

FCC TEST REPORT

REPORT NO.: RF130906C09

MODEL NO.: AP001

FCC ID: 2AA5H-AP001 RECEIVED: Sep. 06, 2013 TESTED: Sep. 18, 2013 ISSUED: Sep. 30, 2013

APPLICANT: BioSensics LLC

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ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)

Ltd., Taoyuan Branch

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Taipei City, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei

Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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Table of Contents

RELEAS	SE CONTROL RECORD	3
1	CERTIFICATION	
2	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	5
3	GENERAL INFORMATION	6
3.1	GENERAL DESCRIPTION OF EUT	6
3.2	DESCRIPTION OF TEST MODES	6
3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	7
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	8
3.4	DESCRIPTION OF SUPPORT UNITS	9
3.4.1	CONFIGURATION OF SYSTEM UNDER TEST	9
4	TEST PROCEDURE AND RESULT	10
4.1	RADIATED EMISSION MEASUREMENT	
4.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT	10
4.1.2	TEST INSTRUMENT	11
4.1.3	TEST PROCEDURE	
4.1.4	TEST SETUP	
4.1.5	EUT OPERATING CONDITION	13
4.1.6	TEST RESULTS	
4.2	20dB OCCUPIED BANDWIDTH MEASUREMENT	
4.2.1	LIMITS OF EMISSION BANDWIDTH MEASUREMENT	
4.2.2	TEST INSTRUMENT	
4.2.3	TEST PROCEDURE	
4.2.4	DEVIATION FROM TEST STANDARD	
4.2.5	TEST SETUP	
4.2.6	TEST RESULTS	
4.3	DEACTIVATION TIME	
4.3.1	LIMITS OF DEACTIVATION TIME MEASUREMENT	_
4.3.2	TEST INSTRUMENTS	
4.3.3	TEST PROCEDURES	
4.3.4	DEVIATION FROM TEST STANDARD	
4.3.5	TEST SETUP	
4.3.6	TEST RESULTS	
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	
6	INFORMATION ON THE TESTING LABORATORIES	
7	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE	
	EUT BY THE LAB	25



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130906C09	Original release	Sep. 30, 2013

Report No.: RF130906C09 3 of 25 Report Format Version 5.0.0



1 CERTIFICATION

PRODUCT: Active Fall Detection Pendant

MODEL: AP001

BRAND: BioSensics

APPLICANT: BioSensics LLC

TESTED: Sep. 18, 2013

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.231)

ANSI C63.10-2009

The above equipment (model: AP001) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : 1/4 Chi , DATE: Sep. 30, 2013

Polly Cmen / Specialist

Ken Liu / Senior Manager



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.231)						
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK			
15.207	AC Power Conducted Emission	N/A	Power supply is 3Vdc from battery.			
15.209 15.231(b)	Radiated Emission Test		Meet the requirement of limit. Minimum passing margin is –0.4dB at 345.00MHz.			
15.231(c)	Emission Bandwidth Measurement	PASS	Meet the requirement of limit.			
15.231(a)	15.231(a) De-activation		Meet the requirement of limit.			

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY	
Radiated emissions	30MHz ~ 200MHz	2.93 dB	
	200MHz ~1000MHz	2.95 dB	
	1GHz ~ 18GHz	2.26 dB	
	18GHz ~ 40GHz	1.94 dB	

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT Active Fall Detection Pendant			
MODEL NO.	AP001		
POWER SUPPLY	3Vdc (Coin-Battery CR2450 x1)		
MODULATION TYPE	ASK		
CARRIER FREQUENCY	345MHz		
NUMBER OF CHANNEL	1		
DATA CABLE	N/A		
I/O PORTS	N/A		
ANTENNA TYPE	PCB antenna with -5dBi gain (Peak gain)		
ANTENNA CONNECTOR	NA		
ACCESSORY DEVICE	Device inside Coin-battery of CR2450 and with a hang rope connected Device		

NOTE: The above EUT information is declared by manufacturer and for more detailed feature description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

One channel was provided to this EUT.

CHANNEL	FREQUENCY
1	345MHz



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE	APPLICABLE TO				DESCRIPTION	
MODE	RE≥1G	RE < 1G	PLC	EB	DT	DESCRIPTION
-	V	V	NOTE	V	√	-

Where **RE** ≥ **1G**: Radiated Emission above 1GHz

RE < 1G: Radiated Emission below 1GHz
EB: 20dB Bandwidth measurement

PLC: Power Line Conducted Emission **DT**: Deactivation Time measurement

NOTE: 1. No need to concern of Conducted Emission due to the EUT is powered by battery.

2. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

RADIATED EMISSION TEST (ABOVE 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations.
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	
1	1	ASK	

RADIATED EMISSION TEST (BELOW 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations.
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE
1	1	ASK

EMISSION BANDWIDTH MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations.
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	
1	1	ASK	

DEACTIVATION TIME MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations.
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	
1	1	ASK	

Report No.: RF130906C09 7 of 25 Report Format Version 5.0.0



TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	3Vdc	Ted Chang
RE<1G	25deg. C, 65%RH	3Vdc	Ted Chang
EB	25deg. C, 65%RH	3Vdc	Ted Chang
DT	25deg. C, 65%RH	3Vdc	Ted Chang

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.231) ANSI C63.10-2009

All test items have been performed and recorded as per the above standards.

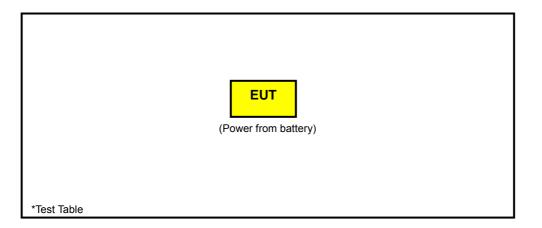
NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST





4 TEST PROCEDURE AND RESULT

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to 15.231 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental	Field Strength	of Fundamental	Field Strength of Spurious		
Frequency (MHz)	uV/meter	dBuV/meter	uV/meter	dBuV/meter	
40.66 ~ 40.70	2250	67.04	225	48.04	
70 ~ 130	1250	61.94	125	41.94	
130 ~ 174	1250 ~ 3750	61.94 ~ 71.48	125 ~ 375	41.94 ~ 51.48	
174 ~ 260	3750	71.48	75	37.50	
260 ~ 470	3750 ~ 12500	71.48 ~ 81.94	375 ~ 1250	51.48 ~ 61.94	
Above 470	12500	81.94	1250	61.94	

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.1.2 TEST INSTRUMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 16, 2012	Nov. 15, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 28, 2013	Jan. 27, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Mar. 22, 2013	Mar. 21, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	209	Sep. 12, 2013	Sep. 11, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01911	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10638	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309222/4 248780/4 274392/4	Aug. 22, 2013	Aug. 21, 2014
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 11, 2013	Aug. 10, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA	NA

NOTE:

- 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 3. The test was performed in HwaYa Chamber 9.
- 4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 5. The FCC Site Registration No. is 215374.
- 6. The IC Site Registration No. is IC 7450F-9.



4.1.3 TEST PROCEDURE

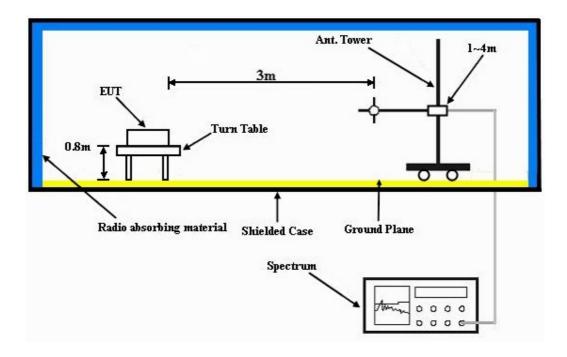
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

NOTE:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. All modes of operation were investigated and the worst-case emissions are reported.



4.1.4 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.5 EUT OPERATING CONDITION

Set the EUT under transmission condition continuously at specific channel frequency.



