

APPLICATION CERTIFICATION FCC Part 15C  
On Behalf of  
Implus Corporation

NB BodyTRNr Calorie Monitor Pro (PF)  
Model No.: 52582.68.69.31078

FCC ID: 2AAXP-525XXNB-31078

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Report Number : ATE20131892  
Date of Test : Aug 29-Sep 13, 2013  
Date of Report : Sep 13, 2013

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## Test Report Certification

Applicant : Implus Corporation  
Manufacturer : Organix Concept Limited  
EUT Description : NB BodyTRNr Calorie Monitor Pro (PF)  
(A) MODEL NO.: 52582.68.69.31078  
(B) TRADE NAME.: NEW BALANCE/PERFECT FITNESS  
(C) POWER SUPPLY: DC 3V

Measurement Procedure Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247**  
**ANSI C63.4: 2009**

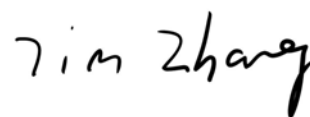
The EUT was tested according to DTS test procedure of April 09, 2013 KDB558074 D01 DTS Meas Guidance v03 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : Aug 29-Sep 13, 2013

Prepared by :



(Tim.zhang, Engineer)

Approved & Authorized Signer :



( Sean Liu, Manager)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT	:	NB BodyTRNr Calorie Monitor Pro (PF)
Model Number	:	52582.68.69.31078
Bluetooth version	:	Bluetooth V4.0 LE
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	40
Antenna Gain	:	0dBi
Antenna type	:	PCB Antenna
Power Supply	:	DC 3V
Modulation mode	:	GFSK
Applicant	:	Implus Corporation
Address	:	2001 T.W. Alexander Drive, Box 13925, Durham, NC27709-3925, USA
Manufacturer	:	Organix Concept Limited
Address	:	Unit B,10/F Hyde Centre, 223 Gloucester Road, Wanchai, Hong Kong
Date of sample received	:	Aug 29, 2013
Date of Test	:	Aug 29-Sep 13, 2013

## 1.2.Carrier Frequency of Channels

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

## 1.3.Special Accessory and Auxiliary Equipment

N/A

#### 1.4. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC  
The Registration Number is 752051

Listed by Industry Canada  
The Registration Number is 5077A-2

Accredited by China National Accreditation Committee  
for Laboratories  
The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.  
Science & Industry Park, Nanshan, Shenzhen, Guangdong  
P.R. China

#### 1.5. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2  
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2  
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2  
(Above 1GHz)

## 2. MEASURING DEVICE AND TEST EQUIPMENT

**Table 1: List of Test and Measurement Equipment**

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 12, 2013	Jan. 11, 2014
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 12, 2013	Jan. 11, 2014
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 12, 2013	Jan. 11, 2014
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 12, 2013	Jan. 11, 2014
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Feb. 6, 2013	Feb. 5, 2014
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Feb. 6, 2013	Feb. 5, 2014
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Feb. 6, 2013	Feb. 5, 2014
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Feb. 6, 2013	Feb. 5, 2014
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 12, 2013	Jan. 11, 2014
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 12, 2013	Jan. 11, 2014
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 12, 2013	Jan. 11, 2014
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 12, 2013	Jan. 11, 2014



### 3. OPERATION OF EUT DURING TESTING

#### 3.1.Operating Mode

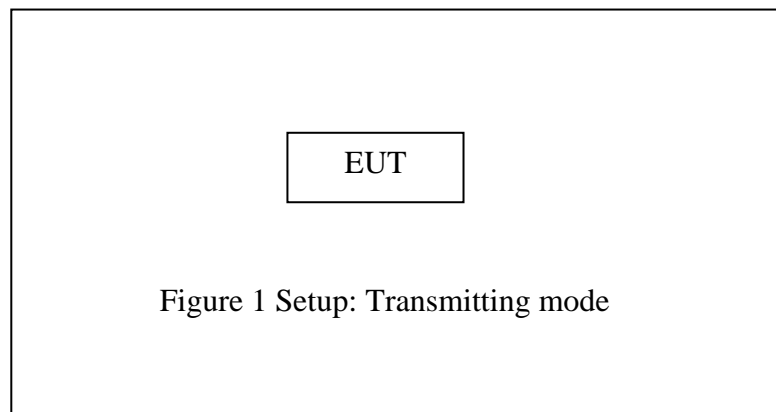
The mode is used: **BLE Transmitting mode**

Low Channel: 2402MHz

Middle Channel: 2440MHz

High Channel: 2480MHz

#### 3.2.Configuration and peripherals

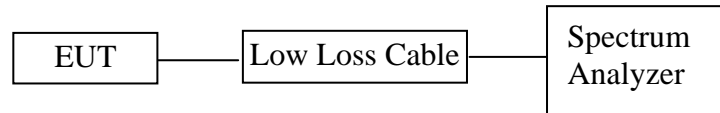


#### 4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	N/A
Section 15.203	Antenna Requirement	Compliant

## 5. 6DB BANDWIDTH MEASUREMENT

### 5.1. Block Diagram of Test Setup



(EUT: NB BodyTRNr Calorie Monitor Pro (PF))

### 5.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### 5.3. EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

## 5.5. Test Procedure

5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

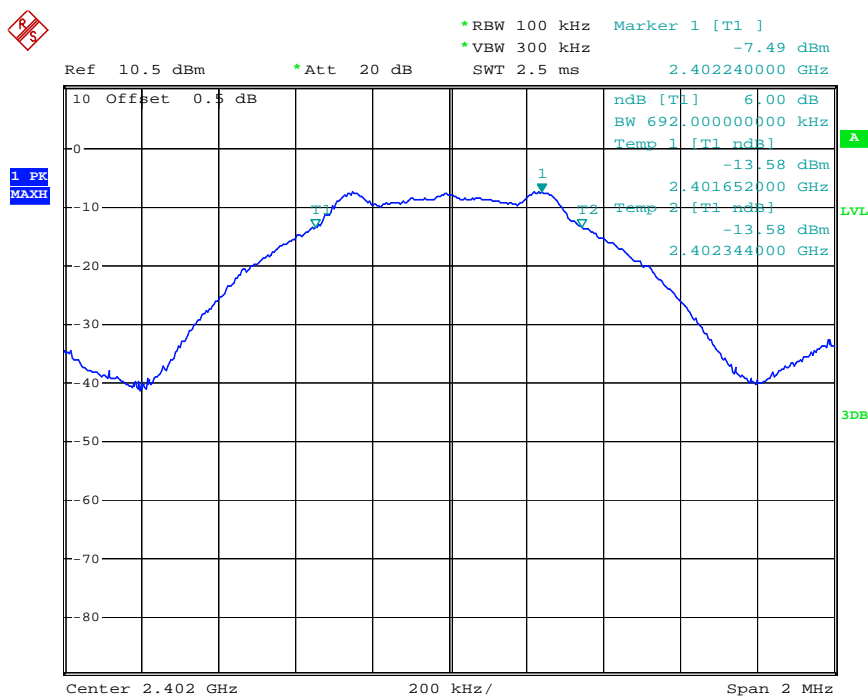
5.5.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

## 5.6. Test Result

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit(MHz)	PASS/FAIL
0	2402	0.692	0.5	PASS
19	2440	0.676	0.5	PASS
39	2480	0.672	0.5	PASS

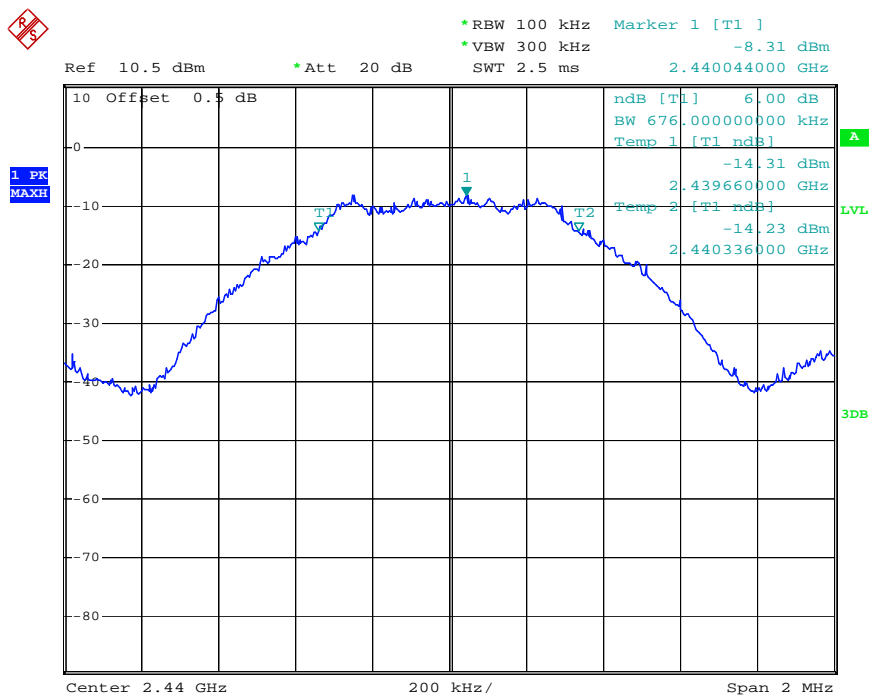
The spectrum analyzer plots are attached as below.

*channel 0*



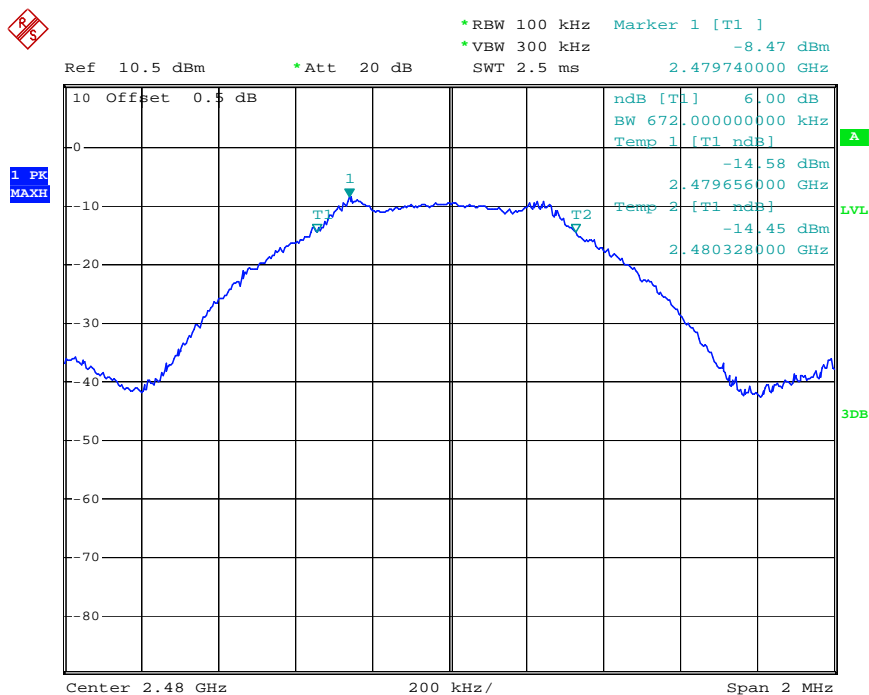
Date: 5.SEP.2013 11:14:24

## channel 19



Date: 5.SEP.2013 11:13:22

## channel 39



Date: 5.SEP.2013 11:13:59

## 6. MAXIMUM PEAK OUTPUT POWER

### 6.1. Block Diagram of Test Setup



(EUT: NB BodyTRNr Calorie Monitor Pro (PF))

### 6.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

### 6.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

## 6.5. Test Procedure

6.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2. Test method is options 1 from KDB558074 D01 DTS Meas Guidance v03

6.5.3. Set RBW of spectrum analyzer to 3 MHz and VBW to 3 MHz.

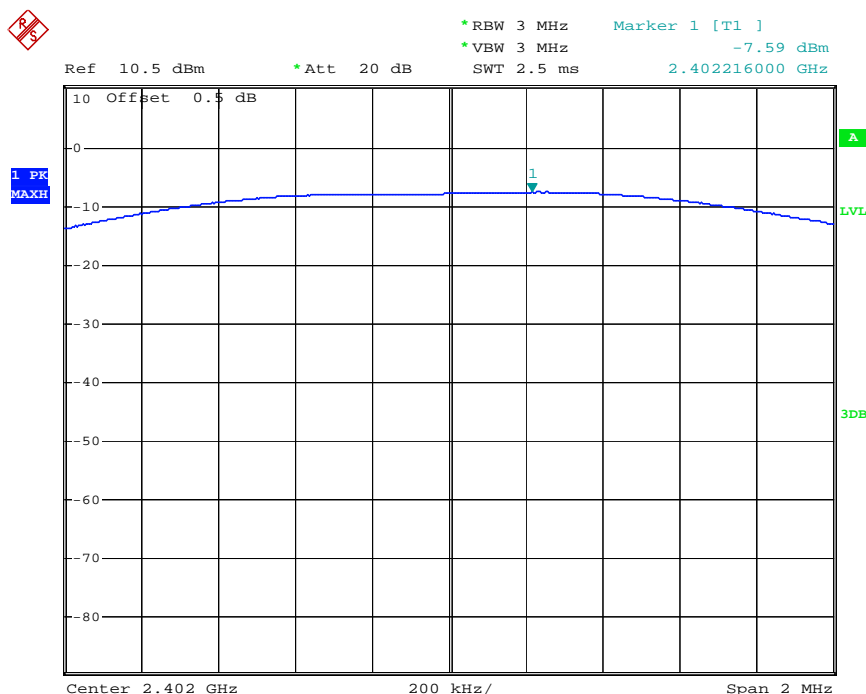
6.5.4. Measurement the maximum peak output power.

## 6.6. Test Result

Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
0	2402	-7.59	30	PASS
19	2440	-7.58	30	PASS
39	2480	-7.63	30	PASS

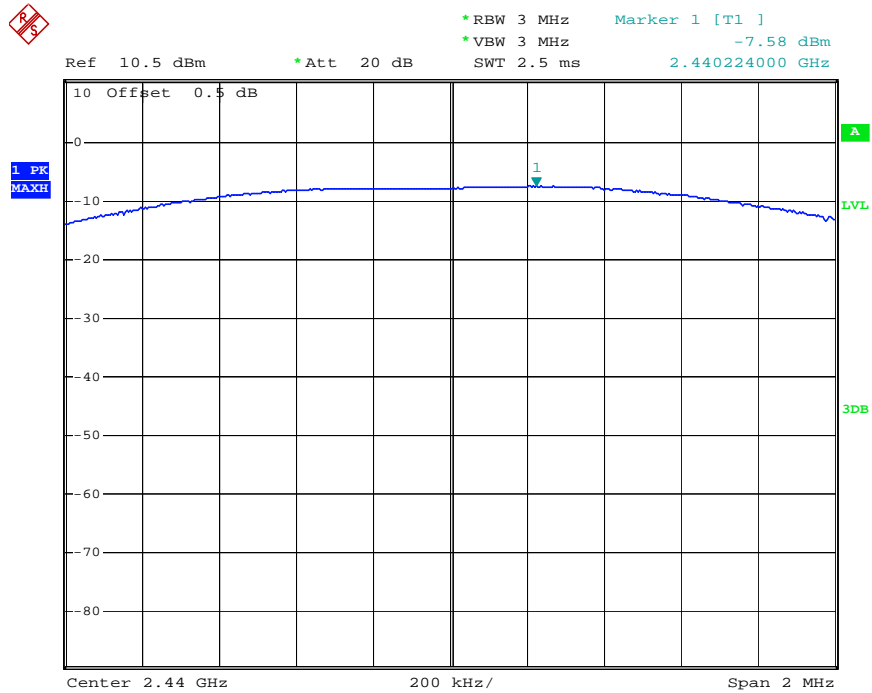
The spectrum analyzer plots are attached as below.

