

TEST REPORT No.: (5210)180-0242

## TEST REPORT

To:	J. BRASCH CO.	To:	-
Attn:	Patricia Carlson	Attn:	-
Address:	140 N. 8 <sup>th</sup> Street, Suite 430, Lincoln, NE 68508, United States	Address:	-
Fax:	--	Fax:	-
E-mail:	--	E-mail:	-
Folder No.:	ECL-10JU355ETHS-B-A		

Factory name:	--
Location:	--
Product:	Base Station Monitor and Transmitter MODEL: SP200TX

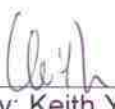
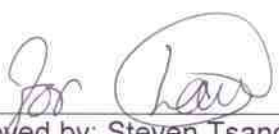


Sample No:	HK101109/005
Test date:	September 24, 2010 To October 20, 2010
Test Requested:	FCC Part 15 - 2009
Test Method:	ANSI C63.4 - 2003
FCC ID:	YJZ20072020

The results given in this report are related to the tested specimen of the described electrical apparatus.

**CONCLUSION:** The submitted sample was found to COMPLY with requirement of FCC Part 15 Subpart C.

Authorized Signature:

	
Reviewed by: Keith Yeung	Approved by: Steven Tsang
Date: November 22, 2010	Date: November 22, 2010

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## TEST REPORT No.: (5210)180-0242

### Location of the test laboratory

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at :

### BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE

No. 2106-2107, 21/F., Westin Centre,  
26 Hung To Road,  
Kwun Tong, Kowloon,  
Hong Kong

### List of measuring equipment

#### Radiated Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	06-SEP-2011
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	02-AUG-2011
OPEN AREA TEST SITE	BVCPS	N/A	N/A	05-JULY-2011
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	06-JULY-2011
HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D-692	20-JULY-2011
PREAMPLIFIER	SCHWARZBECK	BBV9718	9718-152	26-JULY-2011
COAXIAL CABLE	SUHNER	N/A	N/A	07-DEC-2010

#### Conducted Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	06-SEP-2011
LISN	R&S	ENV216	100024	09-MAR-2011

#### Remarks:-

N/A : Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result

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### Equipment Under Test [EUT]

#### Description of Sample:

Model Name: Base Station Monitor and Transmitter  
Model Number: SP200TX  
Rating: 100-240Va.c. 50/60Hz – 6Vd.c. (AC/DC adaptor)  
3.6Vd.c. (Rechargeable battery x 1)

#### Description of EUT Operation:

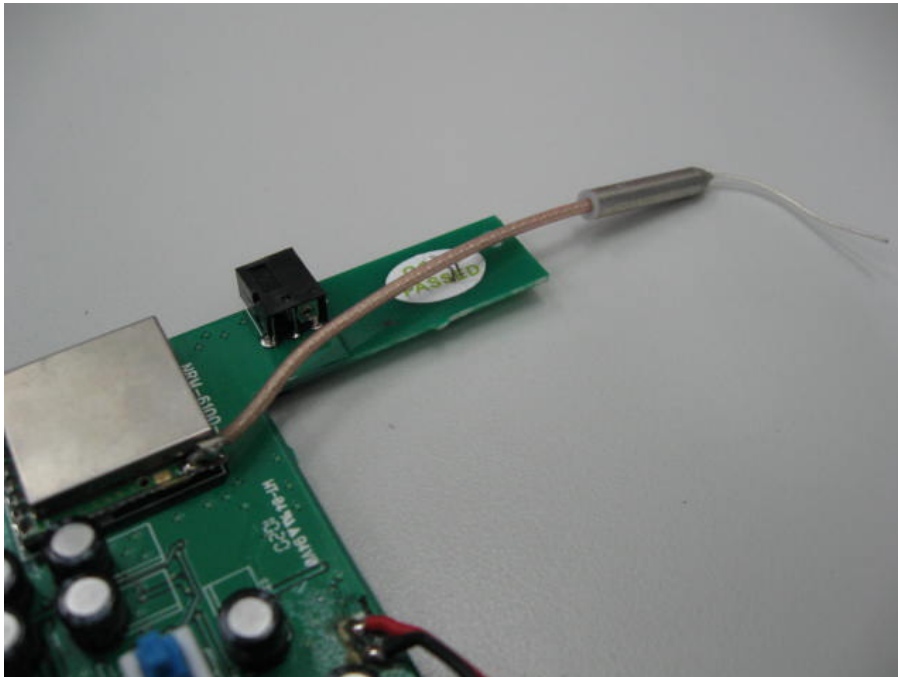
The Equipment Under Test (EUT) is a J. BRASCH CO. of Base Station Transceiver. It is a one-switch and three buttons transceiver and operating at 2422MHz to 2451MHz. The EUT continues to transmit while “Attendant Call Cord” jack is unplugged. It is using FHSS, total 30 channels, and Modulation by IC, type is pulse modulation. The lowest, middle & highest frequency had tested and the results are shown in the report.

The transmitter has different control:

1. Floor / Bed Switch – Sensor detection
2. Power button – Control power on / off
3. Attendant Call button – Control Attendant call (buzzer) on / off
4. ID code setting button – ID code setting

#### Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. The antenna consists of 12cm long metal wire. It is soldered on the PCB. The antenna is not replaceable or user serviceable. The requirements of S15.203 are met. There are no deviations or exceptions to the specifications.



