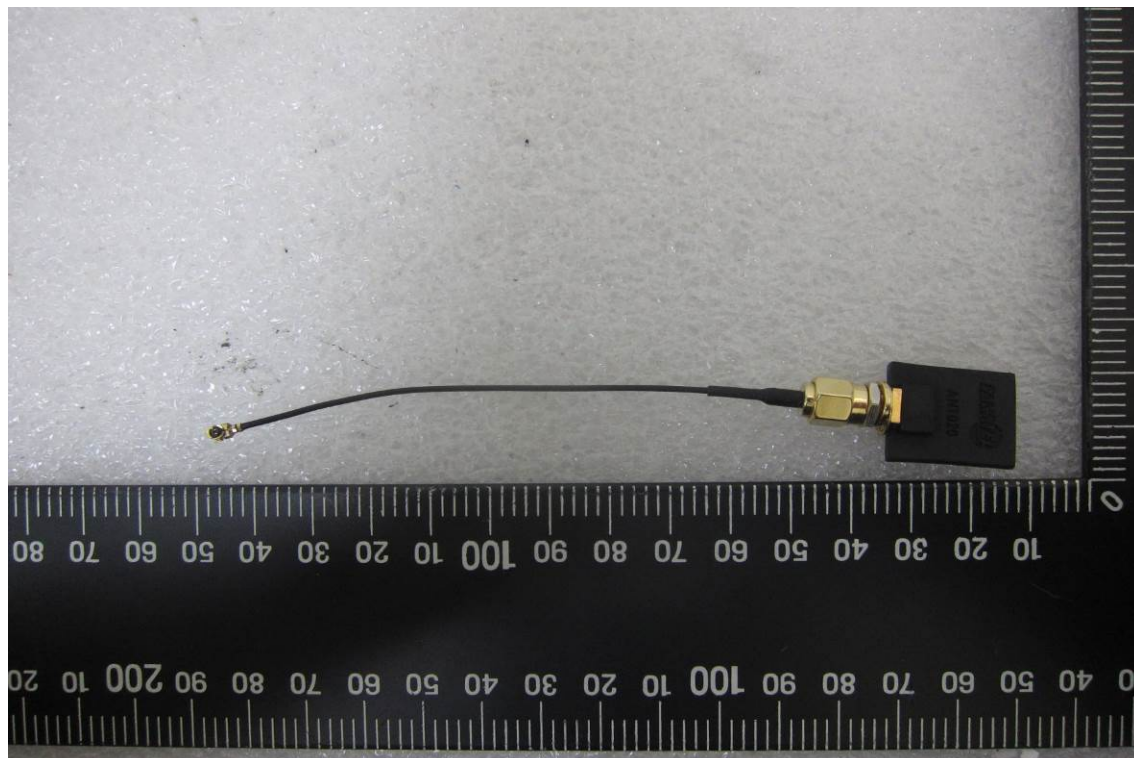**International Standards Laboratory Corp.**   **Report Number: ISL-18LR304JAP**
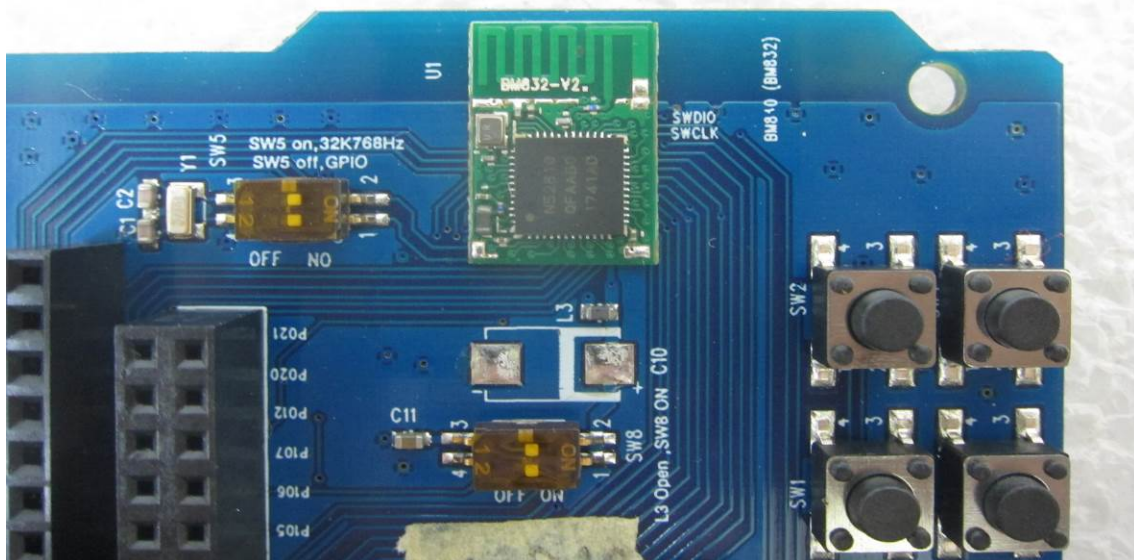
EUT 9   BM832E

EUT 10   BM832E Antenna

~ End of Report ~

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