*channel 0*



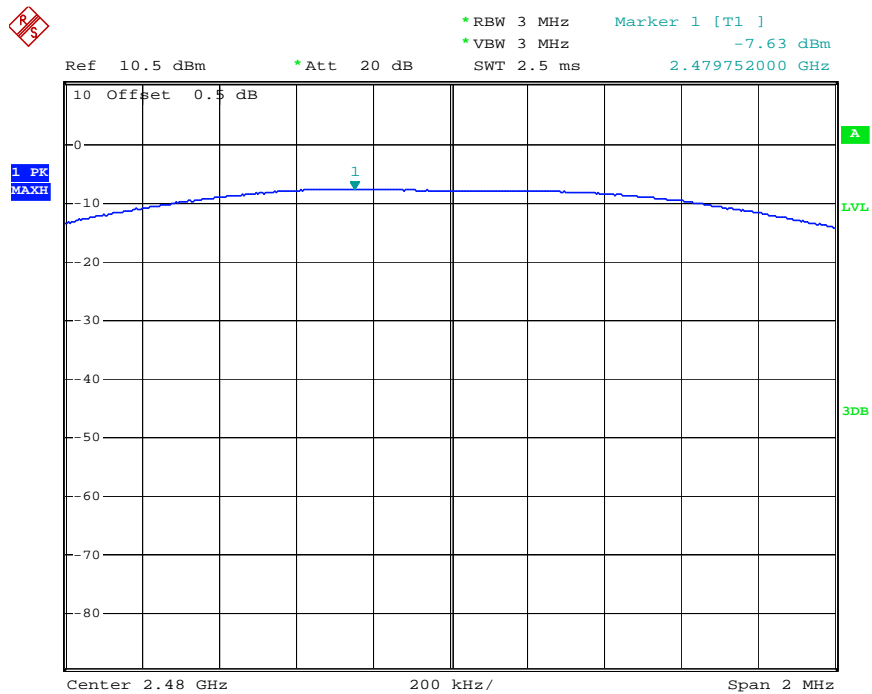
Date: 5.SEP.2013 11:11:45

## channel 19



Date: 5.SEP.2013 11:12:07

## channel 39



Date: 5.SEP.2013 11:10:43



## 7. POWER SPECTRAL DENSITY MEASUREMENT

### 7.1. Block Diagram of Test Setup



(EUT: NB BodyTRNr Calorie Monitor Pro (PF))

### 7.2. The Requirement For Section 15.247(e)

Section 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.

### 7.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

## 7.5. Test Procedure

7.5.1. The EUT was tested according to DTS test procedure of April 09, 2013 KDB558074 D01 DTS Meas Guidance v03 for compliance to FCC 47CFR 15.247 requirements.

7.5.2. The transmitter output was connected to the spectrum analyzer through a low loss cable.

### 7.5.3. Measurement Procedure PKPSD:

This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
4. Set the VBW  $\geq 3 \times \text{RBW}$ .
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

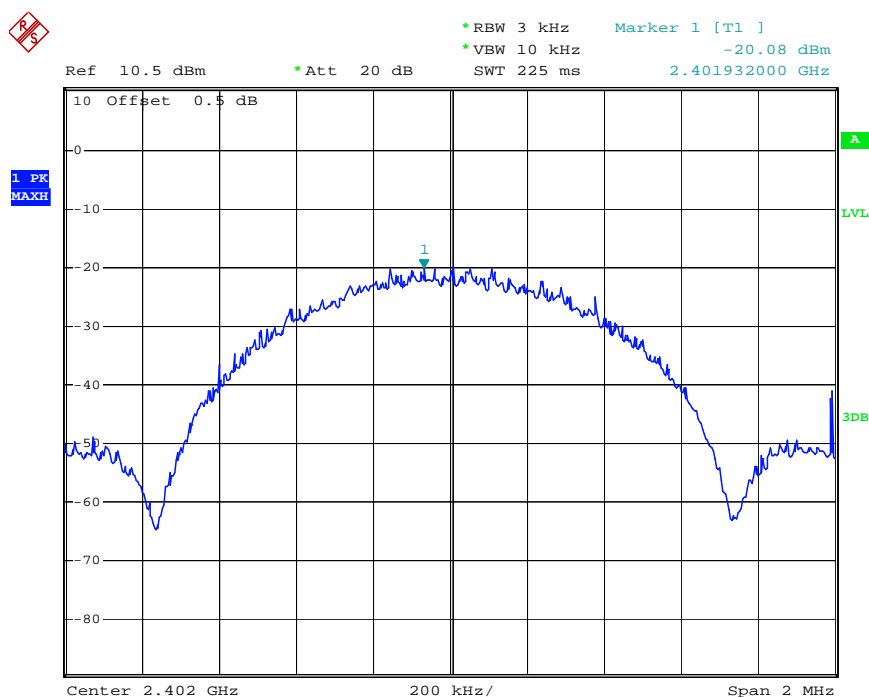
7.5.4. Measurement the maximum power spectral density.

## 7.6.Test Result

CHANNEL NUMBER	FREQUENCY (MHz )	PSD (dBm/3KHz)	LIMIT (dBm/3KHz)	PASS/FAIL
0	2402	-20.08	8	PASS
19	2440	-20.10	8	PASS
39	2480	-20.37	8	PASS

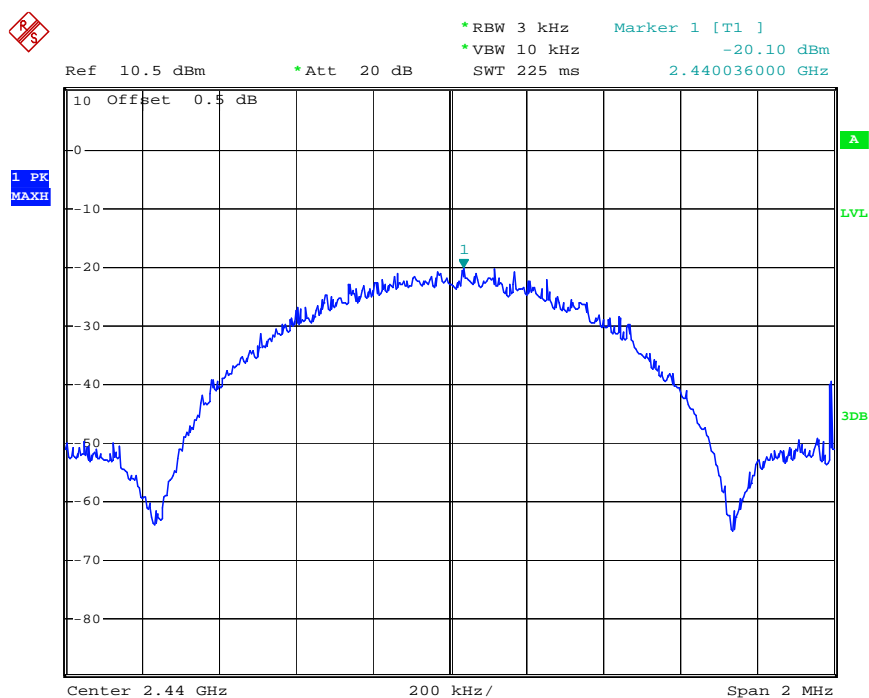
The spectrum analyzer plots are attached as below.

*channel 0*



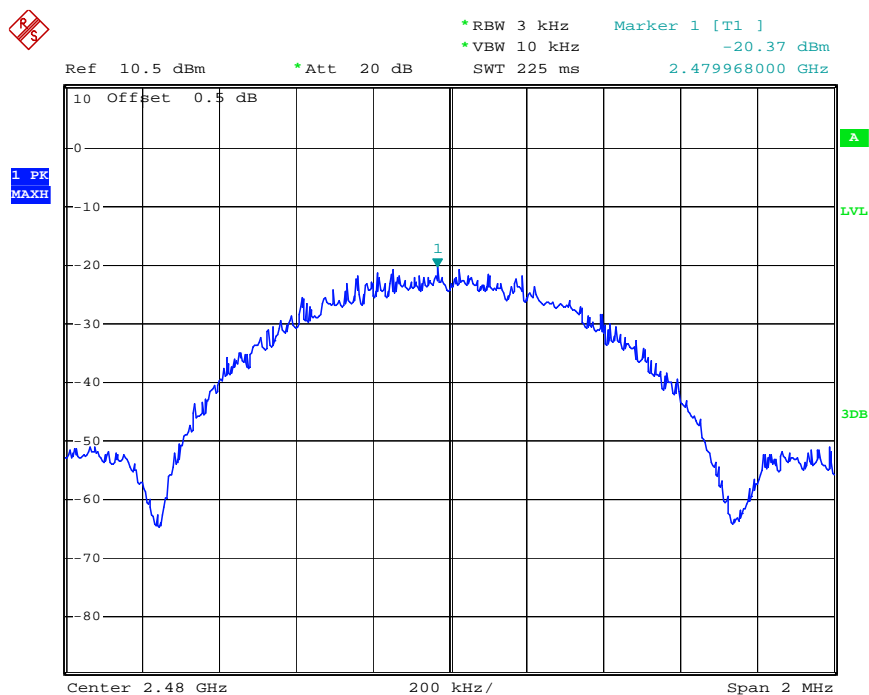
Date: 5.SEP.2013 11:21:10

## channel 19



Date: 5.SEP.2013 11:21:40

## channel 39



Date: 5.SEP.2013 11:22:10

## 8. BAND EDGE COMPLIANCE TEST

### 8.1. Block Diagram of Test Setup



(EUT: NB BodyTRNr Calorie Monitor Pro (PF))

### 8.2. The Requirement For Section 15.247(d)

Section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 8.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

## 8.4.Operating Condition of EUT

8.4.1.Setup the EUT and simulator as shown as Section 8.1.

8.4.2.Turn on the power of all equipment.

8.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

## 8.5.Test Procedure

Conducted Band Edge:

8.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

8.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

Radiate Band Edge:

8.5.3. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

8.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

8.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

8.5.6.Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

RBW=1MHz, VBW=1MHz

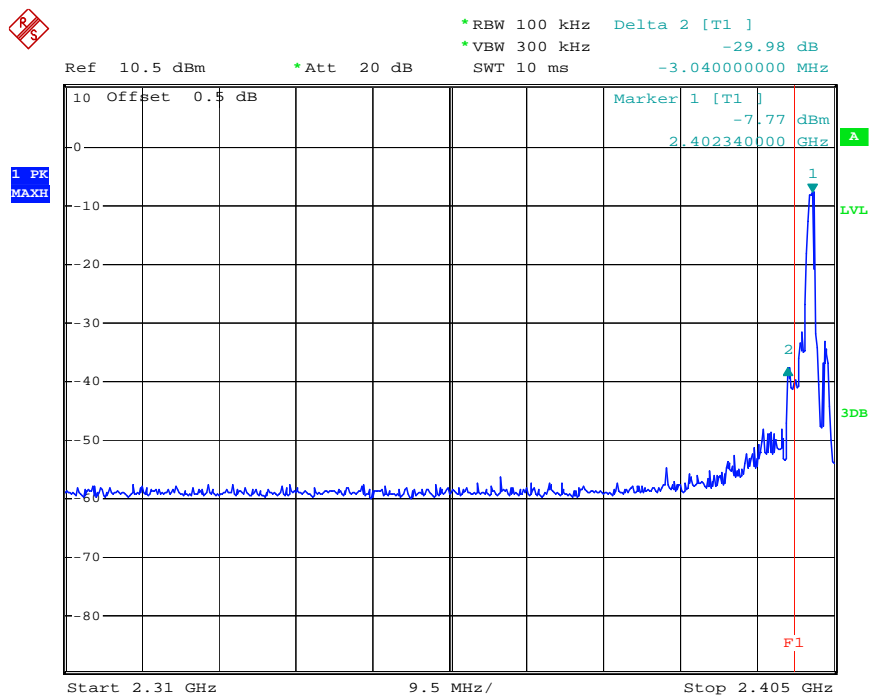
8.5.7.The band edges was measured and recorded.

## 8.6.Test Result

**Pass**

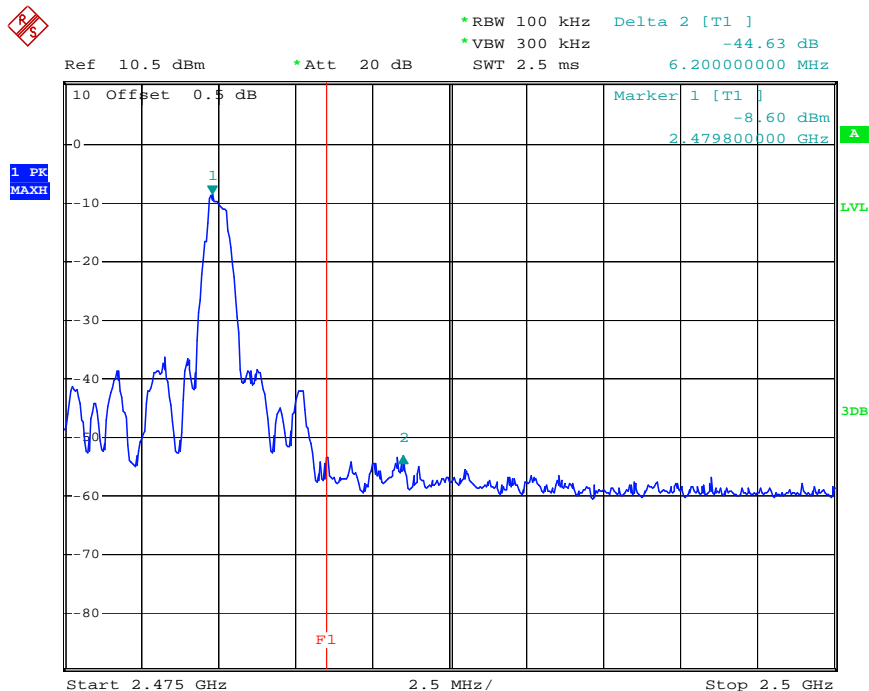
Channel	Frequency	Delta peak to band emission	Limit(dBc)
0	2399.3MHz	29.98	20
39	2486.0MHz	44.63	20

## channel 0



Date: 5.SEP.2013 11:07:40

## channel 39



Date: 5.SEP.2013 11:08:49

### Radiated Band Edge Result

Date of Test:	Aug 31, 2013	Temperature:	25°C
EUT:	NB BodyTRNr Calorie Monitor Pro (PF)	Humidity:	50%
Model No.:	52582.68.69.31078	Power Supply:	DC 3V
Test Mode:	TX (2402MHz) GFSK	Test Engineer:	Alen

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2310.000	34.58	37.44	-6.76	27.82	30.68	54.00	74.00	-26.18	-43.42	Vertical
2397.120	43.45	46.31	-6.76	36.69	39.55	54.00	74.00	-17.31	-34.45	Vertical
2400.000	47.79	50.68	-6.76	41.03	43.92	54.00	74.00	-12.97	-30.08	Vertical
2310.000	34.09	36.11	-6.76	27.33	29.35	54.00	74.00	-26.67	-44.65	Horizontal
2396.900	43.87	46.75	-6.76	37.11	39.99	54.00	74.00	-16.89	-34.01	Horizontal
2400.000	48.37	51.24	-6.76	41.61	44.48	54.00	74.00	-12.39	-29.52	Horizontal

Date of Test:	Aug 31, 2013	Temperature:	25°C
EUT:	NB BodyTRNr Calorie Monitor Pro (PF)	Humidity:	50%
Model No.:	52582.68.69.31078	Power Supply:	DC 3V
Test Mode:	TX (2480MHz) GFSK	Test Engineer:	Alen

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	44.57	47.35	-6.54	38.03	40.81	54.00	74.00	-15.97	-33.19	Vertical
2485.720	45.71	48.57	-6.54	39.17	42.03	54.00	74.00	-14.83	-31.97	Vertical
2500.000	33.40	36.26	-6.54	26.86	29.72	54.00	74.00	-24.28	-44.28	Vertical
2483.500	44.56	47.39	-6.54	38.02	40.85	54.00	74.00	-15.98	-33.15	Horizontal
2485.640	45.67	48.44	-6.54	39.13	41.90	54.00	74.00	-14.87	-32.10	Horizontal
2500.000	34.45	37.31	-6.54	27.91	30.77	54.00	74.00	-26.09	-43.23	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:  
Result = Reading + Corrected Factor
3. Display the measurement of peak values.