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### Test Results

#### Emission

#### Conducted Emissions (150kHz to 30MHz)

Test Requirement:	FCC Part 15 Section 15.207
Test Method:	ANSI C63.4
Test Limits:	Class B
Test Date(s):	2010-09-27
Temperature:	25.0 °C
Humidity:	53.0 %
Atmospheric Pressure:	100.5 kPa
Mode of Operation:	Charge and Transmission mode
Tested Voltage:	117Va.c., 60Hz – 6Vd.c. (AC/DC adaptor) 3.6Vd.c. (Rechargeable battery x 1)

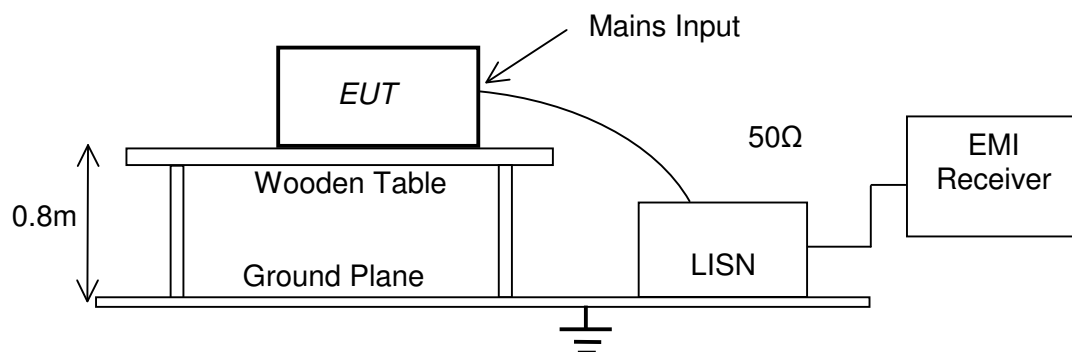
#### Test Procedure:

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2003. The EUT was setup as described in the procedures, and both lines were measured.

Initial measurements were performed in peak and average detection modes on the live and neutral line, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Location: Shielding Room, No. 603, 6/F., Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

#### Test Setup:



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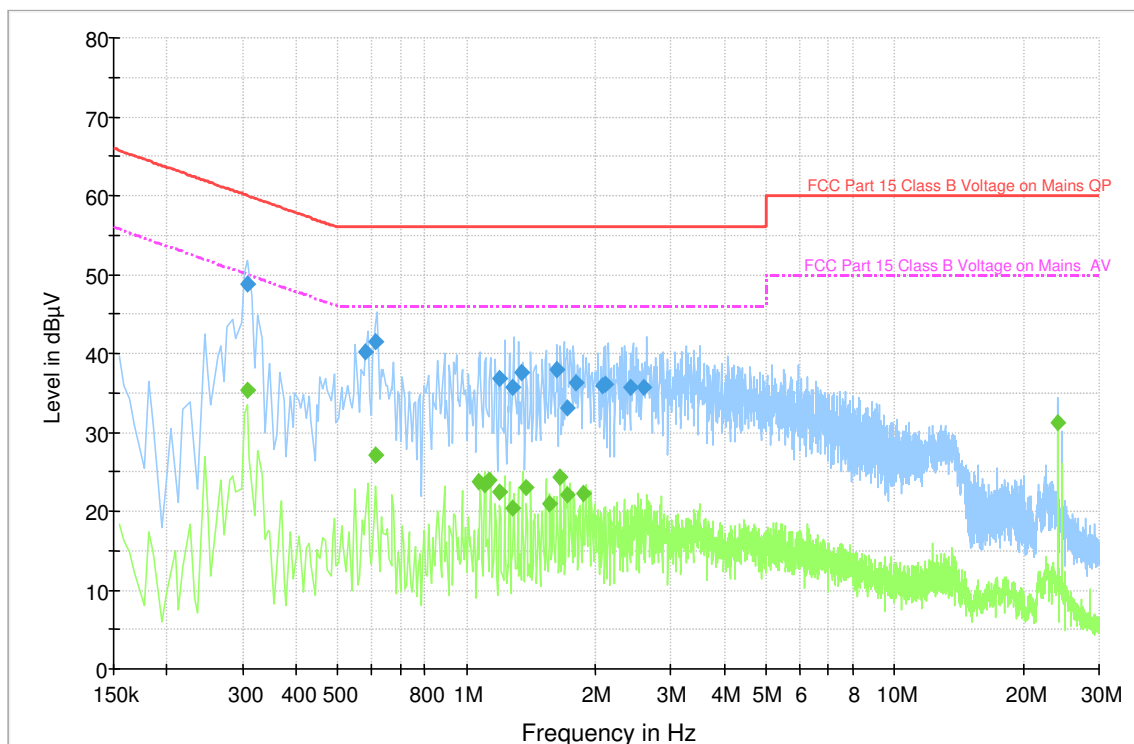
**Measurement Data: Live**

**Test Result of (Charge and Transmission mode): PASS**

### Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

FCC Part 15 Class B Voltage



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### Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following tables.

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB $\mu$ V)
0.307500	48.8	9.000	L1	11.2	60.0
0.582000	40.1	9.000	L1	15.9	56.0
0.613500	41.5	9.000	L1	14.5	56.0
1.194000	36.7	9.000	L1	19.3	56.0
1.284000	35.7	9.000	L1	20.3	56.0
1.347000	37.5	9.000	L1	18.5	56.0
1.621500	37.9	9.000	L1	18.1	56.0
1.720500	33.0	9.000	L1	23.0	56.0
1.801500	36.2	9.000	L1	19.8	56.0
2.080500	35.9	9.000	L1	20.1	56.0
2.112000	36.1	9.000	L1	19.9	56.0
2.418000	35.7	9.000	L1	20.3	56.0
2.602500	35.7	9.000	L1	20.3	56.0

Frequency (MHz)	Average (dB $\mu$ V)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dB $\mu$ V)
0.307500	35.3	9.000	L1	14.7	50.0
0.613500	27.1	9.000	L1	18.9	46.0
1.072500	23.7	9.000	L1	22.3	46.0
1.099500	23.4	9.000	L1	22.6	46.0
1.131000	23.9	9.000	L1	22.1	46.0
1.194000	22.5	9.000	L1	23.5	46.0
1.284000	20.4	9.000	L1	25.6	46.0
1.378500	23.1	9.000	L1	22.9	46.0
1.558500	20.9	9.000	L1	25.1	46.0
1.653000	24.3	9.000	L1	21.7	46.0
1.716000	22.0	9.000	L1	24.0	46.0
1.869000	22.2	9.000	L1	23.8	46.0
24.000000	31.3	9.000	L1	18.7	50.0