4.1.6 TEST RESULTS

ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 4GHz	
INPUT POWER	3Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Ted Chang	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	1035.00	44.20 PK	77.3	-33.1	1.00 H	26	54.90	-10.70
2	1035.00	40.70 AV	57.3	-16.6	1.00 H	26	51.40	-10.70
3	1380.00	39.20 PK	77.3	-38.1	1.11 H	80	47.60	-8.40
4	1380.00	28.50 AV	57.3	-28.8	1.11 H	80	36.90	-8.40
5	1725.00	45.50 PK	77.3	-31.8	1.71 H	98	51.60	-6.10
6	1725.00	40.80 AV	57.3	-16.5	1.71 H	98	46.90	-6.10
7	2415.00	53.20 PK	77.3	-24.1	1.38 H	126	56.60	-3.40
8	2415.00	50.60 AV	57.3	-6.7	1.38 H	126	54.00	-3.40
	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	Y & TEST DI	STANCE: V ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	T 3 M RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
NO.	FREQ. (MHz)	EMISSION LEVEL	LIMIT		ANTENNA	TABLE ANGLE	RAW VALUE	FACTOR
	,	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m)
1	1035.00	EMISSION LEVEL (dBuV/m) 48.30 PK	LIMIT (dBuV/m)	MARGIN (dB) -29.0	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m) -10.70
1 2	1035.00 1035.00	EMISSION LEVEL (dBuV/m) 48.30 PK 46.10 AV	LIMIT (dBuV/m) 77.3 57.3	-29.0 -11.2	ANTENNA HEIGHT (m) 1.02 V 1.02 V	TABLE ANGLE (Degree) 119	RAW VALUE (dBuV) 59.00 56.80	FACTOR (dB/m) -10.70 -10.70
1 2 3	1035.00 1035.00 1380.00	EMISSION LEVEL (dBuV/m) 48.30 PK 46.10 AV 39.80 PK	LIMIT (dBuV/m) 77.3 57.3 77.3	-29.0 -11.2 -37.5	ANTENNA HEIGHT (m) 1.02 V 1.02 V 1.30 V	TABLE ANGLE (Degree) 119 119 336	RAW VALUE (dBuV) 59.00 56.80 48.20	FACTOR (dB/m) -10.70 -10.70 -8.40
1 2 3 4	1035.00 1035.00 1380.00 1380.00	EMISSION LEVEL (dBuV/m) 48.30 PK 46.10 AV 39.80 PK 30.90 AV	LIMIT (dBuV/m) 77.3 57.3 77.3 57.3	-29.0 -11.2 -37.5 -26.4	ANTENNA HEIGHT (m) 1.02 V 1.02 V 1.30 V	TABLE ANGLE (Degree) 119 119 336 336	FAW VALUE (dBuV) 59.00 56.80 48.20 39.30	FACTOR (dB/m) -10.70 -10.70 -8.40 -8.40
1 2 3 4 5	1035.00 1035.00 1380.00 1380.00 1725.00	EMISSION LEVEL (dBuV/m) 48.30 PK 46.10 AV 39.80 PK 30.90 AV 49.00 PK	LIMIT (dBuV/m) 77.3 57.3 77.3 57.3 77.3	-29.0 -11.2 -37.5 -26.4 -28.3	ANTENNA HEIGHT (m) 1.02 V 1.02 V 1.30 V 1.30 V 1.00 V	TABLE ANGLE (Degree) 119 119 336 336 96	RAW VALUE (dBuV) 59.00 56.80 48.20 39.30 55.10	FACTOR (dB/m) -10.70 -10.70 -8.40 -8.40 -6.10

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

- 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
 - Pre-Amplifier Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



BELOW 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER	3Vdc	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Ted Chang	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*345.00	77.0 PK	97.3	-20.3	1.00 H	107	60.70	16.30
2	*345.00	76.9 AV	77.3	-0.4	1.00 H	107	60.6	16.30
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*345.00	62.8 PK	97.3	-34.5	1.00 V	323	46.50	16.30
2	*345.00	62.2 AV	77.3	-15.1	1.00 V	323	45.9	16.30

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

- 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
 - Pre-Amplifier Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " * ": Fundamental frequency



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER	3Vdc	DETECTOR FUNCTION	Peak/Average /Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Ted Chang	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.94	28.3 QP	57.3	-29.0	1.00 H	54	44.80	-16.50
2	31.94	33.1 PK	77.3	-44.2	1.00 H	54	49.60	-16.50
3	169.68	20.4 QP	57.3	-36.9	1.03 H	15	34.50	-14.10
4	169.68	25.5 PK	77.3	-51.8	1.03 H	15	39.60	-14.10
5	335.40	20.4 QP	57.3	-36.9	1.02 H	125	32.00	-11.60
6	335.40	25.3 PK	77.3	-52.0	1.02 H	125	36.90	-11.60
7	345.00	77.0 PK	97.3	-20.3	1.00 H	107	88.50	-11.50
8	345.00	76.9 AV	77.3	-0.4	1.00 H	107	88.40	-11.50
9	399.90	22.1 QP	57.3	-35.2	1.06 H	254	32.60	-10.50
10	399.90	27.1 PK	77.3	-50.2	1.06 H	254	37.60	-10.50
11	575.14	27.1 QP	57.3	-30.2	1.00 H	249	34.10	-7.00
12	575.14	32.0 PK	77.3	-45.3	1.00 H	249	39.00	-7.00
13	690.00	34.2 QP	77.3	-43.1	1.16 H	78	39.30	-5.10
14	690.00	-27.0 AV	57.3	-30.3	1.16 H	78	32.10	-5.10