Job No.: alen #1506

Standard: FCC PK

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

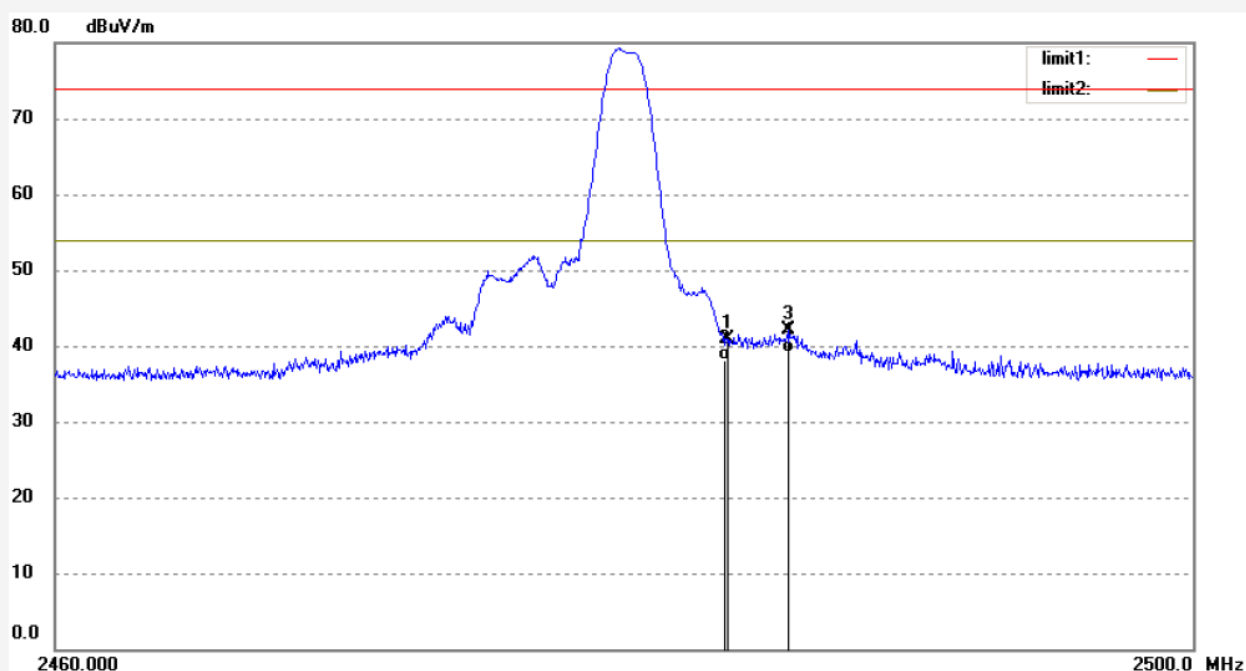
Date: 13/08/31/

Time: 8/56/44

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	47.35	-6.54	40.81	74.00	-33.19	peak			
2	2483.500	44.57	-6.54	38.03	54.00	-15.97	AVG			
3	2485.720	48.57	-6.54	42.03	74.00	-31.97	peak			
4	2485.720	45.71	-6.54	39.17	54.00	-14.83	AVG			

Job No.: alen #1507

Standard: FCC PK

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

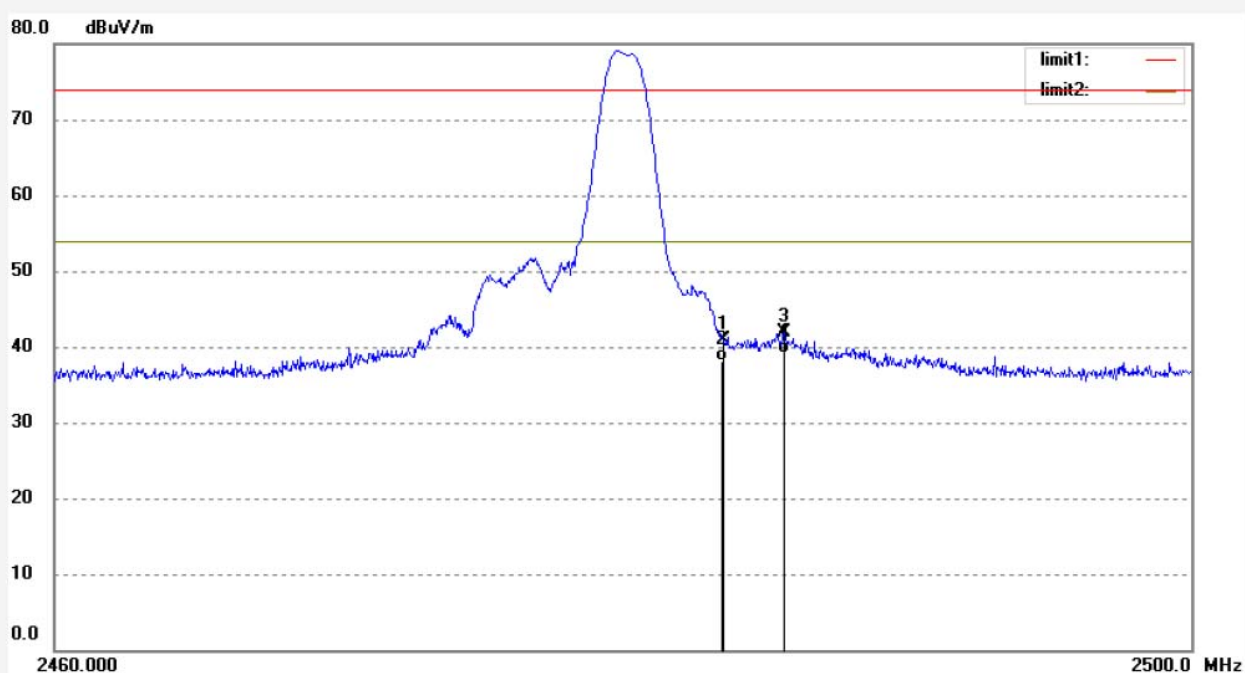
Date: 13/08/31/

Time: 8/57/45

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	47.39	-6.54	40.85	74.00	-33.15	peak			
2	2483.500	44.56	-6.54	38.02	54.00	-15.98	AVG			
3	2485.640	48.44	-6.54	41.90	74.00	-32.10	peak			
4	2485.640	45.67	-6.54	39.13	54.00	-14.87	AVG			



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Job No.: alen #1508

Standard: FCC PK

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

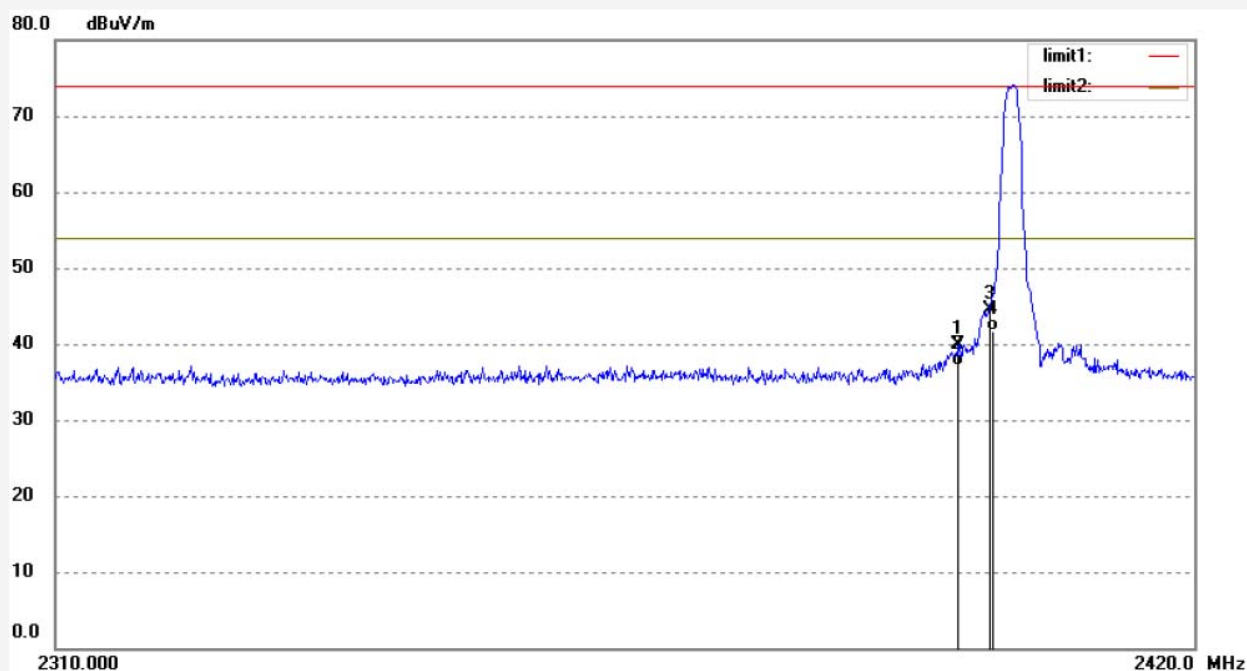
Date: 13/08/31/

Time: 9/00/48

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2396.900	46.75	-6.76	39.99	74.00	-34.01	peak			
2	2396.900	43.87	-6.76	37.11	54.00	-16.89	AVG			
3	2400.000	51.24	-6.76	44.48	74.00	-29.52	peak			
4	2400.000	48.37	-6.76	41.61	54.00	-12.39	AVG			

Job No.: alen #1509

Standard: FCC PK

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

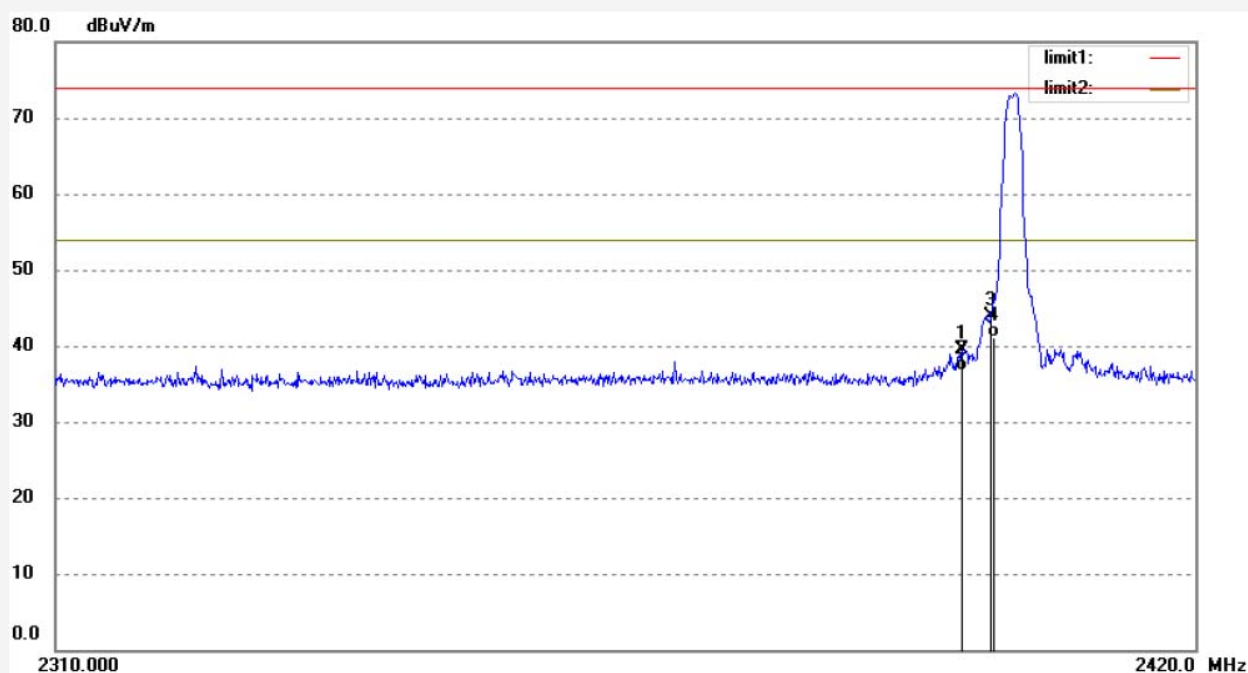
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Time: 9/01/31

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2397.120	46.31	-6.76	39.55	74.00	-34.45	peak			
2	2397.120	43.45	-6.76	36.69	54.00	-17.31	AVG			
3	2400.000	50.68	-6.76	43.92	74.00	-30.08	peak			
4	2400.000	47.79	-6.76	41.03	54.00	-12.97	AVG			

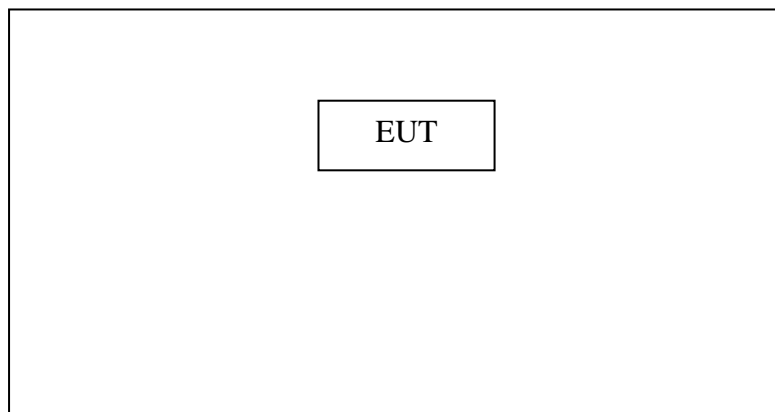
Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:  
Result = Reading + Corrected Factor
3. Display the measurement of peak values.