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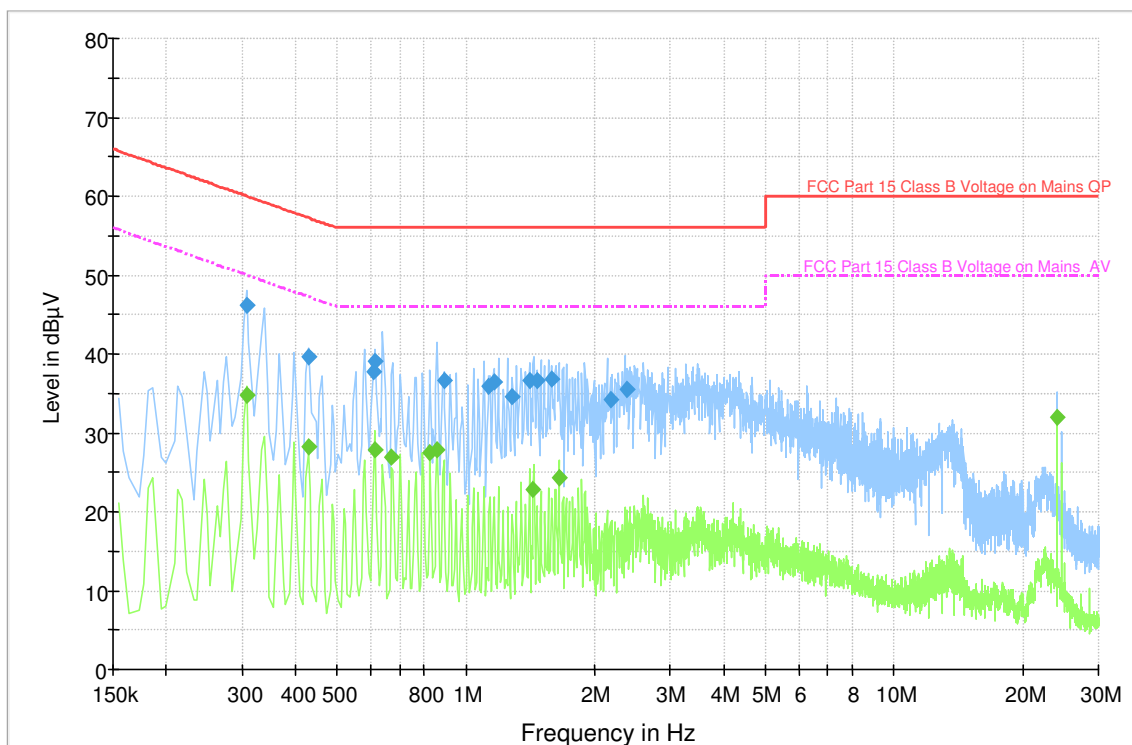
Measurement Data: Neutral

Test Result of (Charge and Transmission mode): PASS

### Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

FCC Part 15 Class B Voltage



## TEST REPORT No.: (5210)180-0242

### Results and limit lines for Conducted Emission:

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following tables.

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dBμV)
0.307500	46.2	9.000	N	13.8	60.0
0.429000	39.6	9.000	N	17.7	57.3
0.609000	37.8	9.000	N	18.2	56.0
0.613500	39.0	9.000	N	17.0	56.0
0.888000	36.7	9.000	N	19.3	56.0
1.131000	35.9	9.000	N	20.1	56.0
1.162500	36.5	9.000	N	19.5	56.0
1.284000	34.5	9.000	N	21.5	56.0
1.405500	36.7	9.000	N	19.3	56.0
1.468500	36.6	9.000	N	19.4	56.0
1.590000	36.8	9.000	N	19.2	56.0
2.175000	34.2	9.000	N	21.8	56.0
2.386500	35.5	9.000	N	20.5	56.0

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Margin (dB)	Limit (dBμV)
0.307500	34.8	9.000	N	15.2	50.0
0.429000	28.2	9.000	N	19.1	47.3
0.613500	27.9	9.000	N	18.1	46.0
0.672000	27.0	9.000	N	19.0	46.0
0.825000	27.5	9.000	N	18.5	46.0
0.856500	27.9	9.000	N	18.1	46.0
1.437000	22.8	9.000	N	23.2	46.0
1.653000	24.2	9.000	N	21.8	46.0
24.000000	31.9	9.000	N	18.1	50.0



## TEST REPORT No.: (5210)180-0242

### Test Results

#### Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.249  
Test Method: ANSI C63.4  
Test Date(s): 2010-10-14  
Temperature: 28.0 °C  
Humidity: 75.0 %  
Atmospheric Pressure: 100.4 kPa  
Mode of Operation: Charge and Transmission mode  
Tested Voltage: 117Va.c., 60Hz – 6Vd.c. (AC/DC adaptor)  
3.6Vd.c. (Rechargeable battery x 1)

#### Test Procedure:

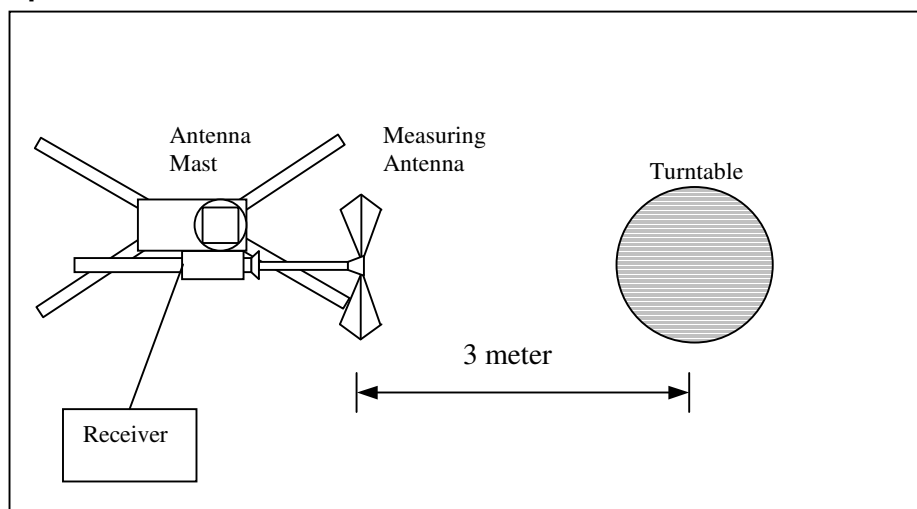
Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables. For battery operated equipment, the equipment tests shall be performed using new battery. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.