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
- Pre-Amplifier Factor (dB)

- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " * " : Fundamental frequency



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 1		FREQUENCY RANGE	Below 1000MHz	
INPUT POWER	3Vdc	DETECTOR FUNCTION	Peak/Average /Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Ted Chang	

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	33.88	34.3 QP	57.3	-23.0	1.24 V	19	50.30	-16.00
2	33.88	39.1 PK	77.3	-38.2	1.24 V	19	55.10	-16.00
3	152.22	20.4 QP	57.3	-36.9	1.00 V	222	34.10	-13.70
4	152.22	25.3 PK	77.3	-52.0	1.00 V	222	39.00	-13.70
5	335.40	20.1 QP	57.3	-37.2	1.00 V	264	31.60	-11.50
6	335.40	25.1 PK	77.3	-52.2	1.00 V	264	36.60	-11.50
7	345.00	62.8 PK	97.3	-34.5	1.00 V	323	74.20	-11.40
8	345.00	62.2 AV	77.3	-15.1	1.00 V	323	73.6	-11.40
9	399.90	21.1 QP	57.3	-36.2	1.03 V	325	31.50	-10.40
10	399.90	26.1 PK	77.3	-51.2	1.03 V	325	36.50	-10.40
11	592.60	29.1 QP	57.3	-28.2	1.99 V	2	35.40	-6.30
12	592.60	34.2 PK	77.3	-43.1	1.99 V	2	40.50	-6.30
13	690.00	33.7 PK	77.3	-43.6	1.23 V	254	38.50	-4.80
14	690.00	26.9 AV	57.3	-30.4	1.23 V	254	31.7	-4.80

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

- 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
 - Pre-Amplifier Factor (dB)
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " * " : Fundamental frequency



4.2 20dB OCCUPIED BANDWIDTH MEASUREMENT

4.2.1 LIMITS OF EMISSION BANDWIDTH MEASUREMENT

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for device operating above 70 MHz and below 900 MHz.

FUNDAMENTAL FREQUENCY (MHz)	LIMIT OF EMISSION BANDWIDTH (kHz)		
345	787.5		

4.2.2 TEST INSTRUMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100040	Jul. 19, 2013	Jul. 18, 2014

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST PROCEDURE

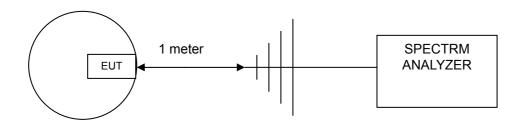
- a. The EUT was placed on the turn table.
- b. The signal was coupled to the spectrum analyzer through an antenna.
- c. Set the resolution bandwidth to 10kHz and video bandwidth to 30kHz then select Peak function to scan the channel frequency.
- d. The emission bandwidth was measured and recorded.



4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

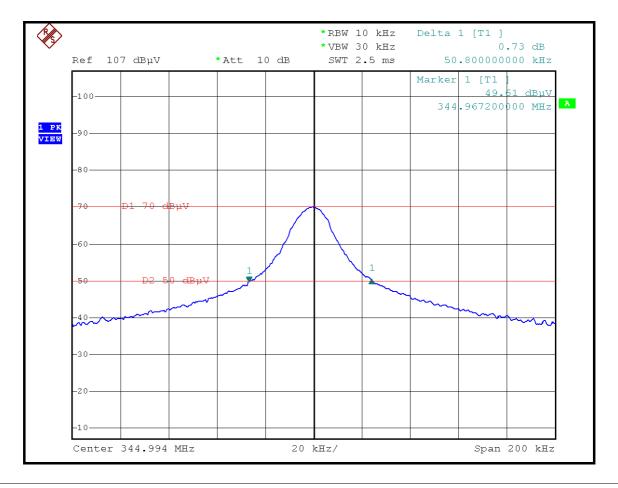
4.2.5 TEST SETUP



4.2.6 TEST RESULTS

FRE	EQUENCY (MHz)	20dB BANDWIDTH (kHz)	MAXIMUM LIMIT (kHz)	PASS/FAIL
	344.994	50.8	787.5	PASS

The plot of test result is attached as below.





4.3 DEACTIVATION TIME

4.3.1 LIMITS OF DEACTIVATION TIME MEASUREMENT

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100040	Jul. 19, 2013	Jul. 18, 2014

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST PROCEDURES

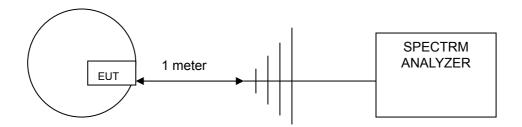
- a. The EUT was placed on the turning table.
- b. The signal was coupled to the spectrum analyzer through an antenna.
- c. Set the resolution bandwidth to 10kHz and video bandwidth to 30kHz. The spectrum analyzer was turned to the centre frequency of the transmitter's and the analyzer's marker function was used to determine the duration of transmission.
- d. The transmission duration was measured and recorded.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.



4.3.5 TEST SETUP

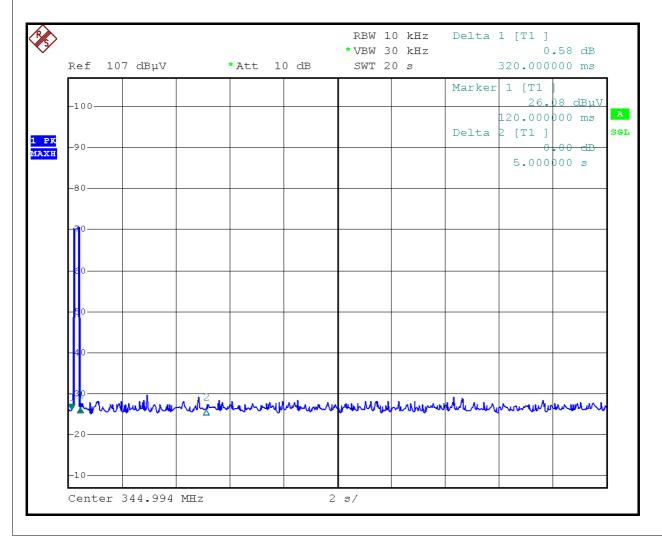


4.3.6 TEST RESULTS

For manually operated

PUSH BUTTON	FREQUENCY (MHz)	MAXIMUM LIMIT (sec)	PASS/FAIL
1	344.994	5	PASS

The plots of test results are attached as below.

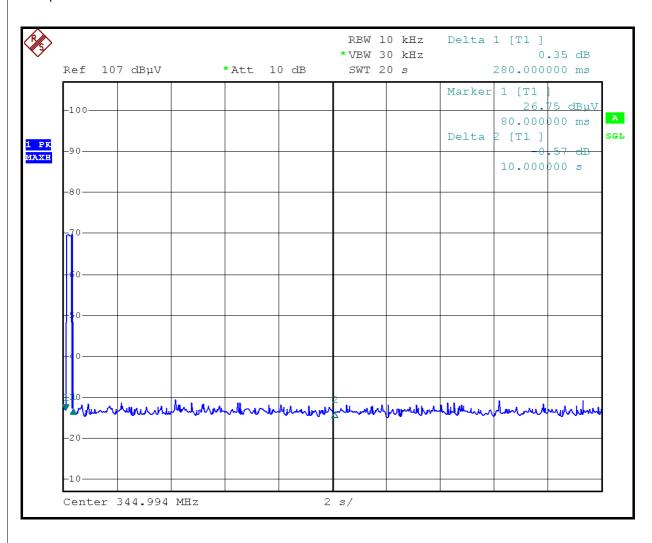




For automatic operated

PUSH BUTTON	FREQUENCY (MHz)	MAXIMUM LIMIT (sec)	PASS/FAIL
1	344.994	10	PASS

The plots of test results are attached as below.





5 PHOTOGRAPHS OF THE TEST CONFIGURATION
Please refer to the attached file (Test Setup Photo).



6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.



7 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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