## 9. RADIATED SPURIOUS EMISSION TEST

### 9.1. Block Diagram of Test Setup

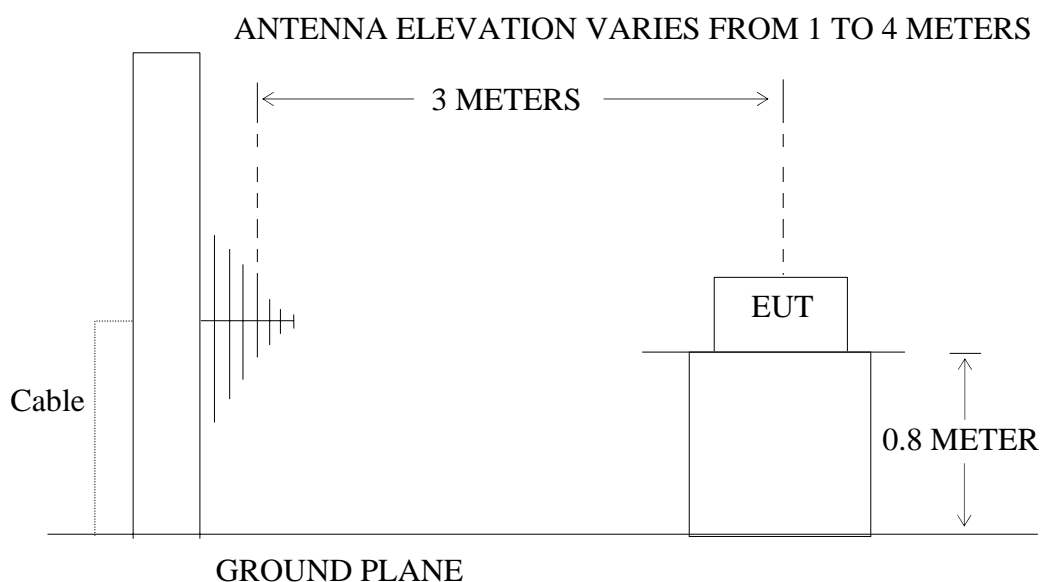
#### 9.1.1. Block diagram of connection between the EUT and peripherals



Setup: Transmitting mode

(EUT: NB BodyTRNr Calorie Monitor Pro (PF))

#### 9.1.2. Semi-Anechoic Chamber Test Setup Diagram



## 9.2.The Limit For Section 15.247(d)

Section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

## 9.3.Restricted bands of operation

### 9.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )
13.36-13.41			

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510

<sup>2</sup>Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



## 9.4. Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

## 9.5. Operating Condition of EUT

9.5.1. Setup the EUT and simulator as shown as Section 9.1.

9.5.2. Turn on the power of all equipment.

9.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

## 9.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

## 9.7.The Field Strength of Radiation Emission Measurement Results

### PASS.

#### For Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	X
-	-	-	-	-	-	Y
-	-	-	-	-	-	Z

#### For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Factor Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
---	---	---	---	---	---	Vertical
---	---	---	---	---	---	Vertical
---	---	---	---	---	---	Vertical
---	---	---	---	---	---	Horizontal
---	---	---	---	---	---	Horizontal
---	---	---	---	---	---	Horizontal

#### For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBμV/m)		Factor Corr. (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin(dBμV/m)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

**Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.**

**2. \*: Denotes restricted band of operation.**



Job No.: alen #1462

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

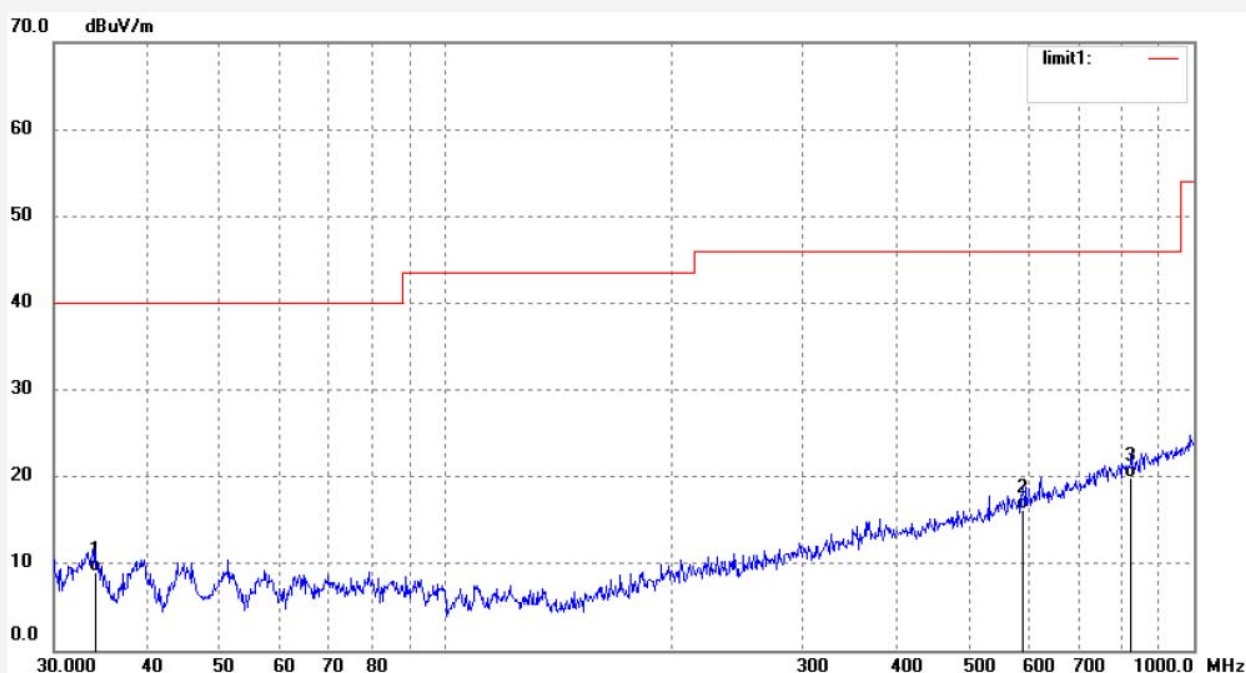
Date: 13/08/30/

Time: 10/13/58

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.0363	28.17	-19.17	9.00	40.00	-31.00	QP			
2	590.9737	28.13	-11.87	16.26	46.00	-29.74	QP			
3	824.5968	27.23	-7.39	19.84	46.00	-26.16	QP			

Job No.: alen #1463

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

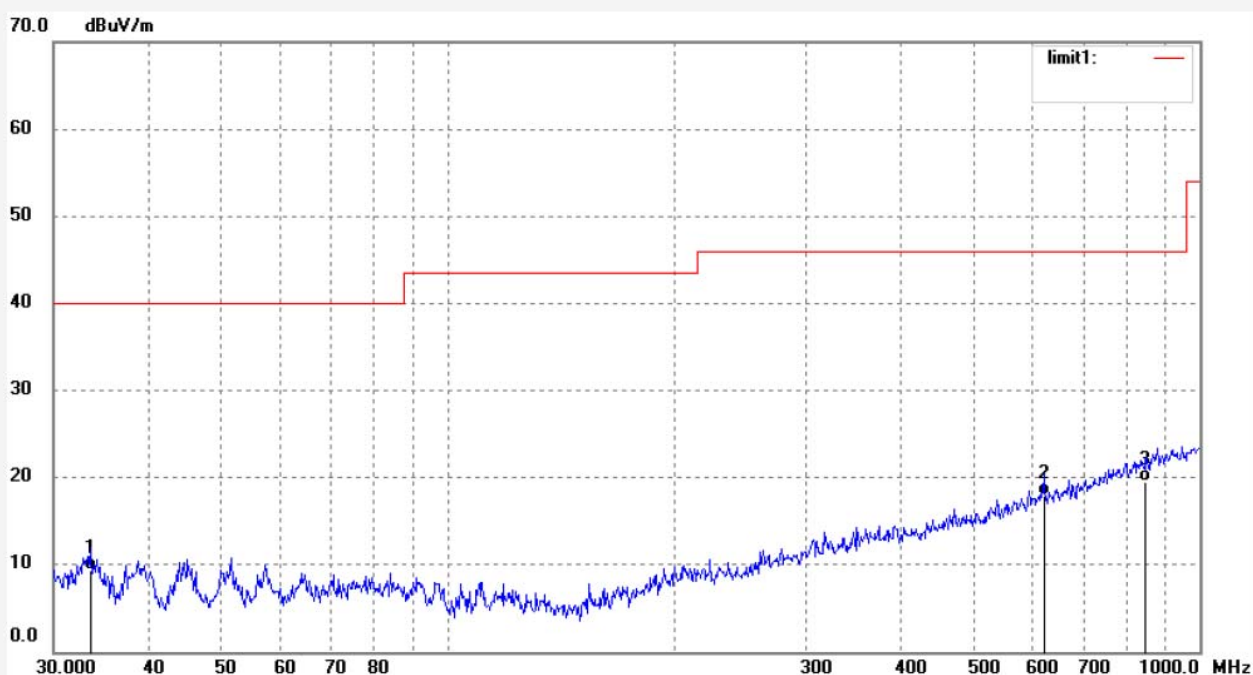
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Time: 10/14/33

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.5623	28.35	-19.01	9.34	40.00	-30.66	QP			
2	620.7096	29.12	-11.22	17.90	46.00	-28.10	QP			
3	848.0562	26.42	-6.99	19.43	46.00	-26.57	QP			

Job No.: alen #1510

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

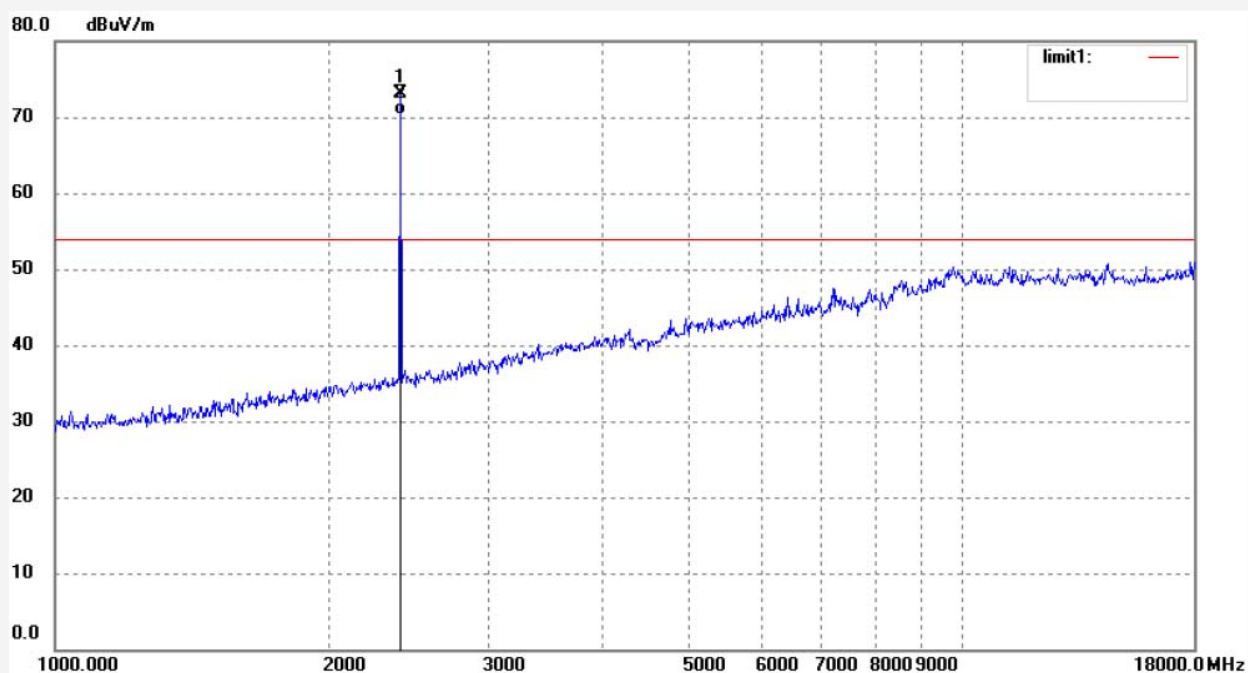
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Time: 9/04/41

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	80.88	-6.76	74.12			peak			
2	2402.000	78.12	-6.76	71.36			AVG			

Job No.: alen #1511

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

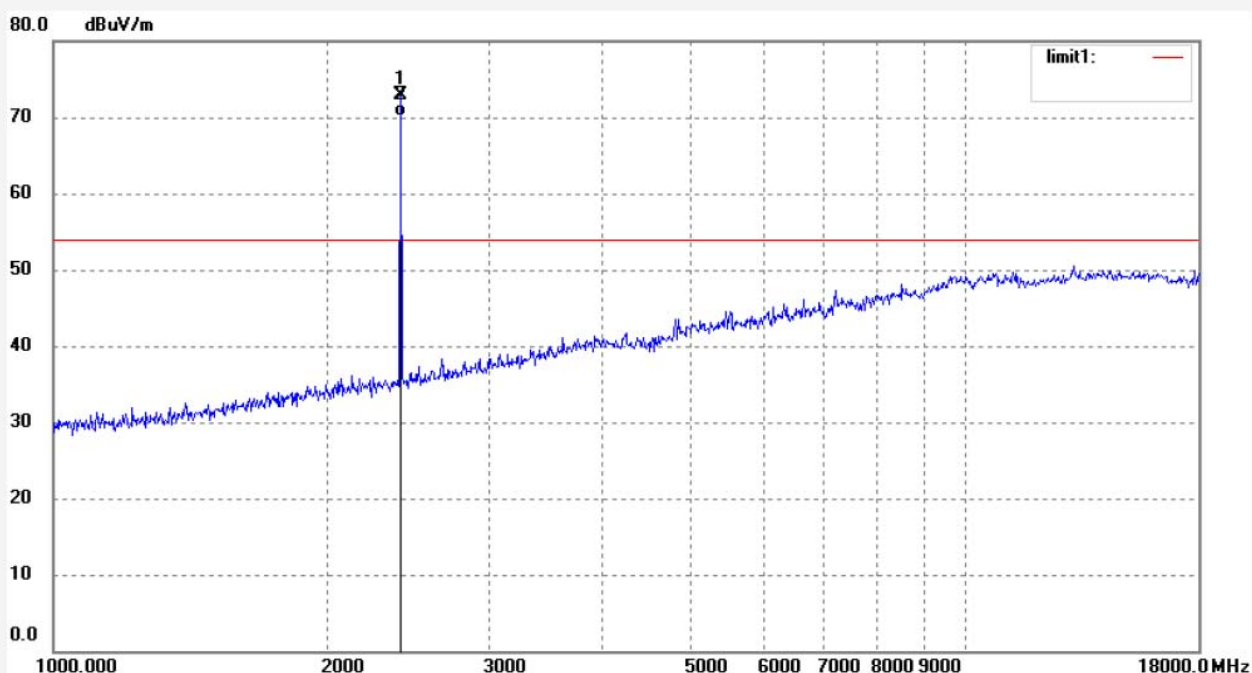
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Time: 9/05/16