Location: The Roof, Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

#### Test Setup: Open Area Test Site



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### Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission (Quasi-Peak) [mV/m]	Field Strength of Harmonics Emission (Average) [μV/m]
2400-2483.5	50	500

### Measurement Data

**Test Result of (Charge and Transmission mode, Lowest frequency): PASS**

#### Detection mode: Peak

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2422.033	V	330°	-3.2	94.9	114.0	-19.1

#### Detection mode: # Average

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2422.033	V	330°	-3.2	**84.4	94.0	-9.6

# For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

\*\*Duty Cycle Correction =  $20\log(0.3) = -10.5\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz  
VBW = 1MHz

## TEST REPORT No.: (5210)180-0242

### Measurement Data

**Test Result of (Charge and Transmission mode, Middle frequency): PASS**

**Detection mode: Peak**

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2437.04	V	330°	-3.3	97.0	114.0	-17.0

**Detection mode: # Average**

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2437.04	V	330°	-3.3	**86.5	94.0	-7.5

**Test Result of (Charge and Transmission mode, Highest frequency): PASS**

**Detection mode: Peak**

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2451.03	V	330°	-3.3	97.6	114.0	-16.4

**Detection mode: # Average**

Frequency (MHz)	Polarity (H/V) and degree	EUT Orientation	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2451.03	V	330°	-3.3	**87.1	94.0	-6.9

# For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

\*\*Duty Cycle Correction =  $20\log(0.3) = -10.5\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz  
VBW = 1MHz



## TEST REPORT No.: (5210)180-0242

### Radiated Emissions (Spurious Emission)

Test Requirement: FCC Part 15 Section 15.249  
Test Method: ANSI C63.4  
Test Date(s): 2010-10-14  
Temperature: 28.0 °C  
Humidity: 75.0 %  
Atmospheric Pressure: 100.4 kPa  
Mode of Operation: Charge and Transmission mode  
Tested Voltage: 117Va.c., 60Hz – 6Vd.c. (AC/DC adaptor)  
3.6Vd.c. (Rechargeable battery x 1)

### Measurement Data

**Test Result of (Charge and Transmission mode, Lowest frequency): PASS**

#### Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
4844.066	H	2.9	53.2	74.0	-20.8
7266.099	H	10.2	48.5	74.0	-25.5
9688.132	H	11.1	50.7	74.0	-23.3
12110.165	H	16.5	52.8	74.0	-21.2
14532.198	V	23.6	56.2	74.0	-17.8
16954.231	H	21.9	58.6	74.0	-15.4
19376.264	H	23.7	58.9	74.0	-15.1
21798.297	H	25.2	58.6	74.0	-15.4
24220.330	H	26.3	59.1	74.0	-14.9

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz  
VBW = 1MHz



## TEST REPORT No.: (5210)180-0242

### Measurement Data

Test Result of (Charge and Transmission mode, Lowest frequency): **PASS**

Detection mode: # Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
4844.066	H	2.9	**42.7	54.0	-11.3
7266.099	H	10.2	**38.0	54.0	-16.0
9688.132	H	11.1	**40.2	54.0	-13.8
12110.165	H	16.5	**42.3	54.0	-11.7
14532.198	V	23.6	**45.7	54.0	-8.3
16954.231	H	21.9	**48.1	54.0	-5.9
19376.264	H	23.7	**48.4	54.0	-5.6
21798.297	H	25.2	**48.1	54.0	-5.9
24220.330	H	26.3	**48.6	54.0	-5.4

# For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

\*\*Duty Cycle Correction =  $20\text{Log}(0.3) = -10.5\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz  
VBW = 1MHz

## TEST REPORT No.: (5210)180-0242

### Measurement Data

**Test Result of (Charge and Transmission mode, Middle frequency): PASS**

#### Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
4874.08	H	2.9	53.4	74.0	-20.6
7311.12	H	10.7	47.9	74.0	-26.1
9748.16	H	11.4	51.9	74.0	-22.1
12185.20	H	16.5	53.0	74.0	-21.0
14622.24	H	23.5	55.9	74.0	-18.1
17059.28	V	22.1	58.3	74.0	-15.7
19496.32	V	23.9	58.6	74.0	-15.4
21933.36	H	25.3	58.7	74.0	-15.3
24370.40	H	26.6	58.9	74.0	-15.1

#### Detection mode: # Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
4874.08	H	2.9	**42.9	54.0	-11.1
7311.12	H	10.7	**37.4	54.0	-16.6
9748.16	H	11.4	**41.4	54.0	-12.6
12185.20	H	16.5	**42.5	54.0	-11.5
14622.24	H	23.5	**45.4	54.0	-8.6
17059.28	V	22.1	**47.8	54.0	-6.2
19496.32	V	23.9	**48.1	54.0	-5.9
21933.36	H	25.3	**48.2	54.0	-5.8
24370.40	H	26.6	**48.4	54.0	-5.6

# For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

\*\*Duty Cycle Correction =  $20\log(0.3) = -10.5\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz

VBW = 1MHz

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## TEST REPORT No.: (5210)180-0242

### Measurement Data

**Test Result of (Charge and Transmission mode, Highest frequency): PASS**

#### Detection mode: Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
4902.06	H	3.0	52.5	74.0	-21.5
7353.09	H	10.7	47.6	74.0	-26.4
9804.12	H	11.9	50.7	74.0	-23.3
12255.15	H	15.6	54.0	74.0	-20.0
14706.18	V	23.0	56.4	74.0	-17.6
17157.21	H	23.1	58.5	74.0	-15.5
19608.24	H	24.1	58.6	74.0	-15.4
22059.27	V	25.2	59.2	74.0	-14.8
24510.30	V	27.0	58.7	74.0	-15.3

#### Detection mode: # Average

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
4902.06	H	3.0	**42.0	54.0	-12.0
7353.09	H	10.7	**37.1	54.0	-16.9
9804.12	H	11.9	**40.2	54.0	-13.8
12255.15	H	15.6	**43.5	54.0	-10.5
14706.18	V	23.0	**45.9	54.0	-8.1
17157.21	H	23.1	**48.0	54.0	-6.0
19608.24	H	24.1	**48.1	54.0	-5.9
22059.27	V	25.2	**48.7	54.0	-5.3
24510.30	V	27.0	**48.2	54.0	-5.8

