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Report No. 140805-2a

Compliance Testing Report of the "Zero Wire Alarm System" to FCC Part 15 (B) Class B (ANSI C63.4:2003) and FCC part 15 (C) Para 15.249 (ANSI C63.4:2003)

for

UHS Systems Pty Ltd

Prepared by: _____ Michael Matevski

Reviewed by: _____ Geoff Garrett

Date: 13th November 2014

Contents

1. Client Information

Company: UHS Pty Ltd
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2. Equipment Under Test (EUT)

2.1 Identification of EUT

Equipment Description:	A security alarm system
Model:	Zero Wire
Module Number:	ZW-6400H
Make:	UHS
Supply:	16 VAC 60 Hz (through an AC Adapter)

2.2 Accessory Equipment

AC Adapter:	Make: ZB, Model Number: ZB-A090020A-J
Supply Rating:	120 VAC, 60 Hz

2.3 Auxiliary Equipment

Ethernet Switch: Make - Linksys, Model - SD205

2.4 Operating Conditions of EUT

The tests were performed with the EUT powered by the AC Adapter. The EUT was orientated manually during the test for maximum emissions. The internal GSM and short range wireless modules were operational during testing.

3. Test Specifications

3.1 Standard Selected

ANSI C63.4:2003 was selected to demonstrate compliance with the applicable EMC requirements of FCC Part 15 (B) Class B and FCC Part 15 (C) Para 15.249, as the EUT is within the scope of this standard, and ANSI C63.4 is the preferred method of compliance with 47CFR Part 15 rules.

3.2 Changes from the Selected Standard

None

3.3 Test Facility

All EMI tests reported within this document were performed by EMC Services Pty Ltd measurement facility located at the following location:

Laboratory and Open Area Test Site:	Hampton Grove Rydal Road Hampton, NSW, Australia, 2790 10m open area test site (OATS), equipped with 360 degree remote control turntable and 6 metre remote control antenna mast.

A description of the test facility is on file with the FCC under Registration # **480861** and with Industry Canada under site number # **2815A-1**

3.4 Test Equipment

Test equipment used is from the list below. All equipment was within the current calibration period and/or confirmed to be within the specified uncertainty.

Description	Model number	Serial number	Calibration due date
Spectrum analyser	HP 8591EM	3639A00972	5/12/2014
Spectrum analyser	E4407B	US40241411	13/11/2014
Antenna 30 MHz to 2 GHz	CBL6141A	4194	7/6/2015
Double Ridged Horn Antenna, 1 - 18 GHz	BBHA9120	198	9/1/2015
Low noise amplifier	HP8447E	1145A00199	5/12/2014
LISN	LISN15	01	15/6/2015
MCL 20dB 18GHz 5W attenuator	BW N20W5	Nil	2/5/2015
RF cable	EMCS 01	04	28/4/2015
Cable - Succoflex 104	955604/4	955665/4	10/3/2015

4. Test Summary

4.1 Emissions (unintentional) FCC Part 15 (B) Class B, (see Figures 1a to 3b)

EMC Tests	Result	Note
Conducted Emissions	***Pass***	-
Radiated Emissions	***Pass***	-

4.2 Radiated Emissions (intentional) to FCC part 15 (C) Para 15.249

Parameter	***Limit***	***Measured***	***Result***
Frequency :	902 – 928 MHz	908.38 MHz	***Pass***
Field Strength @ 3 meters:	94 dBµV/m at 3m	87.8 dBµV/m at 3m	***Pass***
Spurious with Tx on (30 MHz to 11 GHz)	54 dBµV/m at 3m	47 dBµV/m at 3m	***Pass***

The results in this report apply only to the tested sample described in Section 2 and depicted in the photographs attached.

5. Modifications: None

6. Test Results

6.1 Test Conditions

Date of test:	4th September 2014
Temperature:	18°C
Humidity:	51%
Supply Voltage:	120 VAC, 60 Hz
Location:	Hampton Test Site
Test Officer:	M. Matevski

Emissions tests were performed in accordance with the standard referenced in Section 3.

Where the spectrum was occupied by other transmissions (i.e. ambient signals that approached or exceeded the limit), 'close-up' probing and similar investigative procedures were executed to establish the emission signature of the EUT and whether masked emissions would approach or exceed the limit at these frequencies. The EUT was operated to produce maximum emissions at all times.

6.2 Conducted Emissions

The conducted emissions were measured using a LISN on the Active/ Neutral of the mains terminal. The conducted emission plot and results are shown in figures 1a and 1b. The minimum margin for Electromagnetic Radiation Disturbance was greater than 9 dB below the respective limit.

6.3 Radiated Emissions

The radiated peak emission trace results are shown in Figures 2a and 2b. The radiated testing was performed at an antenna-to-EUT distance of 3 metres. The minimum margin for Electromagnetic Radiation Emissions was greater than 2.7 dB below the respective limit. Signals exceeding these levels in the trace results were ambient.

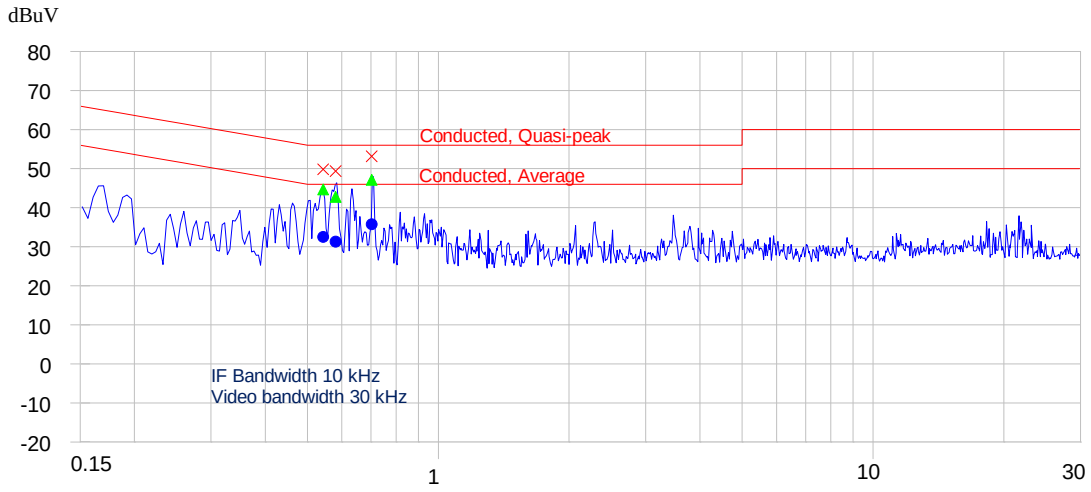
Note: The IF bandwidth of 120 KHz (impulse 6dB) was used for the radiated tests from 30 MHz to 1000 MHz, which corresponds to 100 kHz (power 3dB) shown in figures 2a and 2b.

7. Measurement Uncertainty

The uncertainty of the quantities measured or applied were within the tolerances described below:

Conducted Emissions	± 2 dB
Radiated Emissions	± 6 dB

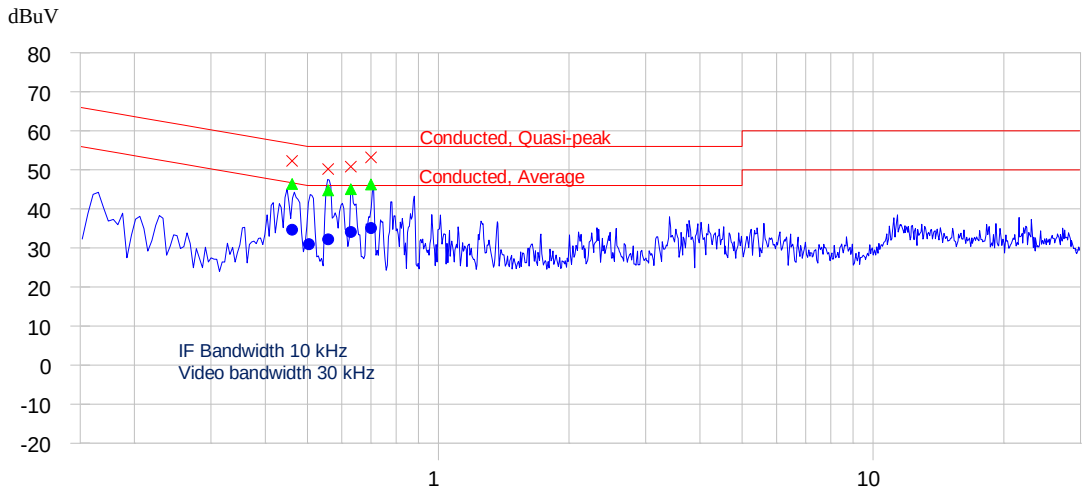
8. Test Plots



(Start = 0.15, Stop = 30.00) MHz

Frequency MHz	Peak dBuV	QP dBuV	Avg dBuV
0.544	49.8	44.7	32.5
0.580	49.3	42.8	31.3
0.703	53.1	47.1	35.8

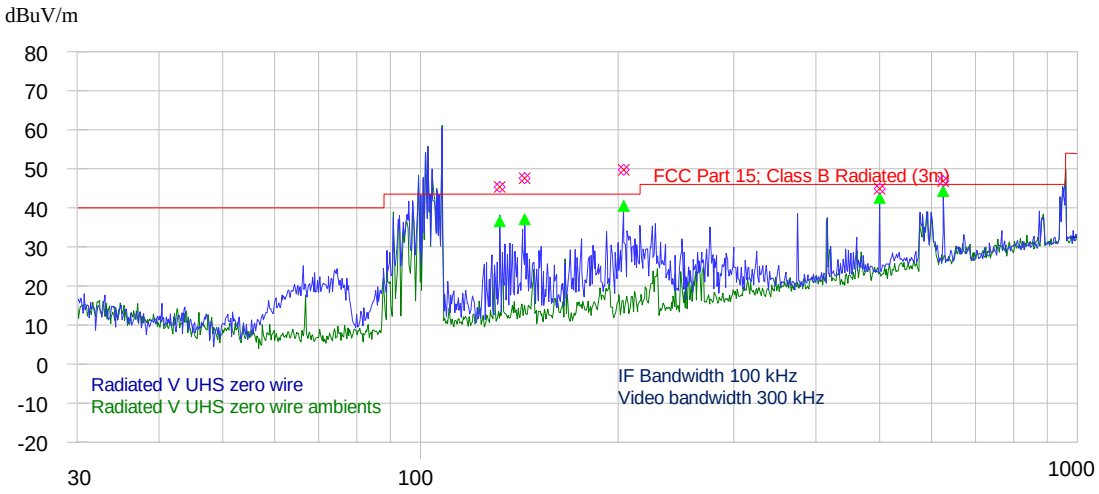
Figure 1a. Mains Conducted Emissions, 0.15 MHz to 30 MHz (Active)



(Start = 0.15, Stop = 30.00) MHz

Frequency MHz	Peak dBuV	QP dBuV	Avg dBuV
0.461	52.3	46.4	34.7
0.558	50.2	44.7	32.2
0.629	50.8	45.0	34.1
0.700	53.2	46.3	35.1

Figure 1b. Mains Conducted Emissions, 0.15 MHz to 30 MHz (Neutral)

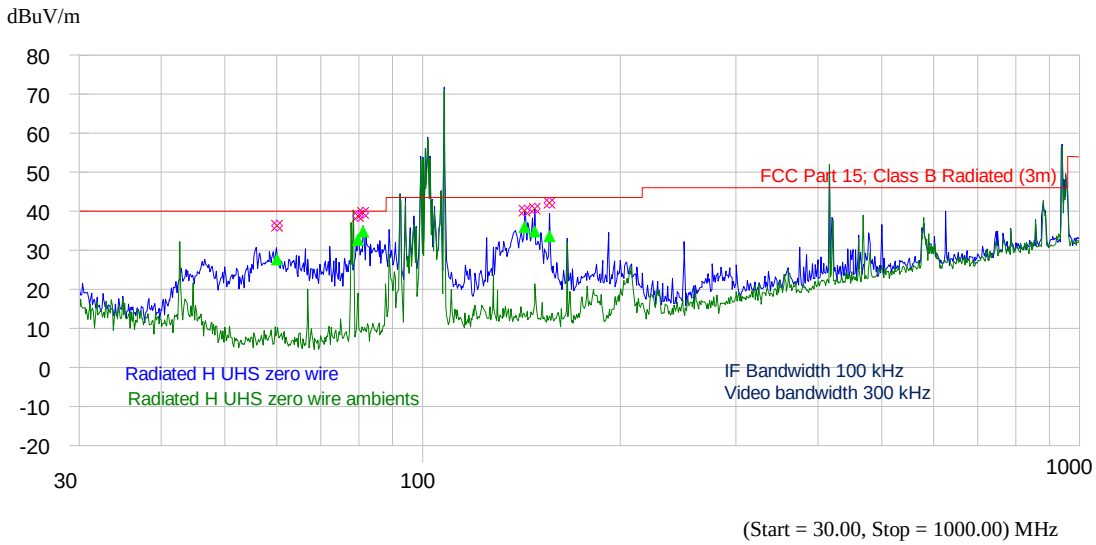


(Start = 30.00, Stop = 1000.00) MHz

Frequency MHz	Peak dBuV/m	QP dBuV/m
132.038	45.4	36.6
144.045	47.6	37.0
203.999	49.7	40.5
499.990	44.9	42.5
624.986	46.8	44.3

Note: Signals exceeding the limit level in the plot were ambients.

Figure 2a. Radiated Emissions, 30 MHz to 1000 MHz (Horizontal)



Frequency MHz	Peak dBuV/m	QP dBuV/m
60.017	36.3	27.6
79.743	38.8	32.7
81.176	39.6	34.8
142.989	40.1	35.9
148.142	40.6	34.8
155.957	42.1	33.6

Note: Signals exceeding the limit level in the plot were ambients.

Figure 2b. Radiated Emissions, 30 MHz to 1000 MHz (Vertical)

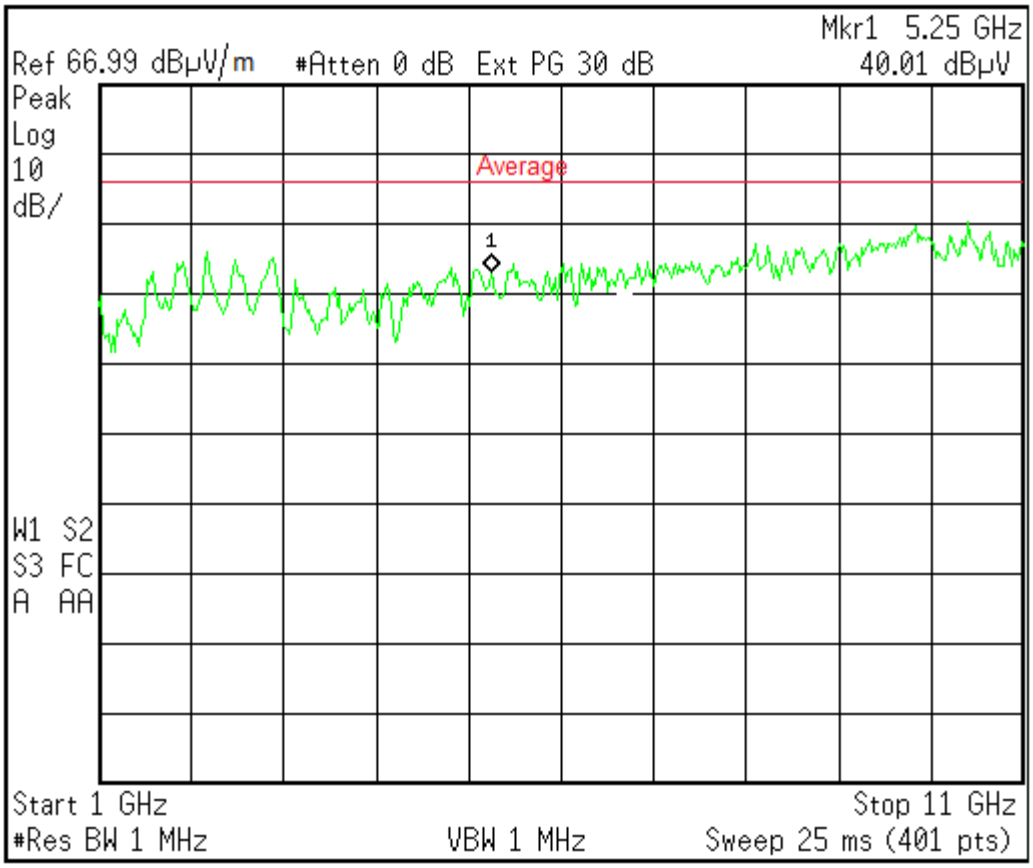


Figure 3a. Radiated Emissions, 1000 MHz to 11000 MHz (Vertical)

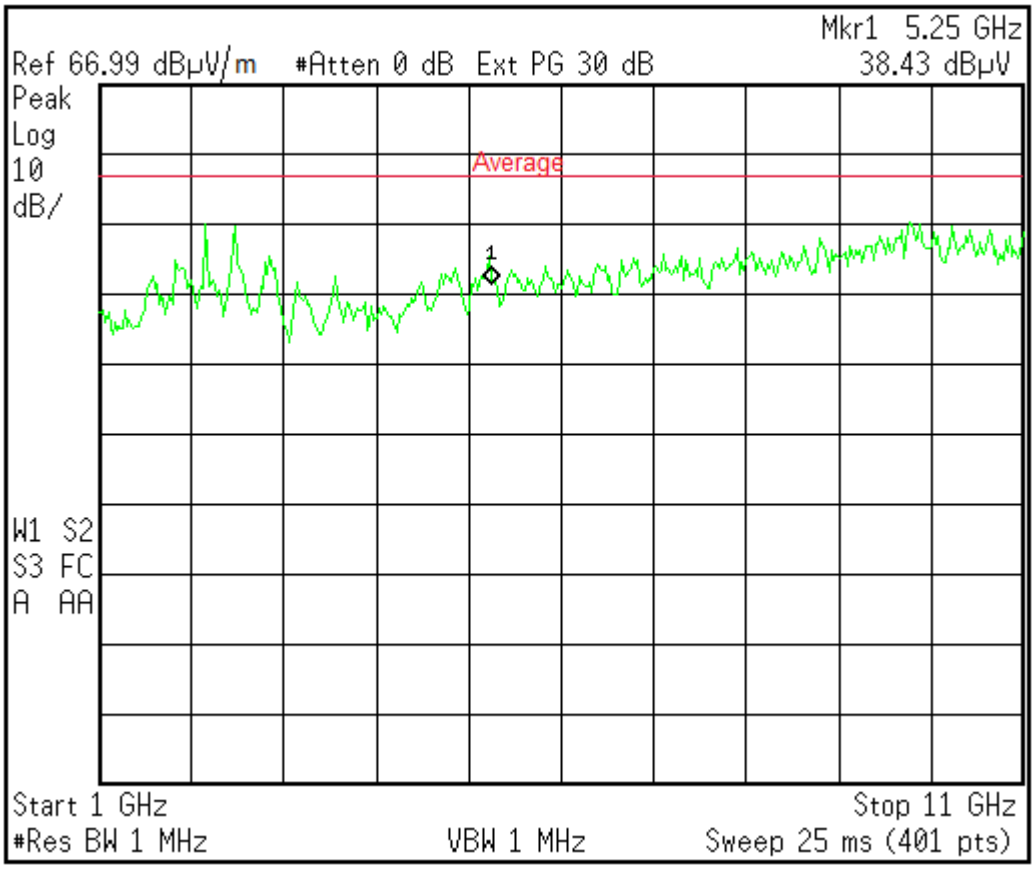
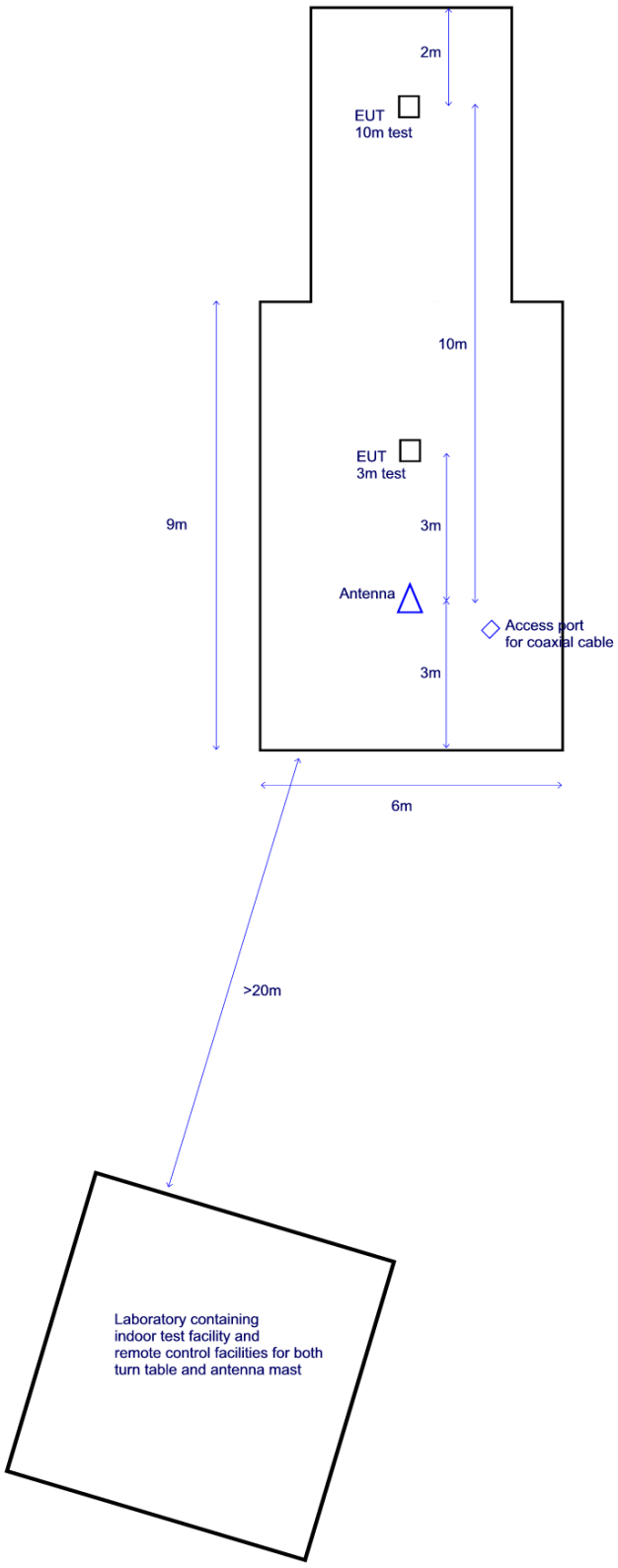


Figure 3b. Radiated Emissions, 1000 MHz to 11000 MHz (Horizontal)

9. Test Facility

EMC Services Hampton Test Facility



11. Appendices

11.1 Labelling Requirements as Specified by the Standard

FCC Part 15.19 (20th Sep 2007) requires the following label to be affixed in a conspicuous location on the device:

> This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

If the device is so small as to make placement of this label impractical, the label must be presented in a prominent location in the user documentation, or on the container in which the product is marked.

Further, Section 15.21 (20th Sep 2007) requires the following information to be provided to the user:

> The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than on paper, such as on a computer disk or over the internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

11.2 Class A Equipment Requirements

Section 15.105 (20th Sep 2007) requires the following information to be provided to the user:

For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

> NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their sole expense.

11.3 Class B Equipment Requirements

Section 15.105 (20th Sep 2007) requires the following information to be provided to the user:

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

> NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
>
> - Reorient or relocate the receiving antenna.
> - Increase the separation between the equipment and receiver.
> - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
> - Consult the dealer or an experienced radio/TV technician for help.