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	79.70	-6.76	72.94			peak			
2	2402.000	76.87	-6.76	70.11			AVG			

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Job No.: Alen #2537

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 49 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

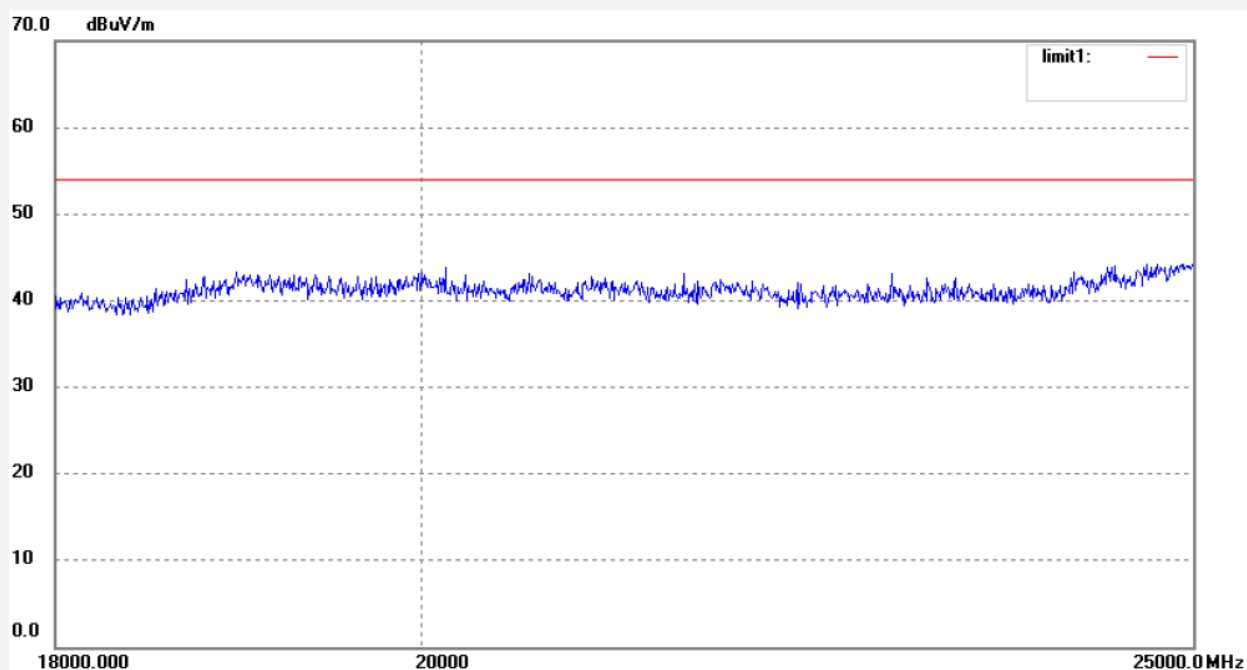
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Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Job No.: Alen #2538

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 49 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2402MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

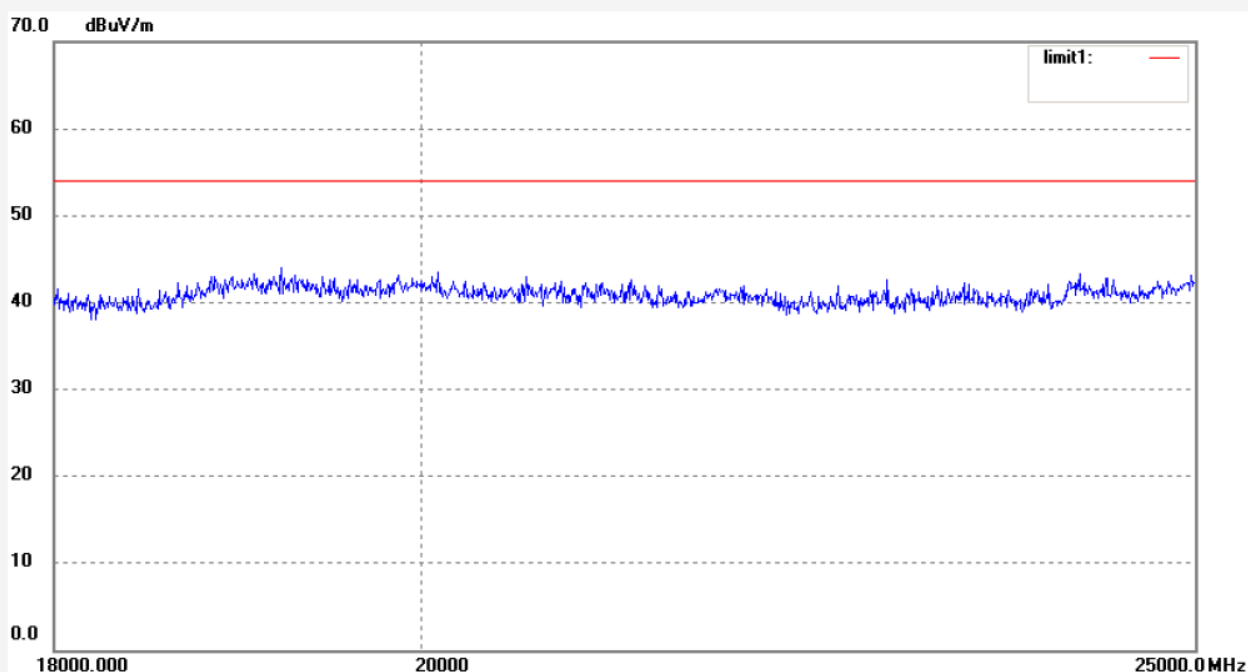
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Time: 11/56/00

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------



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Job No.: alen #1460

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2440MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

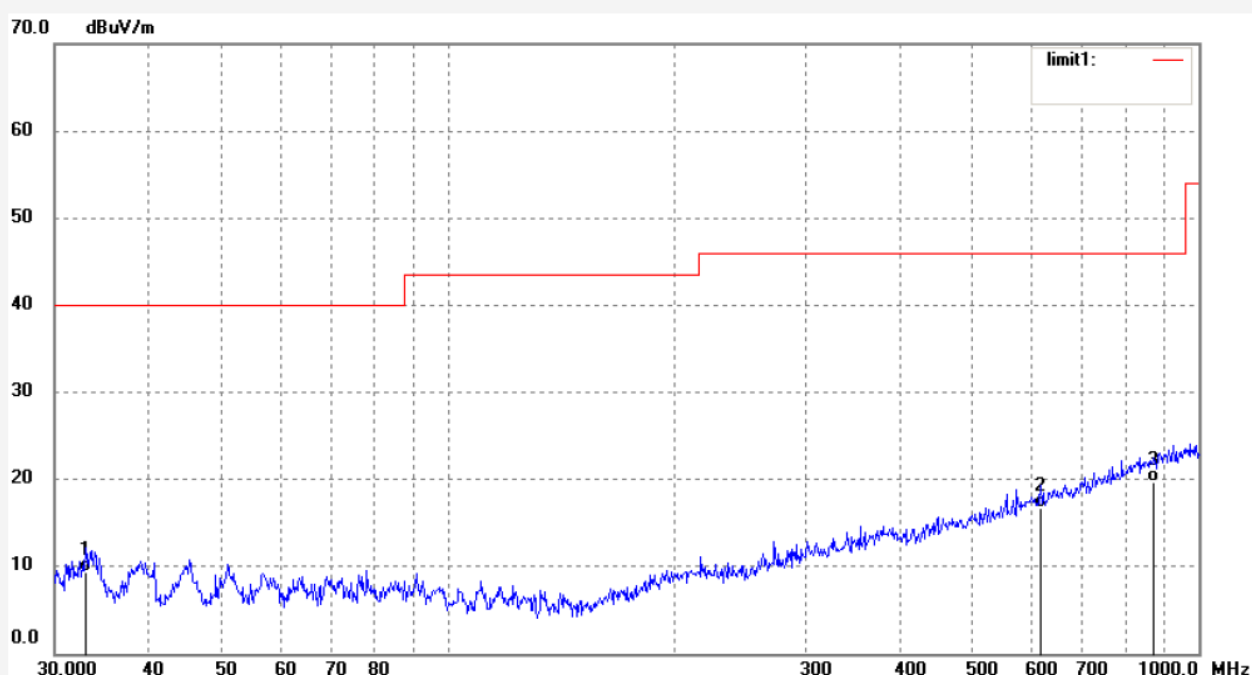
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Time: 10/12/47

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.9791	28.21	-18.81	9.40	40.00	-30.60	QP			
2	616.3718	28.08	-11.33	16.75	46.00	-29.25	QP			
3	872.1832	26.32	-6.59	19.73	46.00	-26.27	QP			



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Report No.: ATE20131892

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Site: 1# Chamber

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Job No.: alen #1461

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2440MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

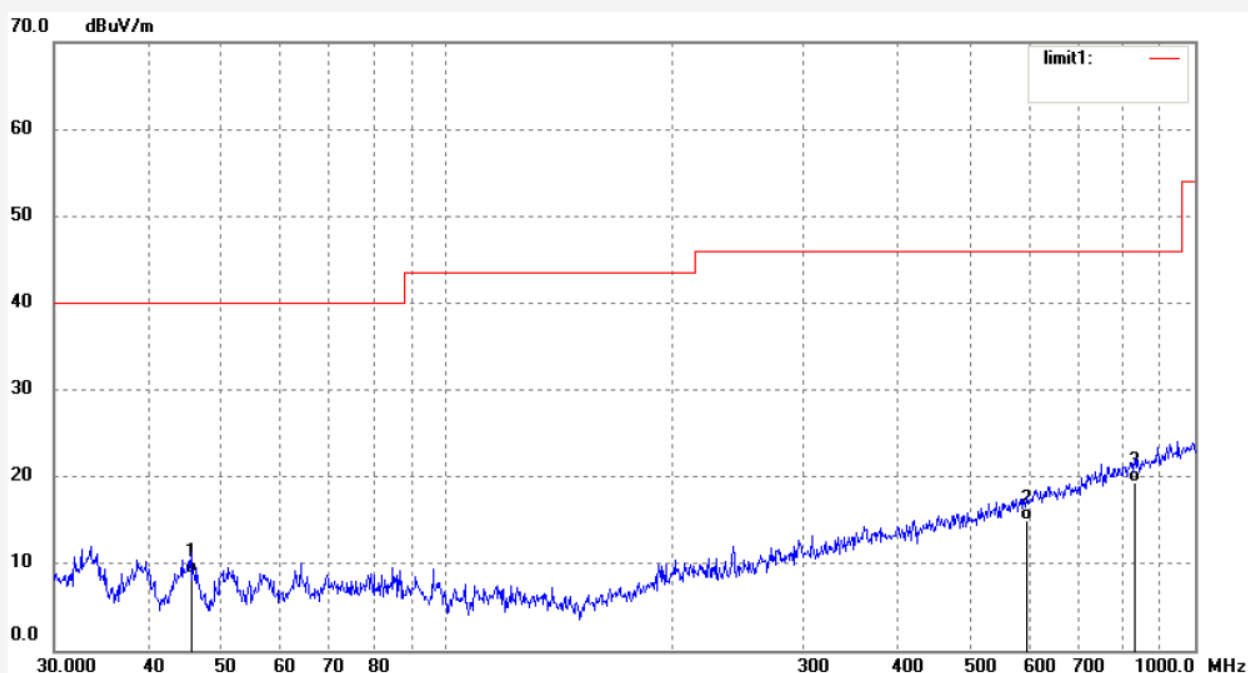
Date: 13/08/30/

Time: 10/13/21

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	45.6948	29.23	-20.43	8.80	40.00	-31.20	QP			
2	597.2233	26.67	-11.73	14.94	46.00	-31.06	QP			
3	830.4002	26.65	-7.27	19.38	46.00	-26.62	QP			



Job No.: alen #1512

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2440MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

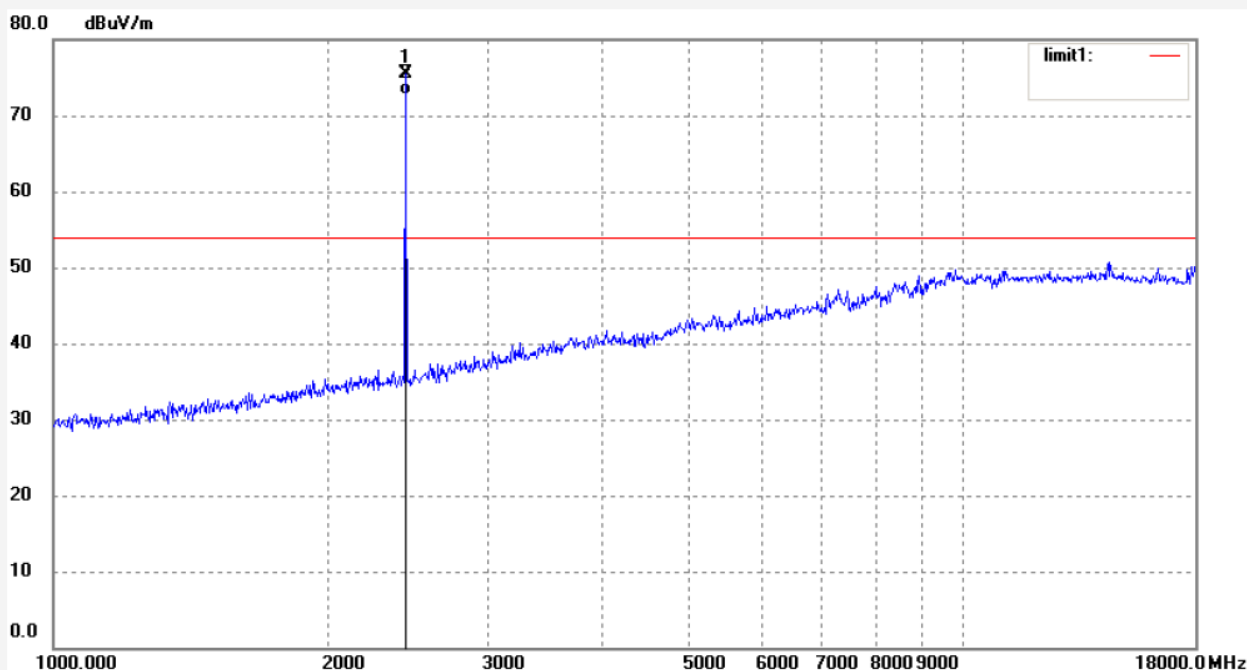
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Time: 9/06/43