# For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

\*\*Duty Cycle Correction =  $20\log(0.3) = -10.5\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 1MHz

VBW = 1MHz

## TEST REPORT No.: (5210)180-0242

### Radiated Emissions (30MHz – 18GHz)

Test Requirement: FCC Part 15 Section 15.209  
 Test Method: ANSI C63.4  
 Test Date(s): 2010-10-20  
 Temperature: 27.0 °C  
 Humidity: 69.0 %  
 Atmospheric Pressure: 101.2 kPa  
 Mode of Operation: Charge and Transmission mode / Charge and Receiver mode  
 Tested Voltage: 117Va.c., 60Hz – 6Vd.c. (AC/DC adaptor)  
 3.6Vd.c. (Rechargeable battery x 1)

#### Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above960	500

### Measurement Data

**Test Result of (Charge and Transmission mode): PASS**

#### Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
48.00	V	27.9	40.0	-12.1
96.00	V	25.3	43.5	-18.2
144.00	H	32.7	43.5	-10.8
192.00	H	35.6	43.5	-7.9
240.00	H	37.7	46.0	-8.3
288.00	H	36.2	46.0	-9.8

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz  
 VBW = 120KHz



**TEST REPORT No.: (5210)180-0242**  
**Measurement Data**

**Test Result of (Charge and Receiver mode, Lowest frequency): PASS**

**Detection mode: Peak**

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2422.033	V	36.5	74.0	-37.5
4844.066	V	42.5	74.0	-31.5
7266.099	H	51.9	74.0	-22.1
9688.132	V	50.4	74.0	-23.6
12110.165	H	58.1	74.0	-15.9
14532.198	V	63.8	74.0	-10.2

**Detection mode: Average**

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2422.033	H	20.4	54.0	-33.6
4844.066	V	27.4	54.0	-26.6
7266.099	V	37.5	54.0	-16.5
9688.132	V	36.9	54.0	-17.1
12110.165	H	41.1	54.0	-12.9
14532.198	H	48.7	54.0	-5.3

Note: Field Strength includes Antenna Factor and Cable Loss.

During the test shall be used to radiate an unmodulated CW signal to a superregenerative receiver at its operating frequency in order to "cohere" or to resolve the individual components of the characteristic broadband emissions from such a receiver. The level of the signal may need to be increased for this to occur.

Receiver setting (30-1000MHz): RBW = 120KHz  
VBW = 120KHz

Receiver setting (1-18GHz) :RBW = 1MHz  
VBW = 1MHz



**TEST REPORT No.: (5210)180-0242**  
**Measurement Data**

**Test Result of (Charge and Receiver mode, Middle frequency): PASS**

**Detection mode: Peak**

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2437.04	V	36.1	74.0	-37.9
4874.08	H	43.1	74.0	-30.9
7311.12	H	52.1	74.0	-21.9
9748.16	H	51.8	74.0	-22.2
12185.20	V	56.5	74.0	-17.5
14622.24	H	62.4	74.0	-11.6

**Detection mode: Average**

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2437.04	H	20.6	54.0	-33.4
4874.08	H	27.8	54.0	-26.2
7311.12	H	37.5	54.0	-16.5
9748.16	H	36.9	54.0	-17.1
12185.20	H	41.8	54.0	-12.2
14622.24	H	48.9	54.0	-5.1

Note: Field Strength includes Antenna Factor and Cable Loss.

During the test shall be used to radiate an unmodulated CW signal to a superregenerative receiver at its operating frequency in order to "cohere" or to resolve the individual components of the characteristic broadband emissions from such a receiver. The level of the signal may need to be increased for this to occur.

Receiver setting (30-1000MHz): RBW = 120KHz  
VBW = 120KHz

Receiver setting (1-18GHz) :RBW = 1MHz  
VBW = 1MHz



**TEST REPORT No.: (5210)180-0242**  
**Measurement Data**

**Test Result of (Charge and Receiver mode, Highest frequency): PASS**

**Detection mode: Peak**

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2451.03	H	37.4	74.0	-36.6
4902.06	V	42.1	74.0	-31.9
7353.09	V	52.4	74.0	-21.6
9804.12	V	52.8	74.0	-21.2
12255.15	H	56.5	74.0	-17.5
14706.18	H	64.5	74.0	-9.5

**Detection mode: Average**

Frequency (MHz)	Polarity (H/V)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
2451.03	V	21.0	54.0	-33.0
4902.06	H	27.7	54.0	-26.3
7353.09	V	38.7	54.0	-15.3
9804.12	H	38.1	54.0	-15.9
12255.15	V	41.6	54.0	-12.4
14706.18	H	48.3	54.0	-5.7

Note: Field Strength includes Antenna Factor and Cable Loss.

During the test shall be used to radiate an unmodulated CW signal to a superregenerative receiver at its operating frequency in order to "cohere" or to resolve the individual components of the characteristic broadband emissions from such a receiver. The level of the signal may need to be increased for this to occur.

Receiver setting (30-1000MHz): RBW = 120KHz  
VBW = 120KHz

Receiver setting (1-18GHz) :RBW = 1MHz  
VBW = 1MHz



## TEST REPORT No.: (5210)180-0242

### Frequency range of Fundamental Emission

Test Requirement: FCC 47 CFR 15.249  
Test Method: ANSI C63.4:2003 (Section 13.1.7)  
Test Date(s): 2010-09-24  
Temperature: 24.0 °C  
Humidity: 71.0 %  
Atmospheric Pressure: 100.6 kPa  
Mode of Operation: Transmission mode  
Tested Voltage: 117Va.c., 60Hz – 6Vd.c. (AC/DC adaptor)  
3.6Vd.c. (Rechargeable battery x 1)

### Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

### Limits for Frequency range of Fundamental Emission:

Frequency [MHz]	FCC Limits [MHz]
2422.03 – 2451.03	2400 – 2483.5



# TEST REPORT No.: (5210)180-0242

## Measurement Data :

Test Result of Frequency Range of Fundamental Emission: PASS



24.Sep 10 11:31

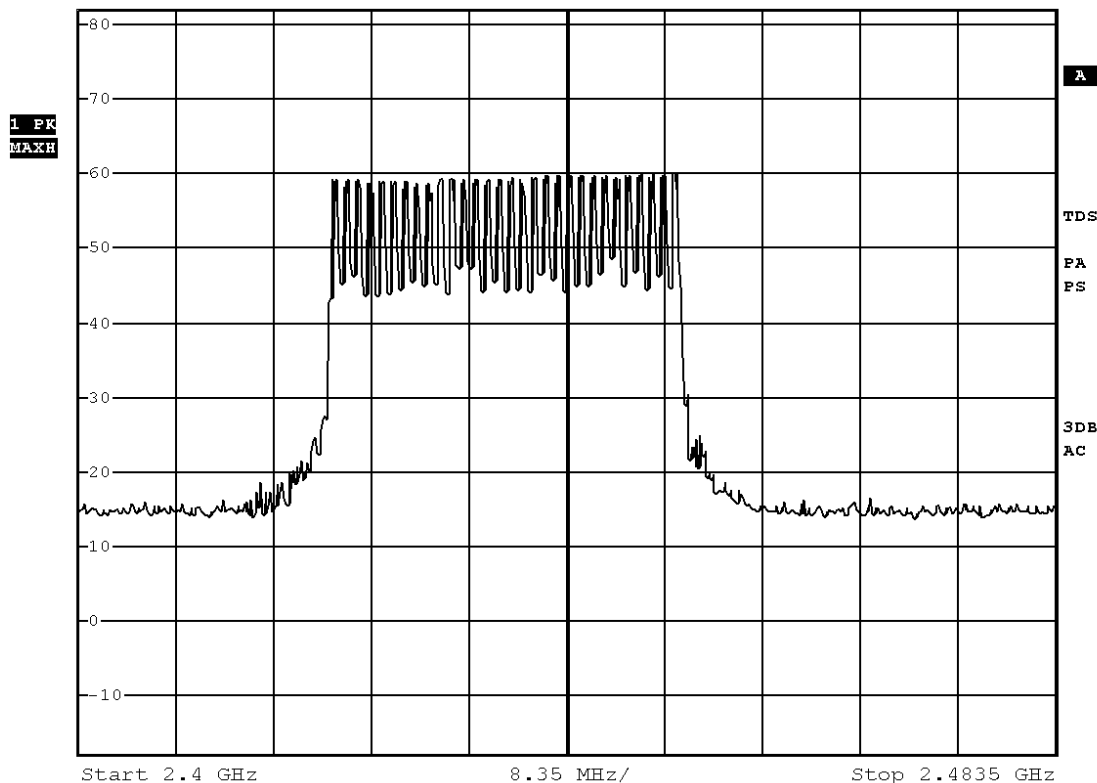
Ref 82 dBμV/m

\*Att 10 dB

\*RBW 100 kHz

VBW 300 kHz

SWT 10 ms



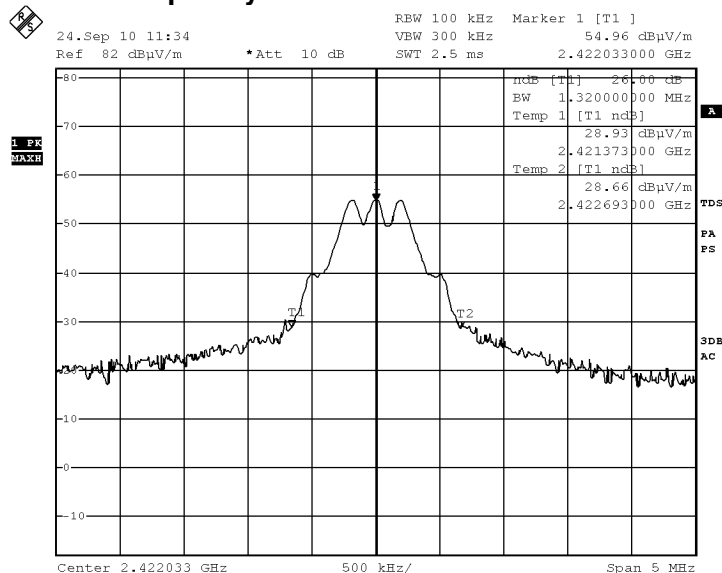
Date: 24.SEP.2010 11:31:06

# TEST REPORT No.: (5210)180-0242

## Measurement Data :

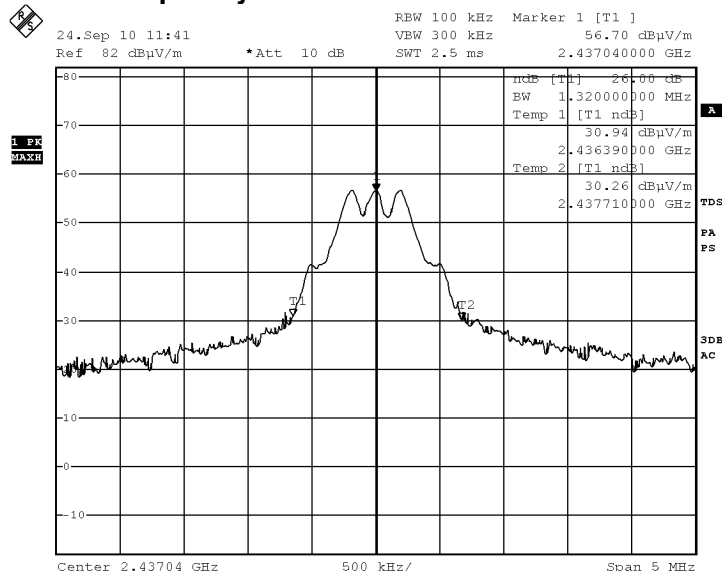
**Test Result of 26dB bandwidth of Fundamental Emission: PASS**

### Lowest frequency:



Date: 24.SEP.2010 11:34:19

### Middle frequency:

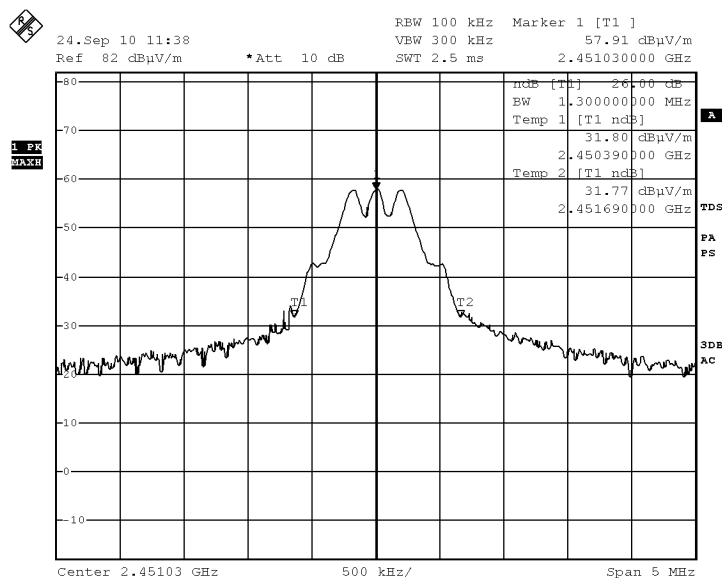


Date: 24.SEP.2010 11:41:46

**TEST REPORT No.: (5210)180-0242**  
**Measurement Data :**

**Test Result of 26dB bandwidth of Fundamental Emission: PASS**

**Highest frequency:**



Date: 24.SEP.2010 11:38:53



## TEST REPORT No.: (5210)180-0242

### Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (100msec) never exceeds a series of 25 pulses (1.2msec). Assuming any combination of short or long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered  $(25 \times 1.2)\text{msec}$  per 100msec = 30% duty cycle. Figure A to C show the characteristics of the pulse train for one of these functions.

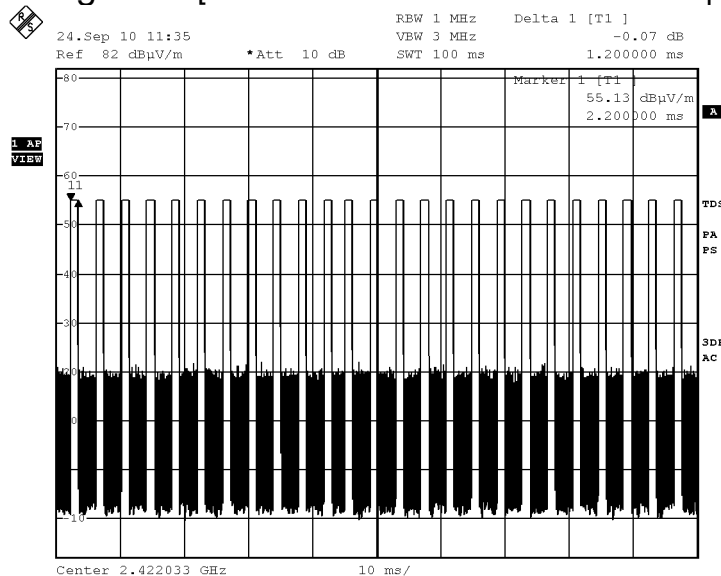
Remarks:

Duty Cycle Correction =  $20\text{Log}(0.3) = -10.5\text{dB}$

The following figures [Figure A to Figure C] show the characteristics of the pulse train for one of these functions.

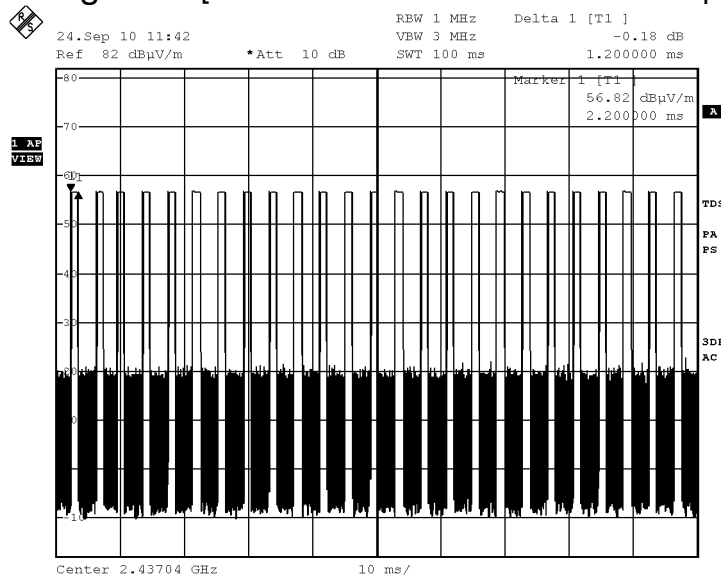
## TEST REPORT No.: (5210)180-0242

**Figure A [Pulse Train of 100ms – Lowest frequency]**



Date: 24.SEP.2010 11:35:47

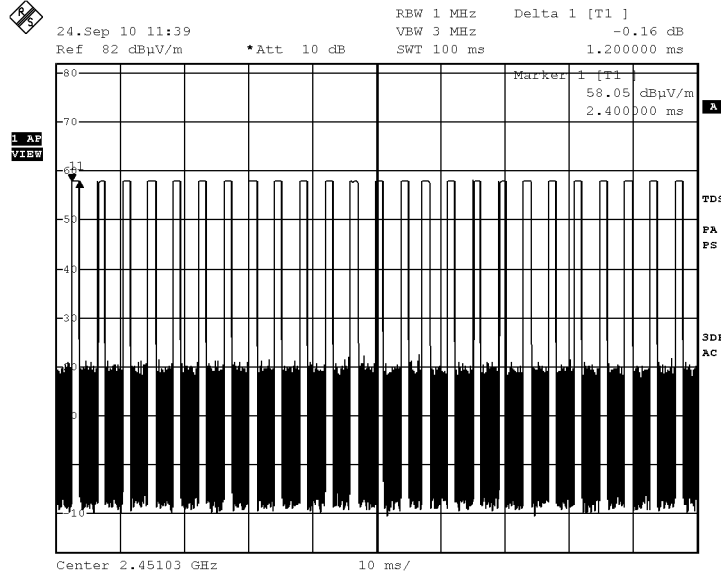
**Figure B [Pulse Train of 100ms – Middle frequency]**



Date: 24.SEP.2010 11:42:47

## TEST REPORT No.: (5210)180-0242

Figure A [Pulse Train of 100ms – Highest frequency]



Date: 24.SEP.2010 11:39:54



## TEST REPORT No.: (5210)180-0242

### Photographs of EUT

**Front View of the product**



**Rear View of the product**



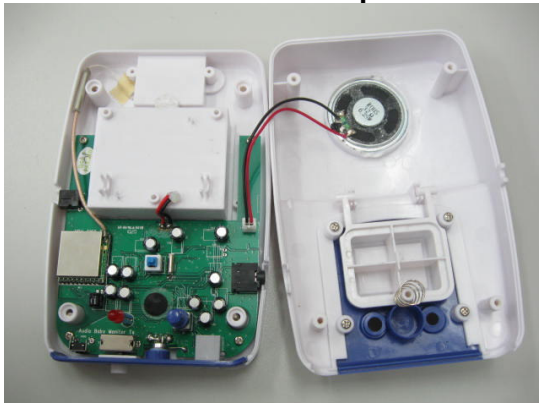
**Battery Compartment**



**Battery Cover**



**Internal View of the product**



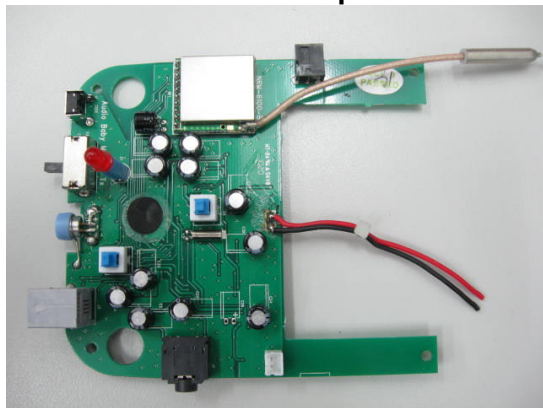
**Internal View of the product**



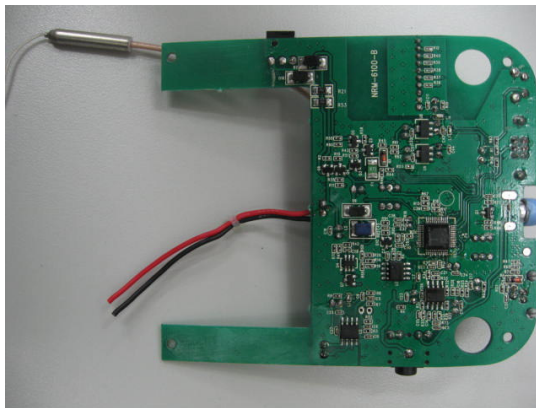
## TEST REPORT No.: (5210)180-0242

### Photographs of EUT

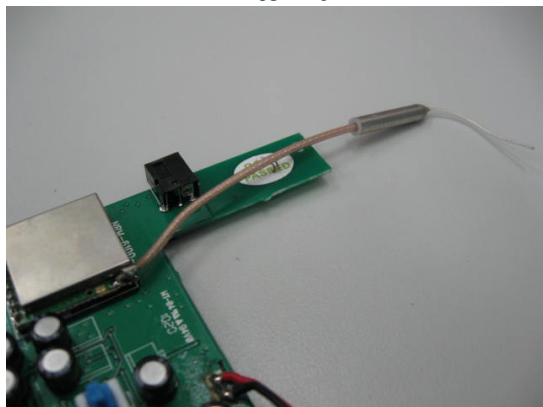
**Inner Circuit Top View**



**Inner Circuit Bottom View**



**Antenna**

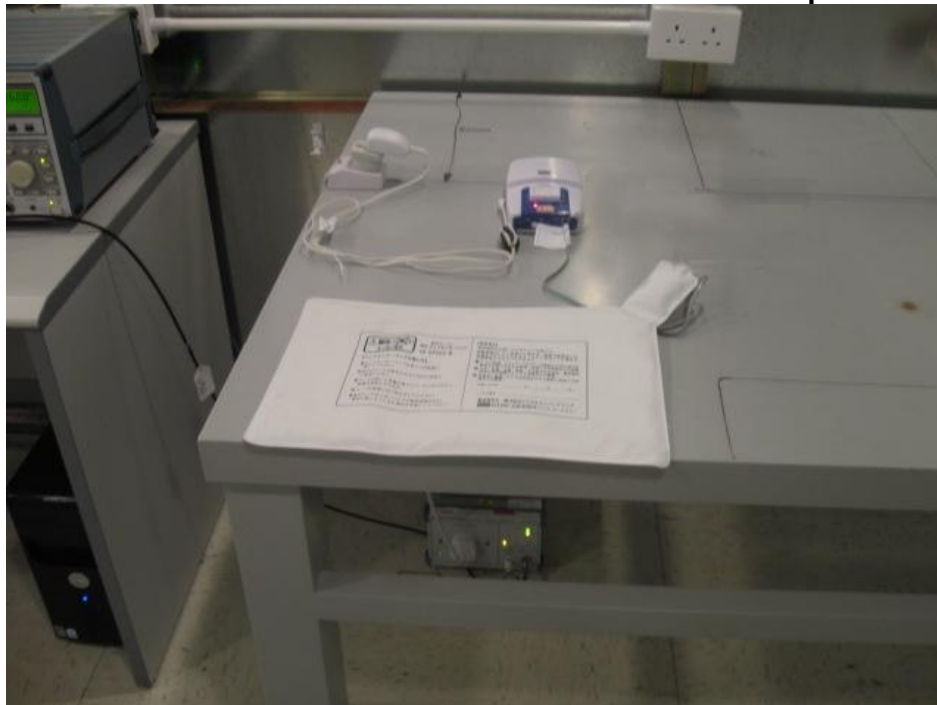


**AC/DC adaptor**



**TEST REPORT No.: (5210)180-0242**

**Measurement of Conducted Emission Test Set Up**



**Measurement of Radiated Emission Test Set Up**



**\*\*\*\*\* End of Report \*\*\*\*\***