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	82.15	-6.67	75.48			peak			
2	2440.000	79.32	-6.67	72.65			AVG			



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Job No.: alen #1513

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2440MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

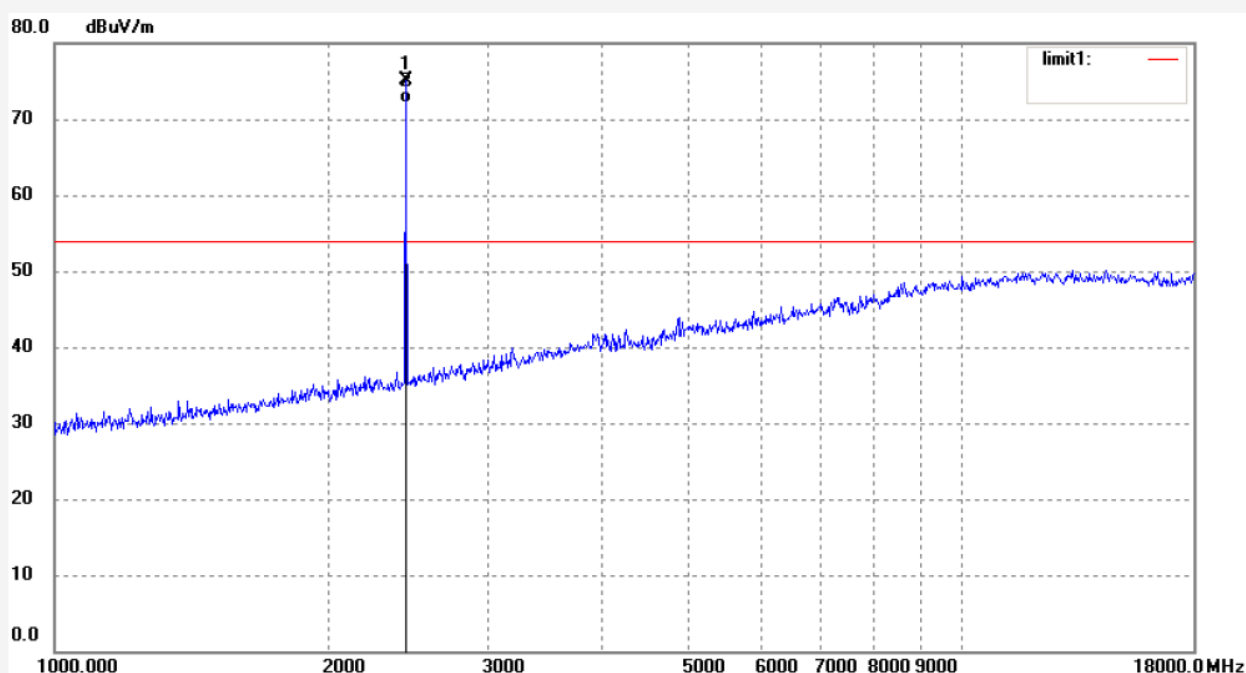
Date: 13/08/31/

Time: 9/07/21

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	81.78	-6.67	75.11			peak			
2	2440.000	78.86	-6.67	72.19			AVG			

Job No.: Alen #2535

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 49 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2440MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

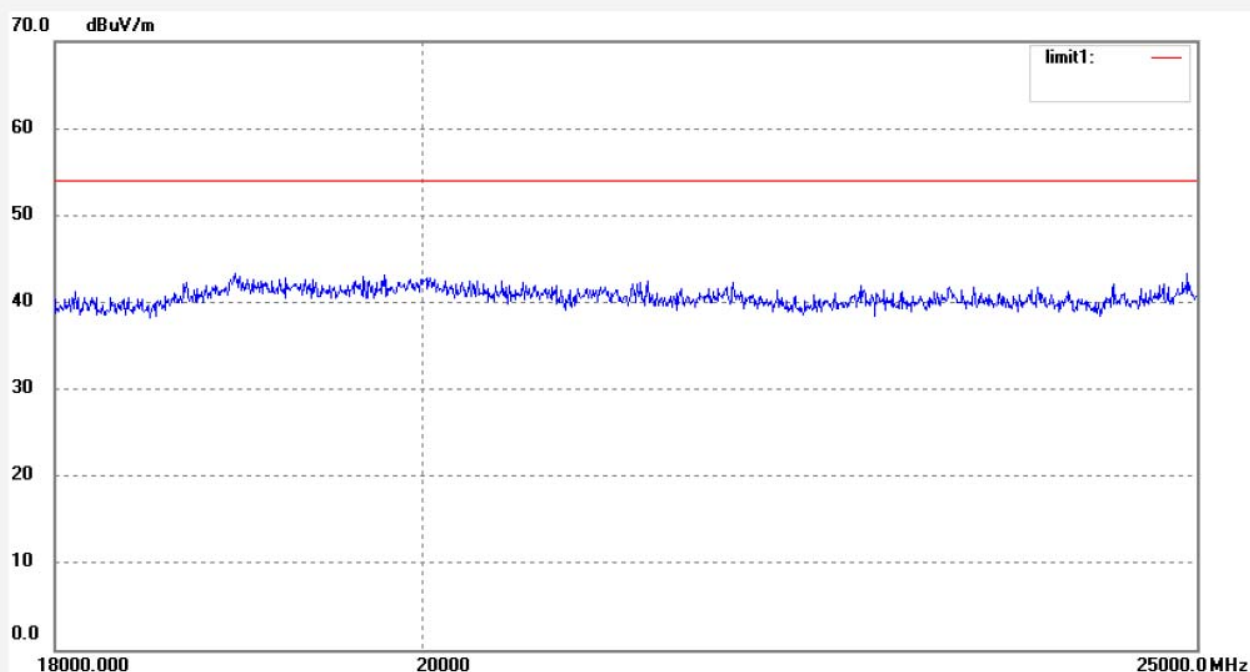
Date: 13/08/29/

Time: 11/43/05

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------

Job No.: Alen #2536

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 49 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2440MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

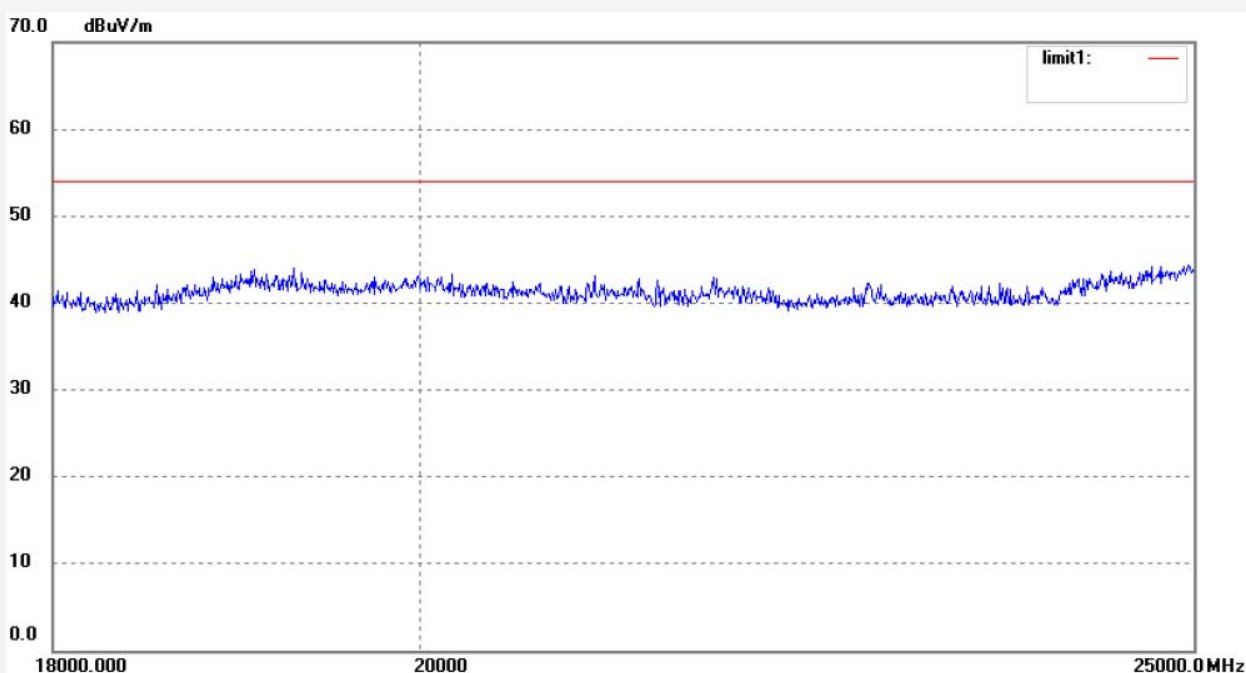
Date: 13/08/29/

Time: 11/48/21

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Job No.: alen #1458

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

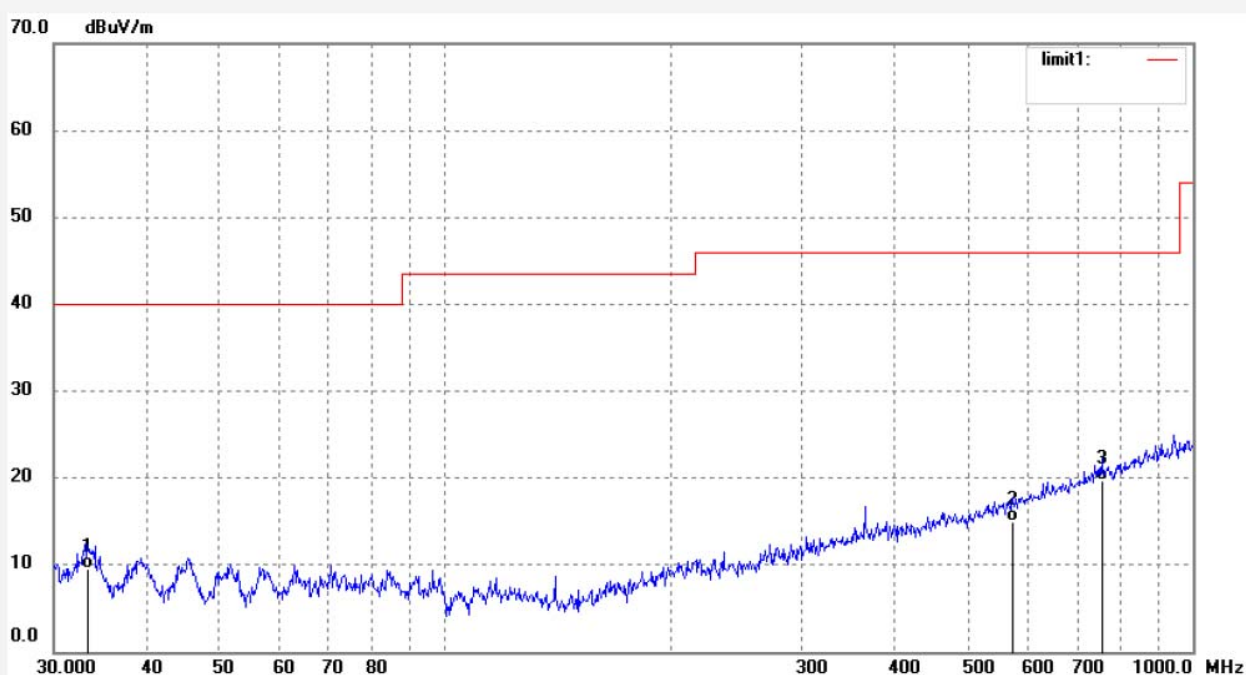
Date: 13/08/30/

Time: 10/11/26

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.3278	28.42	-18.94	9.48	40.00	-30.52	QP			
2	574.6258	27.23	-12.27	14.96	46.00	-31.04	QP			
3	755.3872	28.12	-8.50	19.62	46.00	-26.38	QP			

Job No.: alen #1459

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

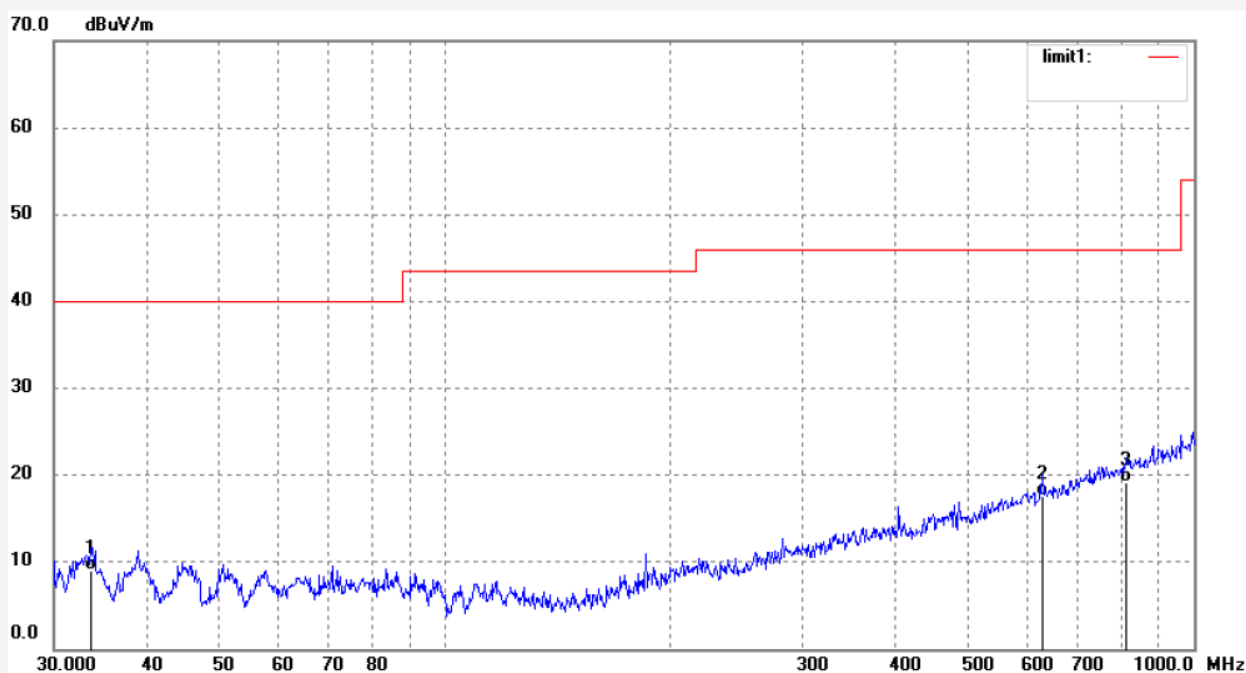
Date: 13/08/30/

Time: 10/11/56

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.6802	27.98	-19.05	8.93	40.00	-31.07	QP			
2	627.2738	28.65	-11.10	17.55	46.00	-28.45	QP			
3	810.2653	26.78	-7.61	19.17	46.00	-26.83	QP			





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Report No.: ATE20131892

Page 47 of 56

Site: 1# Chamber

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Job No.: alen #1514

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

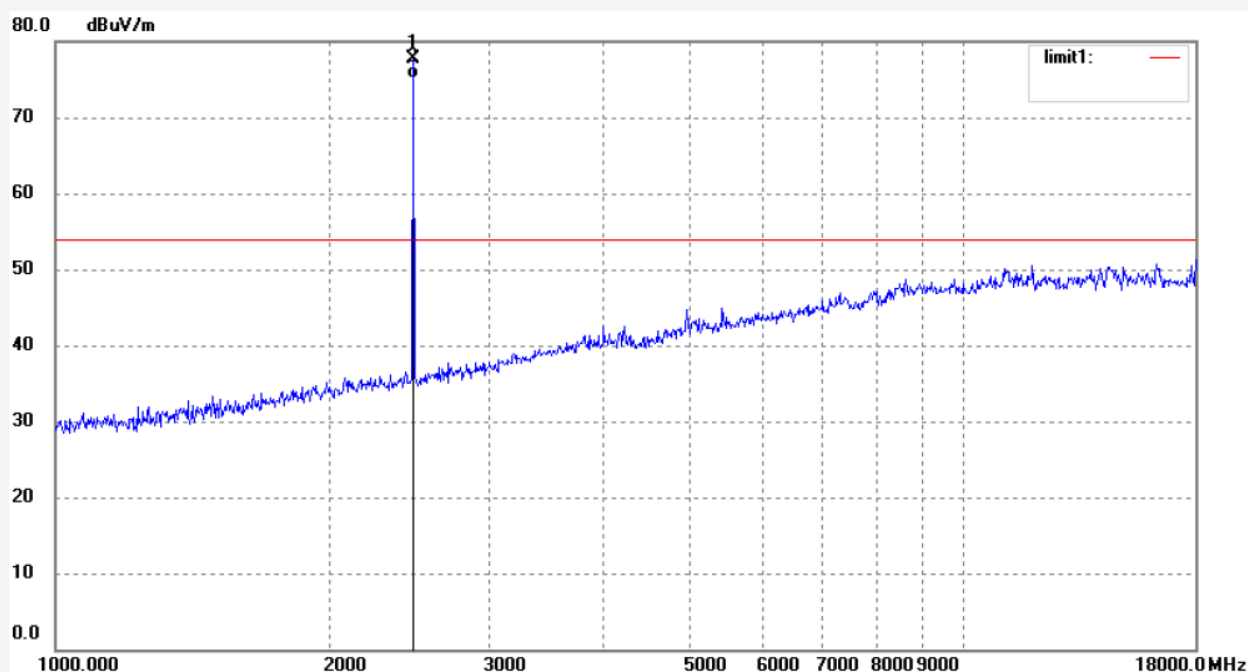
Date: 13/08/31/

Time: 9/08/57

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	84.35	-6.56	77.79			peak			
2	2480.000	81.65	-6.56	75.09			AVG			

Job No.: alen #1515

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

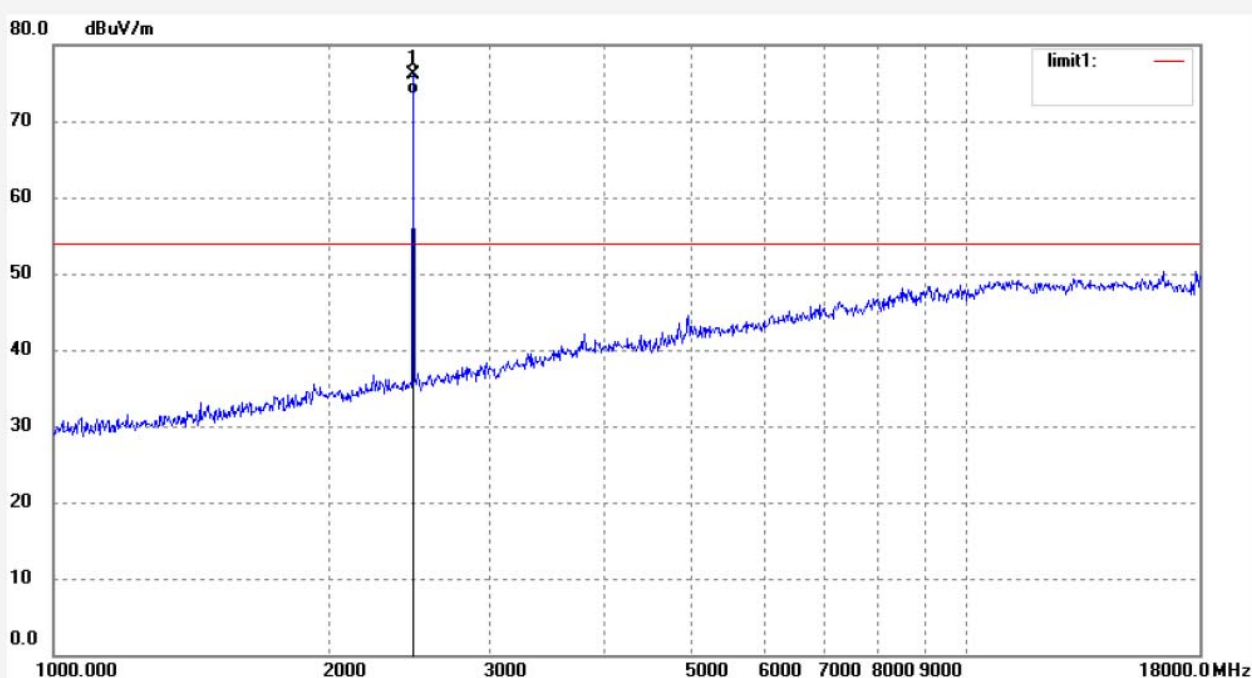
Date: 13/08/31/

Time: 9/09/37

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	82.62	-6.56	76.06			peak			
2	2480.000	80.03	-6.56	73.47			AVG			



Job No.: Alen #2533

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 49 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Vertical

Power Source: DC 3V

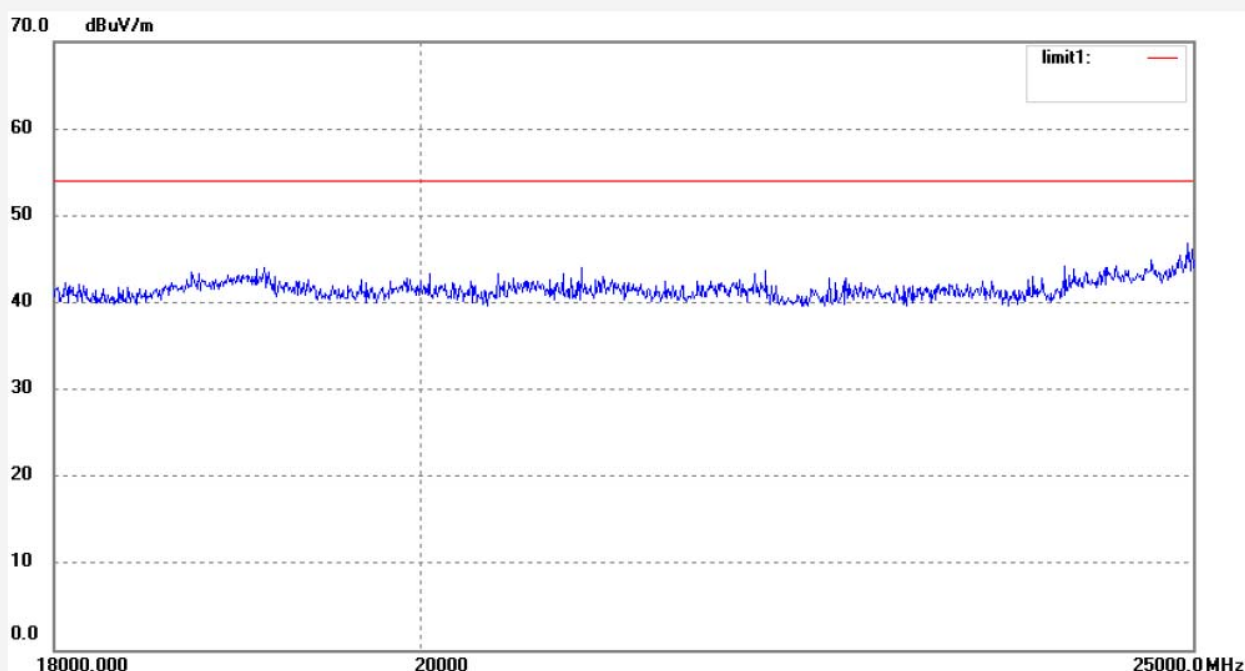
Date: 13/08/29/

Time: 11/35/40

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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## ACCURATE TECHNOLOGY CO., LTD.

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Job No.: Alen #2534

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 49 %

EUT: NB BodyTRNr Calorie Monitor Pro (PF)

Mode: TX 2480MHz

Model: 52582.68.69.31078

Manufacturer: Organix

Polarization: Horizontal

Power Source: DC 3V

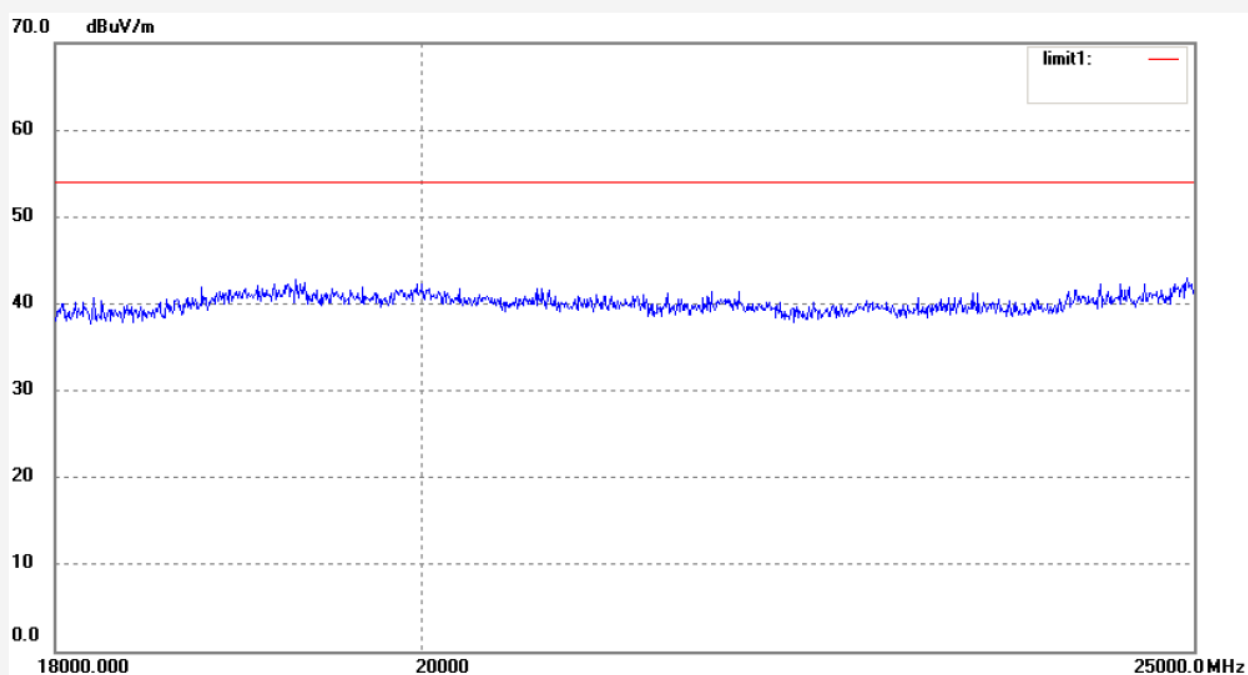
Date: 13/08/29/

Time: 11/40/47

Engineer Signature:

Distance: 3m

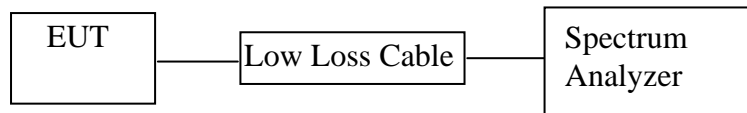
Note: Report No.:ATE20131892



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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## 10. CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

### 10.1. Block Diagram of Test Setup



(EUT: NB BodyTRNr Calorie Monitor Pro (PF))

### 10.2. The Requirement For Section 15.247(d)

Section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 10.3. EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

## 10.4.Operating Condition of EUT

10.4.1.Setup the EUT and simulator as shown as Section 10.1.

10.4.2.Turn on the power of all equipment.

10.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

## 10.5.Test Procedure

10.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

10.5.2.Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz

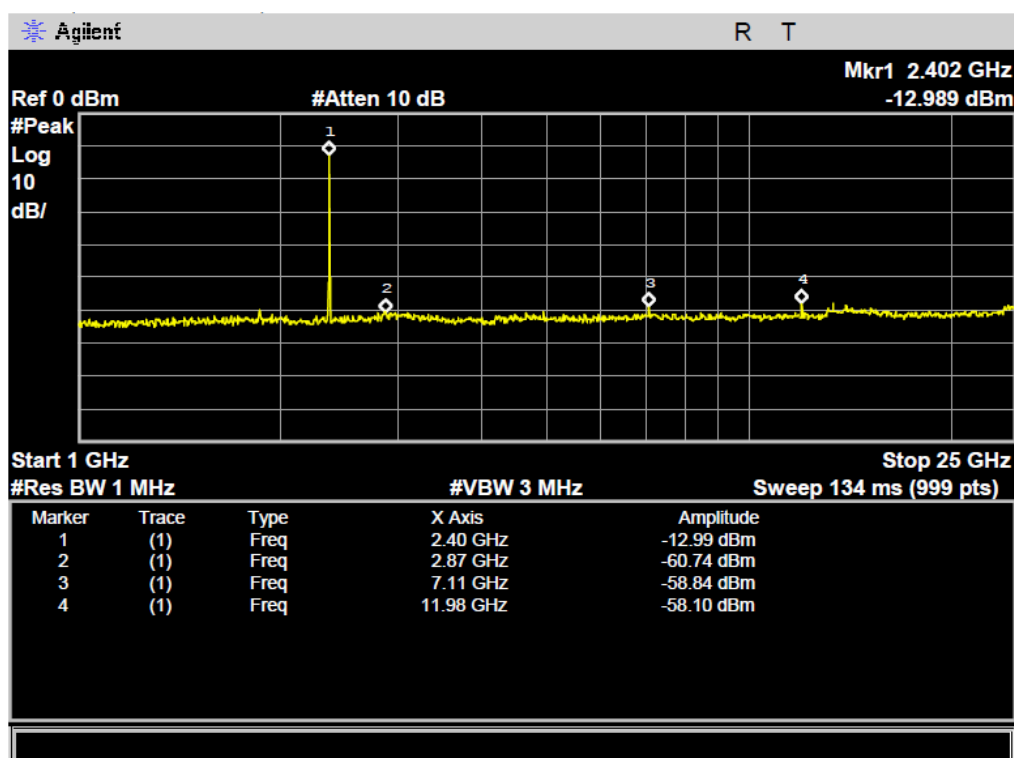
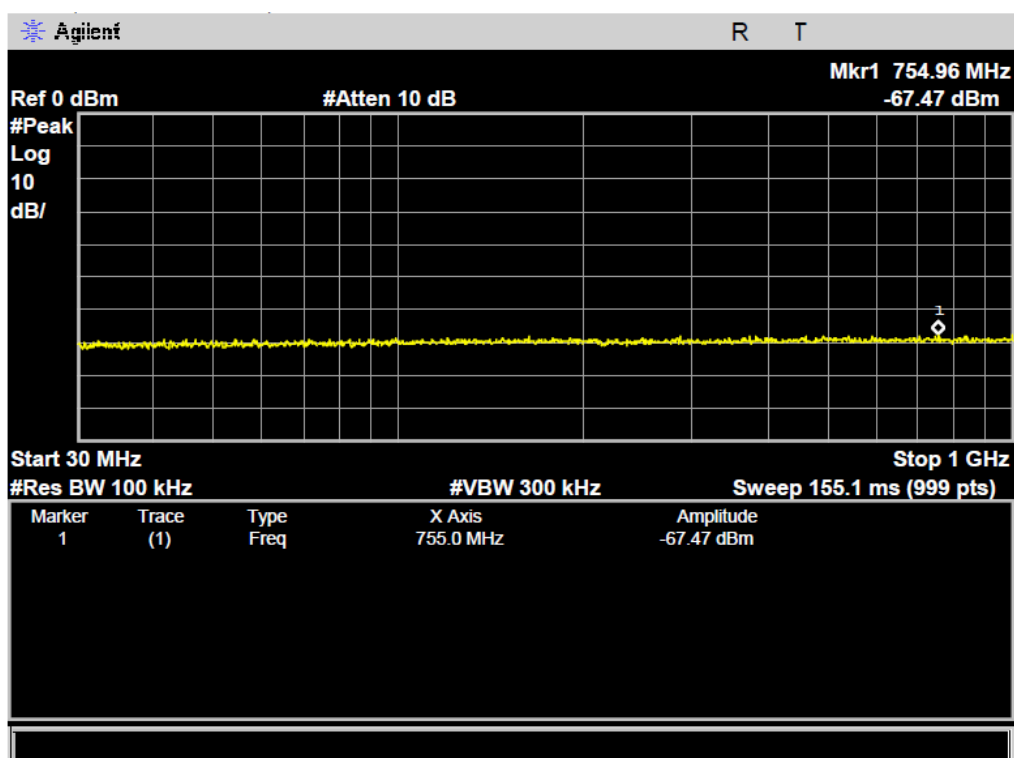
10.5.3.The Conducted Spurious Emission was measured and recorded.

## 10.6.Test Result

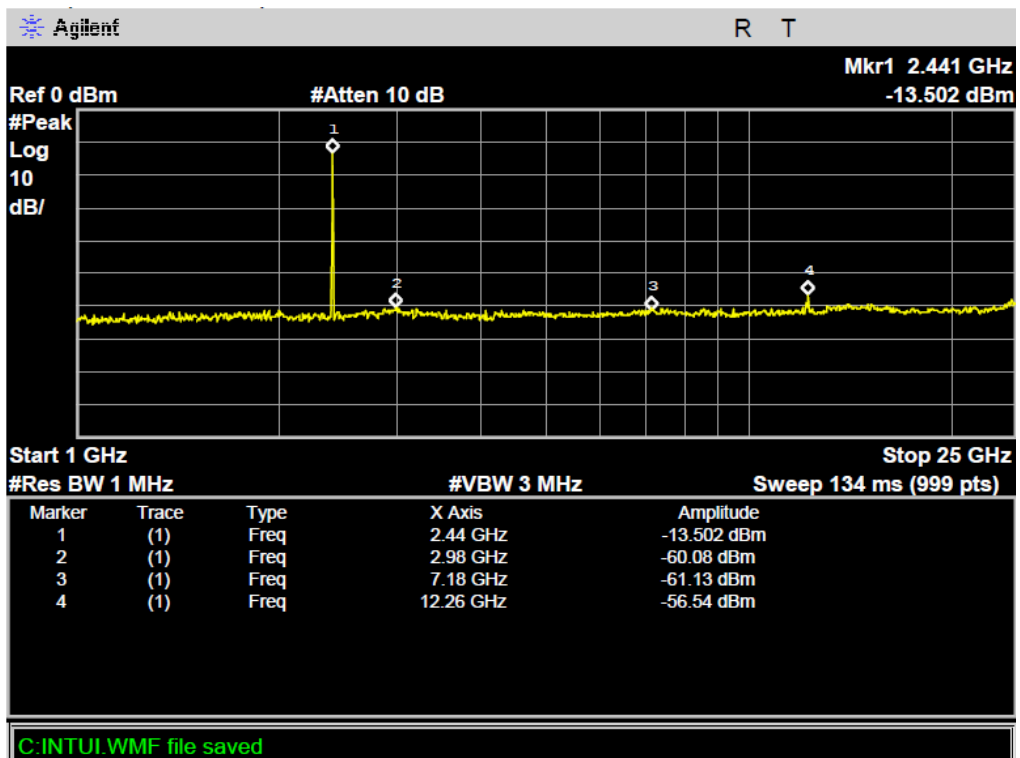
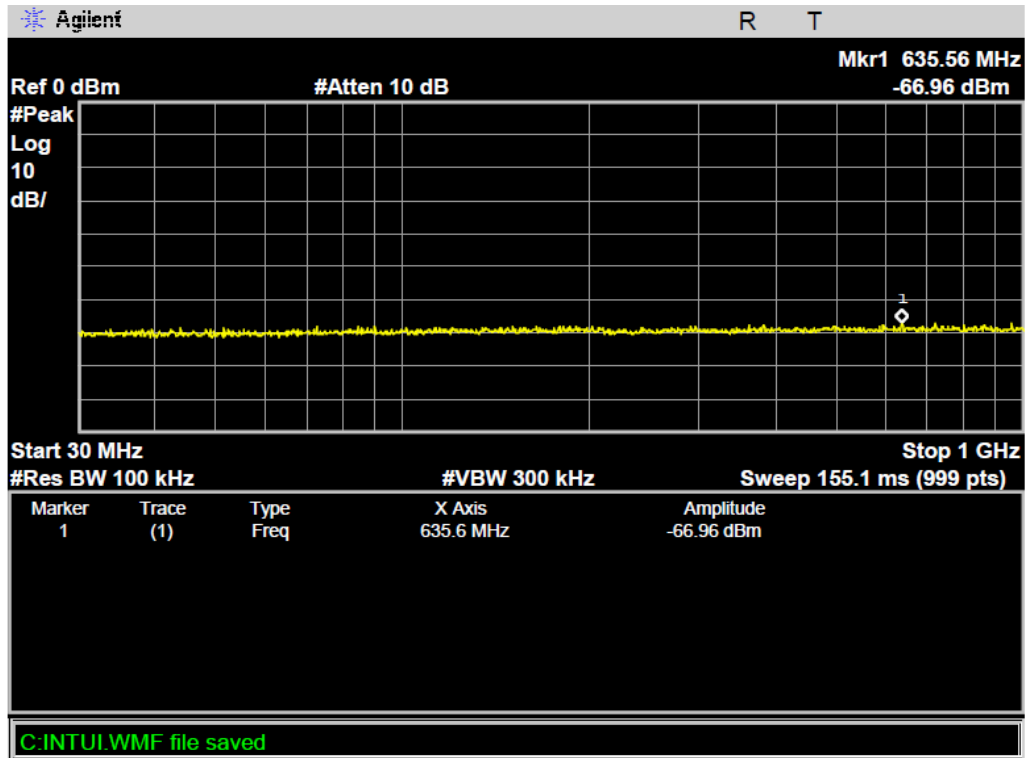
**Pass.**

The spectrum analyzer plots are attached as below.

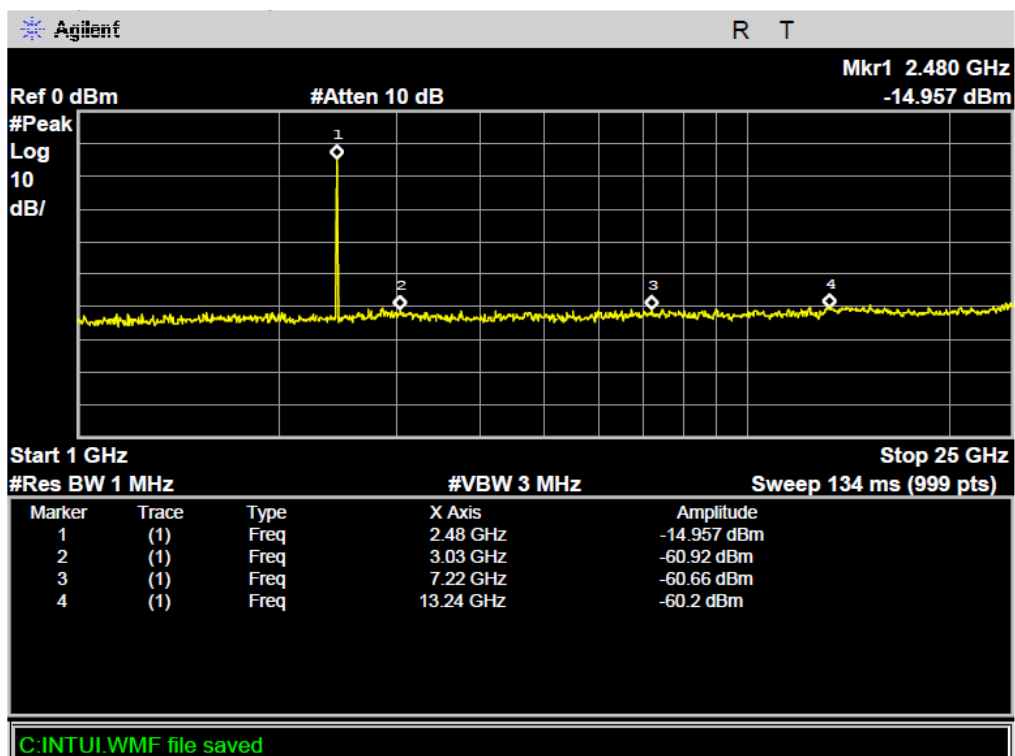
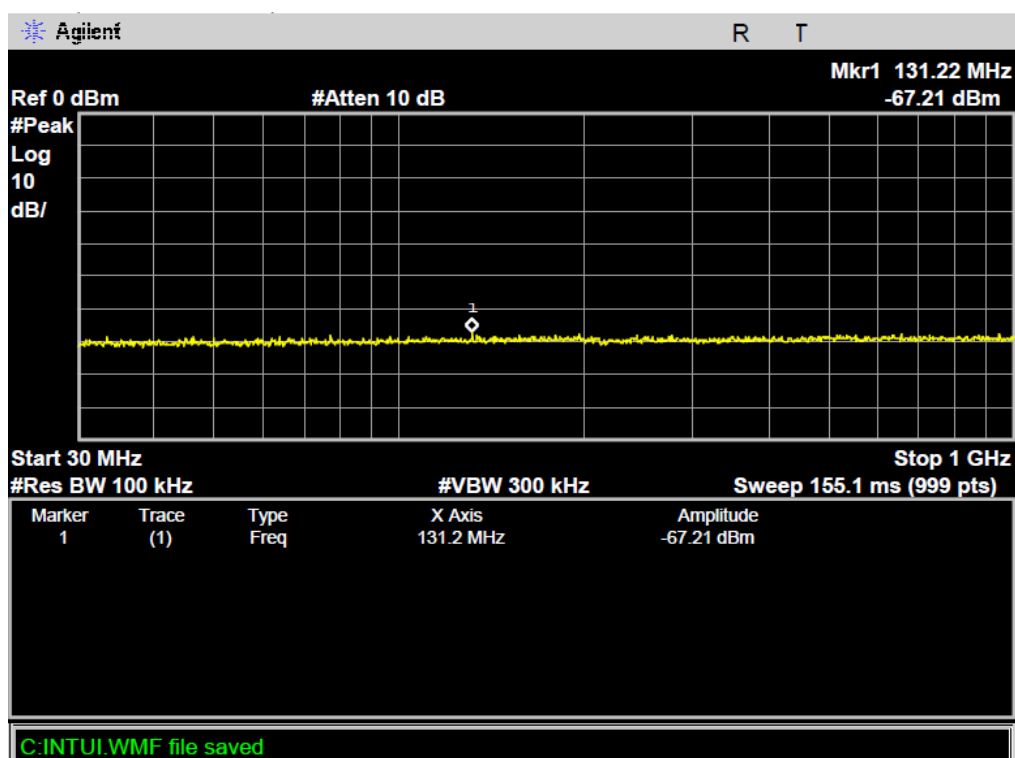
## BLE Channel Low 2402MHz



## BLE Channel Middle 2440MHz



## BLE Channel High 2480MHz



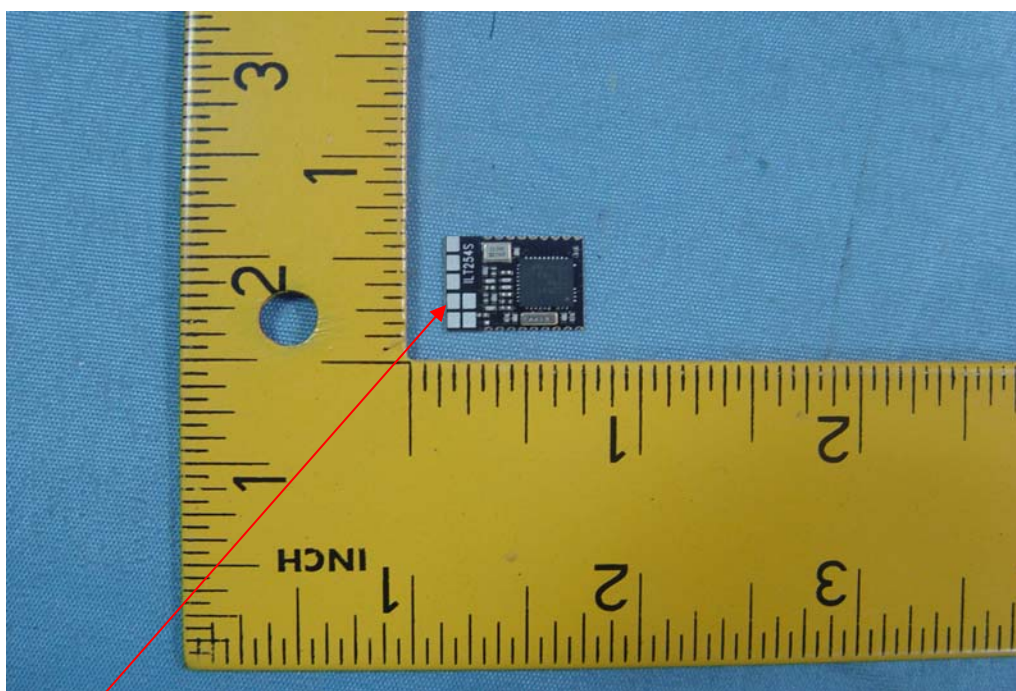
## 11.ANTENNA REQUIREMENT

### 11.1.The Requirement

According to Section 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.

### 11.2.Antenna Construction

Device is equipped with unique antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna