



For The Scope of Accreditation Under Lab Code 200897-0



Excellence in Compliance Testing

EMI Test Report

In Accordance with:

FCC 47 CFR Part 15 Subpart B

Authorization Type: Verification

Manufacturer: Motorola, Inc.

Model Covered: H98UCH9PW7AN

Model Variants: H98UCF9PW6AN, H98UCD9PW5AN

ACS Report: 10-2073.C01.11.B

Report Revision: B

Report Issue Date: September 10, 2010

Project Manager:

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Reviewed by:

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VP, Technology
Advanced Compliance Solutions, Inc.**

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This report contains 25 pages

<u>REVISION HISTORY</u> Report Number: 10-2073.C01.11.B Manufacturer: Motorola, Inc. Model: H98UCH9PW7AN
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DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
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	REVISION	REVISION		AFFECTED	BY
			Initial		Sam

September 08, 2010	---	A	Initial Release	All	Sam Wismer
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Project Information

ACS Project: 10-2073.C01.11.B

Applicant Details

Manufacturer: Motorola, Inc.
Street Address: 8000 W. Sunrise Blvd.
City, State/Province and Postal Code:
Plantation, FL 33322
Country: USA

Contact: Jimmy Zong
Phone: 954-723-5000
Fax: 954-693-7000
Email: jimmy.zong@motorola.com

Sample Information

Model: H98UCH9PW7AN
Model Variant(s): H98UCF9PW6AN, H98UCD9PW5AN
FCC ID: AZ489FT5859
IC ID: 109U-89FT5859
Product Description: FM VHF 6W two way radio, dual display, 870 channels, full keypad, encryption capable. Additional features include integrated Bluetooth transceiver, GPS receiver, and accelerometer.
Environment of Use: Residential

Sample Receive Date: August 4, 2010
Sample Receive Condition: Production Quality
Test Mode Description: The H98UCH9PW7AN (APX6000 700/800) was tested for conducted emissions requirements in continuous TX, RX and Off modes.
Highest Data Rate: 869.8875 MHz Source: TX/RX frequencies

Power Interfaces

(Check all that apply and enter power info):

- ☒ AC Mains Input 120V / 60 Hz
- ☐ AC Output N/A
- ☒ DC Input 7.5 VDC
- ☐ DC Output N/A
- ☒ Battery 7.4 VDC
- ☐ Other N/A

I/O Interfaces:

Interface Type	Quantity	Length (m)	Shielded?

Test Information

Test Start Date: August 11, 2010
Test End Date: August 13, 2010
Emissions Pre-scan Site: N/A
Final Emissions Site: N/A
EMI Freq. Band: 150 kHz - 30 MHz
Radiated Emissions Equipment Class: Class B

Project Information_(continued)

ACS Project: 10-2073.C01.11.B

Test Methods/Standards Applied

(Check all that apply):

- ☒ **ANSI C63.4-2003** - American National Standard for Methods of Measurement of Radio-Noise Emissions from low-voltage electrical and electronic equipment in the range of 9kHz to 40 GHz.
- ☒ **US Code of Federal Regulations (CFR):** Title 47, Part 15, Radio Frequency Devices, Subpart B, Unintentional Radiators (October 2009)
- ☒ **Industry Canada ICES-003 Issue 4:** Digital Apparatus (November 2004).
- ☐ **CISPR 16-2-1** - Specification for radio disturbance and immunity measuring apparatus and methods Part 2-1: Methods of measurement of disturbances and immunity-Conducted Disturbance measurement
- ☐ **CISPR 16-2-3** - Specification for radio disturbance and immunity measuring apparatus and methods Part 2-2: Methods of measurement of disturbances and immunity-Measurement of disturbance power
- ☐ **CISPR 22:2005** - Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
- ☐ **EN 55022:2006** - Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
- ☐ **EN 55011:2007** - Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
- ☐ **EN 61000-6-3:2007** Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
- ☐ **EN 61000-6-4:2007** Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments
- ☐ **AS/NZS CISPR 22:2006** - Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
- ☐ **VCCI: V-2 & V-3/2009.04** – Agreement of Voluntary Control Council for Interference by Information Technology Equipment
- ☐ **CNS 13438:2006** - CNS Limits and methods of measurement of radio interference characteristics of information technology equipment

Table of Contents

- 1.0 INTRODUCTION.....6
 - 1.1 SCOPE6
 - 1.2 PERFORMANCE CRITERIA6
- 2.0 TEST FACILITIES & ENVIRONMENT7
 - 2.1 TEST FACILITIES7
 - 2.2 LABORATORY ACCREDITATIONS/RECOGNITIONS/CERTIFICATIONS7
 - 2.3 TEST ENVIRONMENT7
- 3.0 EQUIPMENT UNDER TEST (EUT)8
 - 3.1 MANUFACTURER8
 - 3.2 MODIFICATIONS.....8
 - 3.3 SYSTEM BLOCK DIAGRAM AND SUPPORT EQUIPMENT9
 - 3.4 OBSERVATIONS.....10
- 4.0 RADIATED AND CONDUCTED EMISSIONS11
 - 4.1 RADIATED EMISSIONS.....11
 - 4.1.1 *Radiated Emissions Test Site*.....11
 - 4.2 CONDUCTED EMISSIONS.....13
 - 4.2.1 *Conducted Emissions Test Site*.....13
 - 4.2.2 *Test Equipment*14
 - 4.2.3 *Test Methodology*14
 - 4.2.4 *Test Setup Photographs*15
 - 4.2.5 *Test Data*16
- 5.0 MEASUREMENT UNCERTAINTY.....23
- 6.0 CONCLUSION.....23

LIST OF APPENDICES

APPENDIX A: MODEL VARIANTS

1.0 Introduction

1.1 Scope

This report documents conformance with the Electromagnetic Interference requirements outlined in the product information sheet and details the results of testing performed on August 11, 2010 through August 13, 2010 on the Model H98UCH9PW7AN manufactured by Motorola, Inc..

1.2 Performance Criteria

For Model H98UCH9PW7AN the limits which apply are Class B. These limits are found in Table 1.2-1 below:

Table 1.2-1 Emissions Limits Class B

Emission Type	Frequency Range ² (MHz)	Voltage limits ¹ (dBuV)
Conducted Class B	0.15 to .5	66 to 56 QP 56 to 46 Ave
	.5 to 5	56 QP 46 Ave
	5 to 30	60 QP 50 Ave
Radiated Class B @ 3 meters	30.0 to 88.0	40.0
	88.0 to 216.0	43.5
	216.0 to 960.0	46.0
	Above 960.0	54.0

1 - Decreases Linearly with Logarithm of Frequency

2 - Limits <1GHz are Quasi-Peak and Peak >1GHz

Note: Lower Limit Applies at Transition Frequency

2.0 Test Facilities & Environment

2.1 Test Facilities

All testing was performed at the following address:

Advanced Compliance Solutions, Inc.
3998 FAU Blvd, Suite 310
Boca Raton, Florida 33431
Phone: (561) 961-5585
Fax: (561) 961-5587
www.acstestlab.com

The laboratory is fully equipped to carry out the tests outlined in Section 1.0

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by the National Institute of Standards and Technology under their National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 200897-0. Unless otherwise specified, all test methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

2.3 Test Environment

Unless otherwise specified by the generic or product standard, the EUT was evaluated within the climate conditions of the EUT as specified by the manufacturer.

When the manufacturer does not specify climate parameters for the EUT, all test are performed within the ambient temperature range of 40°F to 104°F.

3.0 Equipment Under Test (EUT)

3.1 Manufacturer

Motorola, Inc.
8000 W. Sunrise Blvd.
Plantation, FL 33322

Jimmy Zong
954-723-5000
jimmy.zong@motorola.com

3.2 Modifications

Table 3.2-1 below describes any modification required to bring the EUT into compliance with the test standard.

Table 3.2-1: EUT Modifications

☒ Modifications <u>were not</u> required to bring the EUT into compliance with the requirements. ☐ Modifications <u>were</u> required to bring the EUT into compliance with the requirements.				
<u>Modification Type</u>	<u>Component/Material Description (Model)</u>	<u>Location</u>	<u>Test Required For</u>	<u>Photograph Designation</u>
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:
				Photo Number:

3.3 System Block Diagram and Support Equipment

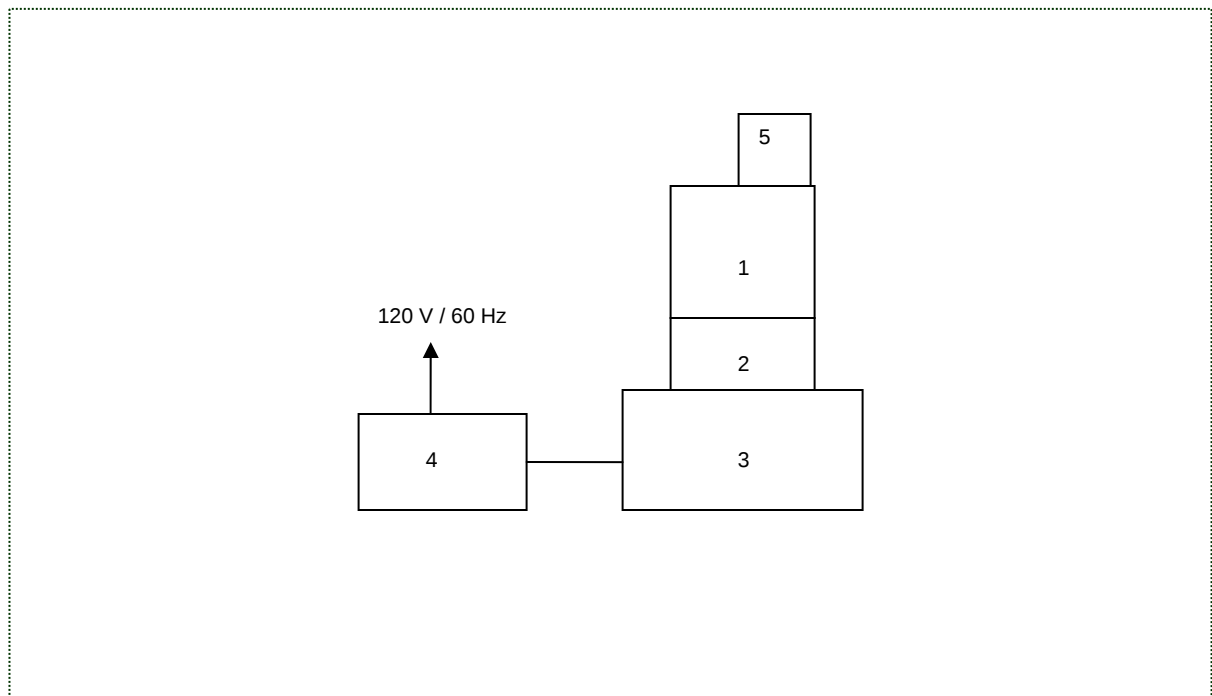


Table 3.3-1: EUT and Support Equipment Description

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	APX6000 700/800	Motorola	H98UCH9PW7AN	NUF1007A0182
2	7.4V Lithium Battery	Motorola	NNTN7038A	N/A
3	Impres Charger	Motorola	Impres NNTN7079A	8224MTK03
4	14 V Power Supply	Motorola	NU20-C140150-I3	N/A
5	Attenuator + 50 Ohm Load	Motorola	N/A	N/A
6				
7				
8				
9				

Table 3.3-2: Cable Description

Cable #	Cable Type	Length	Shield	Termination
A				
B				
C				
D				
E				
F				
G				

3.4 Observations

Any general observations regarding any part of the evaluation are given in Table 3.4-1.

Table 3.4-1: Observations

<u>Observation No.</u>	<u>Description</u>
1	The unit was tested in normal operating mode with a 50 ohm dummy load and an attenuator at the antenna port.

4.0 Radiated and Conducted Emissions

4.1 Radiated Emissions

4.1.1 Radiated Emissions Test Site

4.1.1.1 Semi-Anechoic Chamber

The EMC radiated test facility consists of an RF-shielded enclosure. The interior dimensions of the indoor semi-anechoic chamber are approximately 48 feet (14.6 m) long by 36 feet (10.8 m) wide by 24 feet (7.3 m) high and consist of rigid, 1/8 inch (0.32 cm) steel-clad, wood core modular panels with steel framing. In the shielded enclosure, the faces of the panels are galvanized and the chamber is self-supporting. 8-foot RF absorbing cones are installed on 4 walls and the ceiling. The steel-clad ground plane is covered with vinyl floor.

The turntable is driven by a pneumatic motor, which is capable of supporting a 2000-lb load. The turntable is flushed with the chamber floor which it is connected to, around its circumference, with a continuous metallic loaded spring. An EMCO Model 1051 Multi-device Controller controls the turntable position.

A pneumatic motor is used to control antenna polarizations and height relative to the ground. The height information is displayed on the control unit EMCO Model 1050.

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 4.1.1.1-1 below:

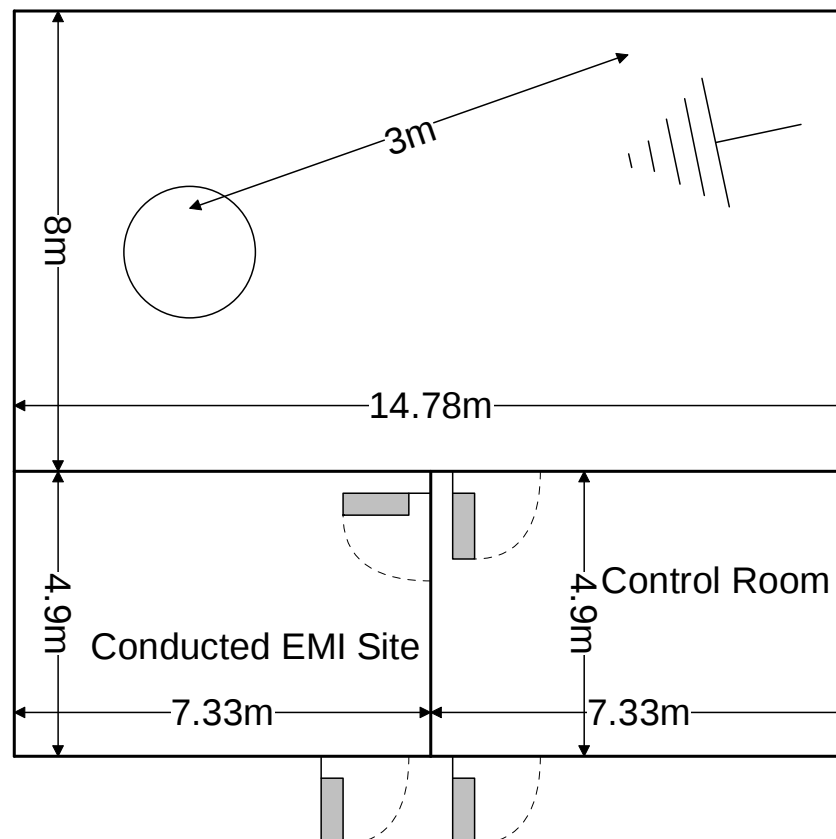


Figure 4.1.1.1-1: Semi-Anechoic Chamber Test Site

4.1.2.1 Test Justification

- ☐ No justification - The EUT was tested per the appropriate test methods and test plan.
☒ The test method, standard, and/or test plan was deviated from for the following reason:

No radiated emissions measurements were performed per customer request. Consequently, this report does not cover compliance with radiated emissions requirements.

4.2 Conducted Emissions

4.2.1 Conducted Emissions Test Site

The dimensions of the shielded conducted room are 7.3 x 4.9 x 3 m³. As per ANSI C63.4 2003 requirements, the data was taken using an EMCO Model 3825/2R LISN. For 220 V, 50 Hz, a Polarad LISN (S/N 879341/048) is used in conjunction with a 1 kVA, 220 V ELGAR Model 1001B variable frequency generator set to 50 Hz, to filter the conducted noise from the generator.

A diagram of the room is shown below in figure 4.2.1-1:

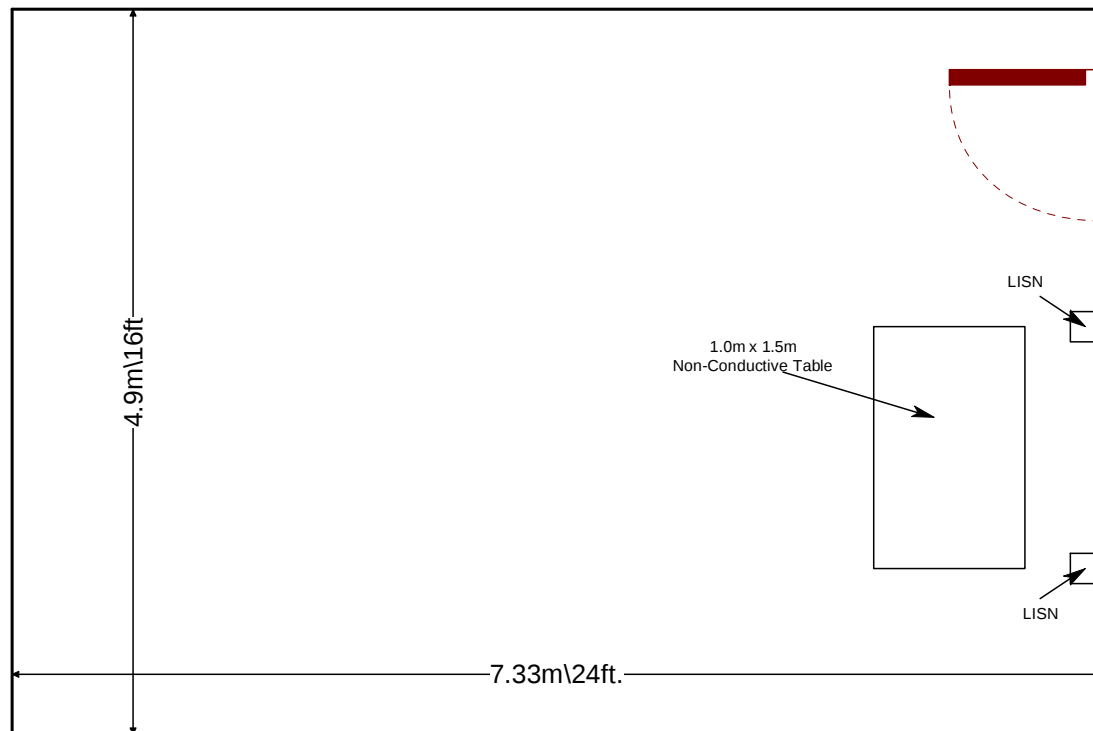


Figure 4.2.1-1: AC Mains Conducted EMI Site

4.2.2 Test Equipment

Table 4.2.2-1 Test Equipment – Conducted Emissions

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Cal Due Date
RE40	Agilent Technologies	E7405A	Spectrum Analyzers	US39150132	7/20/2011
2022	EMCO	LISN3825/2R	LISN	1095	8/10/2011
2045	ACS Boca	Conducted Cable Set	Cable Set	2045	9/4/2010

4.2.3 Test Methodology

Conducted emissions were performed from 150 kHz to 30MHz with the spectrum analyzer's resolution bandwidth set to 9 kHz though a Quasi-Peak Adapter and the video bandwidth set to 100 kHz. The calculations for the conducted emissions are as follows:

$$\begin{aligned}\text{Corrected Reading} &= \text{Analyzer Reading} + \text{LISN Loss} + \text{Cable Loss} \\ \text{Margin} &= \text{Applicable Limit} - \text{Corrected Reading}\end{aligned}$$

4.2.3.1 Test Criteria

The EUT must meet the Class B Limits as given in Section 1.4.1.

The EUT was tested in standby mode as well as in continuous TX and RX modes for each selectable tuning frequency.

4.2.3.2 Test Justification

- ☒ No justification - The EUT was tested per the appropriate test methods and test plan.
☐ The test method, standard, and/or test plan was deviated from for the following reason:

4.2.4 Test Setup Photographs



Figure 4.2.4-1: Conducted Emissions Test Setup – Front View



Figure 4.2.4-2: Conducted Emissions Test Setup – Side View

4.2.5 Test Data

Tabulated data is given in the Test Data Tables below.

Test Parameters:

Test Dates:	August 11 - 13, 2010	Temperature (°F)	73.82
Technician:	Thierry Jean-Charles	Humidity (%)	64.21
Equipment Class:	Class B	Barometric Pressure (mBar)	N/A
Tested Modes:	EUT was tested in three configurations. a) The unit off with the battery charging, b) The unit in TX mode, c) The unit in RX mode.		
AC Input Power:	120V / 60 Hz		
DC Input Power:	7.5 VDC		

Tested Leads:

- ☒ AC Mains – Number of Lines: 2
☐ DC Mains – Number of Lines:
☐ Telecom Port – Quantity:

Test Data Tables:

Table 4.2.5-1: APX6000 700/800 (Off)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	193.2	50.43	49.25	40.09	0.23	49.48	40.32	63.90	53.90	14.42	13.58
Phase	451	38.59	36.98	36.23	0.22	37.20	36.45	56.86	46.86	19.66	10.41
Phase	4719	44.29	43.1	39.38	0.21	43.31	39.59	56.00	46.00	12.70	6.42
Phase	5421	43.87	42.557	38.82	0.21	42.76	39.03	60.00	50.00	17.24	10.98
Phase	7082	44.83	42.9	35.08	0.32	43.22	35.40	60.00	50.00	16.78	14.60
Phase	9161	42.10	35.99	20.23	0.42	36.42	20.66	60.00	50.00	23.59	29.35
Neutral	150	53.84	43.32	22.65	0.28	43.60	22.93	66.00	56.00	22.40	33.07
Neutral	193.89	51.98	49.11	39.73	0.28	49.39	40.01	63.87	53.87	14.47	13.85
Neutral	387.38	45.97	44.88	44.62	0.25	45.13	44.87	58.12	48.12	12.99	3.25
Neutral	451.56	42.49	41.62	41.06	0.24	41.86	41.30	56.85	46.85	14.98	5.54
Neutral	3425.4	42.04	41.09	39.67	0.36	41.45	40.03	56.00	46.00	14.55	5.97
Neutral	4780	44.14	43.29	41.57	0.49	43.78	42.06	56.00	46.00	12.23	3.95
Neutral	6826	45.19	43.71	36.66	0.60	44.31	37.26	60.00	50.00	15.69	12.74
Neutral	8250	45.43	43.59	33.39	0.70	44.29	34.09	60.00	50.00	15.71	15.91

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-2: APX6000 700/800 (TX = 764.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak/QP	Avg	QP	Avg	QP	Avg
Phase	194.3	50.94	49.42	40.99	0.23	49.65	41.22	63.85	53.85	14.20	12.63
Phase	389.3	46.28	45.13	43.51	0.23	45.36	43.74	58.08	48.08	12.72	4.34
Phase	4018	45.07	43.98	41.97	0.21	44.19	42.18	56.00	46.00	11.82	3.83
Phase	4990	47.01	46.07	41.84	0.21	46.28	42.05	56.00	46.00	9.73	3.96
Phase	5959	49.57	48.21	43.59	0.21	48.42	43.80	60.00	50.00	11.59	6.21
Phase	7967	50.34	49.14	44.81	0.32	49.46	45.13	60.00	50.00	10.54	4.87
Phase	9004	47.74	46.48	41.82	0.42	46.91	42.25	60.00	50.00	13.10	7.76
Neutral	194.2	52.05	50.01	39.79	0.28	50.29	40.07	63.85	53.85	13.56	13.78
Neutral	388.5	47.22	46.16	44.85	0.25	46.41	45.10	58.10	48.10	11.68	2.99
Neutral	4018	45.22	44.11	42.16	0.49	44.60	42.65	56.00	46.00	11.41	3.36
Neutral	4990	47.80	45.87	42.79	0.49	46.36	43.28	56.00	46.00	9.65	2.73
Neutral	5959	49.41	48.47	44.33	0.49	48.96	44.82	60.00	50.00	11.05	5.19
Neutral	7967	50.36	48.09	42.83	0.60	48.69	43.43	60.00	50.00	11.31	6.57
Neutral	9005	49.24	47.79	44.30	0.70	48.49	45.00	60.00	50.00	11.51	5.00

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-3: APX6000 700/800 (RX = 764.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak/QP	Avg	QP	Avg	QP	Avg
Phase	193.9	50.68	48.76	39.13	0.23	48.99	39.36	63.87	53.87	14.88	14.51
Phase	453.5	46.42	45.62	45.12	0.22	45.84	45.34	56.81	46.81	10.97	1.47
Phase	4597	40.13	38.88	32.20	0.21	39.09	32.41	56.00	46.00	16.92	13.60
Phase	5145	45.70	44.87	42.31	0.21	45.08	42.52	60.00	50.00	14.93	7.49
Phase	6933	48.59	46.66	44.90	0.32	46.98	45.22	60.00	50.00	13.02	4.78
Phase	8483	46.72	45.3	41.68	0.42	45.73	42.11	60.00	50.00	14.28	7.90
Neutral	192.2	48.06	46.44	36.67	0.28	46.72	36.95	63.94	53.94	17.22	16.99
Neutral	453.9	46.67	45.87	45.46	0.24	46.11	45.70	56.80	46.80	10.69	1.10
Neutral	4601	46.46	45.76	44.12	0.49	46.25	44.61	56.00	46.00	9.76	1.40
Neutral	5120	46.49	45.61	41.77	0.49	46.10	42.26	60.00	50.00	13.91	7.75
Neutral	6933	49.71	48.3	44.94	0.60	48.90	45.54	60.00	50.00	11.10	4.46
Neutral	8486	49.19	47.68	43.74	0.70	48.38	44.44	60.00	50.00	11.62	5.56

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-4: APX6000 700/800 (TX = 775.9875 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	194.78	51.52	49.36	41.14	0.23	49.59	41.37	63.83	53.83	14.24	12.46
Phase	453	41.70	40.43	39.62	0.22	40.65	39.84	56.82	46.82	16.17	6.98
Phase	4597	43.75	42.58	37.00	0.21	42.79	37.21	56.00	46.00	13.22	8.80
Phase	5116	47.38	46.34	42.21	0.21	46.55	42.42	60.00	50.00	13.46	7.59
Phase	7316	49.77	48.08	41.23	0.32	48.40	41.55	60.00	50.00	11.60	8.45
Phase	8421	45.85	42.83	36.08	0.42	43.26	36.51	60.00	50.00	16.75	13.50
Neutral	193.1	50.06	48.76	38.87	0.28	49.04	39.15	63.90	53.90	14.86	14.75
Neutral	454	39.41	37.36	35.64	0.24	37.60	35.88	56.80	46.80	19.20	10.92
Neutral	4600	44.17	42.35	38.59	0.49	42.84	39.08	56.00	46.00	13.17	6.93
Neutral	5117	47.51	46.61	42.82	0.49	47.10	43.31	60.00	50.00	12.91	6.70
Neutral	7321	49.61	47.55	42.93	0.60	48.15	43.53	60.00	50.00	11.85	6.47
Neutral	8418	48.45	46.4	42.75	0.70	47.10	43.45	60.00	50.00	12.90	6.55

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-5: APX6000 700/800 (RX = 775.9875 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	194.58	50.19	49.16	40.96	0.23	49.39	41.19	63.84	53.84	14.45	12.65
Phase	452.6	37.79	36.18	34.67	0.22	36.40	34.89	56.83	46.83	20.43	11.94
Phase	4597	41.78	40.41	35.87	0.21	40.62	36.08	56.00	46.00	15.39	9.93
Phase	5116	45.43	44.17	41.21	0.21	44.38	41.42	60.00	50.00	15.63	8.59
Phase	7318	49.15	46.96	41.65	0.32	47.28	41.97	60.00	50.00	12.72	8.03
Phase	8418	44.60	43.02	38.60	0.42	43.45	39.03	60.00	50.00	16.56	10.98
Neutral	193.9	51.08	49.33	39.49	0.28	49.61	39.77	63.87	53.87	14.25	14.09
Neutral	453.4	39.36	37.59	36.03	0.24	37.83	36.27	56.81	46.81	18.98	10.54
Neutral	4597	44.48	43.31	40.04	0.49	43.80	40.53	56.00	46.00	12.21	5.48
Neutral	5116	47.09	45.96	42.47	0.49	46.45	42.96	60.00	50.00	13.56	7.05
Neutral	7318	50.33	49.11	45.77	0.60	49.71	46.37	60.00	50.00	10.29	3.63
Neutral	8419	48.04	46.79	42.17	0.70	47.49	42.87	60.00	50.00	12.51	7.13

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-6: APX6000 700/800 (TX =794.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	194.58	50.75	49.09	40.55	0.23	49.32	40.78	63.84	53.84	14.52	13.06
Phase	453.56	44.22	40.45	38.6	0.22	40.67	38.82	56.81	46.81	16.14	7.99
Phase	4602	42.31	40.96	37.43	0.21	41.17	37.64	56.00	46.00	14.84	8.37
Phase	5198	46.46	44.91	40.78	0.21	45.12	40.99	60.00	50.00	14.89	9.02
Phase	7321	49.87	48.76	43.63	0.32	49.08	43.95	60.00	50.00	10.92	6.05
Phase	8422	47.31	46.24	41.41	0.42	46.67	41.84	60.00	50.00	13.34	8.17
Neutral	193.8	49.57	48.61	38.46	0.28	48.89	38.74	63.87	53.87	14.98	15.13
Neutral	453.6	39.11	37.92	35.71	0.24	38.16	35.95	56.81	46.81	18.64	10.85
Neutral	4600	43.51	41.88	38.24	0.49	42.37	38.73	56.00	46.00	13.64	7.28
Neutral	5121	48.14	47.03	43.55	0.49	47.52	44.04	60.00	50.00	12.49	5.97
Neutral	7322	50.70	49.17	45.44	0.60	49.77	46.04	60.00	50.00	10.23	3.96
Neutral	8418	49.59	48.11	43.93	0.70	48.81	44.63	60.00	50.00	11.19	5.37

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-7: APX6000 700/800 (RX = 794.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	193.87	51.53	49.87	40.16	0.23	50.10	40.39	63.87	53.87	13.77	13.48
Phase	453.4	45.93	45.24	44.64	0.22	45.46	44.86	56.81	46.81	11.36	1.96
Phase	4602	43.67	42.39	36.41	0.21	42.60	36.62	56.00	46.00	13.41	9.39
Phase	5187	43.70	42.24	35	0.21	42.45	35.21	60.00	50.00	17.56	14.80
Phase	7004	48.17	47.02	40.22	0.32	47.34	40.54	60.00	50.00	12.66	9.46
Phase	8430	47.07	46.06	39.03	0.42	46.49	39.46	60.00	50.00	13.52	10.55
Neutral	195.1	50.76	50.04	39.98	0.28	50.32	40.26	63.82	53.82	13.49	13.55
Neutral	454.3	46.29	45.6	45.14	0.24	45.84	45.38	56.80	46.80	10.95	1.41
Neutral	4605	46.24	45.3	42.25	0.49	45.79	42.74	56.00	46.00	10.22	3.27
Neutral	5189	46.04	45.08	40.25	0.49	45.57	40.74	60.00	50.00	14.44	9.27
Neutral	7006	48.93	47.53	43.97	0.60	48.13	44.57	60.00	50.00	11.87	5.43
Neutral	8430	48.05	46.65	41.63	0.70	47.35	42.33	60.00	50.00	12.65	7.67

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-8: APX6000 700/800 (TX = 809.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	193.9	50.14	48.92	40.67	0.23	49.15	40.90	63.87	53.87	14.72	12.97
Phase	388.05	45.07	43.97	42.01	0.23	44.20	42.24	58.11	48.11	13.90	5.86
Phase	3693	44.89	43.93	42.27	0.39	44.32	42.66	56.00	46.00	11.68	3.34
Phase	5896	49.48	48	43.25	0.21	48.21	43.46	60.00	50.00	11.80	6.55
Phase	7447	50.48	48.5	40.34	0.32	48.82	40.66	60.00	50.00	11.18	9.34
Phase	9524	48.41	45.93	39.69	0.42	46.36	40.12	60.00	50.00	13.65	9.89
Neutral	194.35	50.36	49.35	39.48	0.28	49.63	39.76	63.85	53.85	14.21	14.08
Neutral	388.69	46.30	45.19	43.78	0.25	45.44	44.03	58.09	48.09	12.65	4.06
Neutral	3694	46.25	45.3	43.84	0.36	45.66	44.20	56.00	46.00	10.34	1.80
Neutral	5898	50.04	48.66	44.2	0.49	49.15	44.69	60.00	50.00	10.86	5.32
Neutral	7452	51.14	49.4	45.12	0.60	50.00	45.72	60.00	50.00	10.00	4.28
Neutral	9526	49.83	47.6	42.3	0.70	48.30	43.00	60.00	50.00	11.70	7.00

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-9: APX6000 700/800 (RX = 809.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	194.1	50.04	48.44	39.06	0.23	48.67	39.29	63.86	53.86	15.19	14.57
Phase	453.5	46.37	45.58	45.05	0.22	45.80	45.27	56.81	46.81	11.01	1.54
Phase	3627	42.60	41.4	37.2	0.39	41.79	37.59	56.00	46.00	14.21	8.41
Phase	5117	45.42	44.16	38.08	0.21	44.37	38.29	60.00	50.00	15.64	11.72
Phase	6996	49.46	48.43	45.93	0.32	48.75	46.25	60.00	50.00	11.25	3.75
Phase	9002	47.23	45.94	39.29	0.42	46.37	39.72	60.00	50.00	13.64	10.29
Neutral	194.03	48.57	47.59	37.78	0.28	47.87	38.06	63.86	53.86	15.99	15.80
Neutral	453.1	46.40	45.44	44.89	0.24	45.68	45.13	56.82	46.82	11.13	1.68
Neutral	3628	44.27	43.6	42.44	0.36	43.96	42.80	56.00	46.00	12.04	3.20
Neutral	5118	46.55	45.72	43.15	0.49	46.21	43.64	60.00	50.00	13.80	6.37
Neutral	6994	49.61	48.24	42.68	0.60	48.84	43.28	60.00	50.00	11.16	6.72
Neutral	9004	48.67	46.99	44.23	0.70	47.69	44.93	60.00	50.00	12.31	5.07

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-10: APX6000 700/800 (TX = 851.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	194.8	50.98	48.69	40.54	0.23	48.92	40.77	63.83	53.83	14.91	13.06
Phase	388.3	45.01	43.98	42.04	0.23	44.21	42.27	58.10	48.10	13.89	5.83
Phase	4794	45.35	44.09	39.44	0.21	44.30	39.65	56.00	46.00	11.71	6.36
Phase	4989	46.74	45.64	40.54	0.21	45.85	40.75	56.00	46.00	10.16	5.26
Phase	7711	50.03	46.68	40.3	0.32	47.00	40.62	60.00	50.00	13.00	9.38
Phase	9909	49.02	47.5	42.47	0.42	47.93	42.90	60.00	50.00	12.08	7.11
Neutral	191.5	47.61	45.28	35.75	0.28	45.56	36.03	63.97	53.97	18.41	17.94
Neutral	388.04	46.61	45.5	44.11	0.25	45.75	44.36	58.11	48.11	12.35	3.74
Neutral	4793	46.96	45.87	41.11	0.49	46.36	41.60	56.00	46.00	9.65	4.41
Neutral	4989	47.89	46.55	41.56	0.49	47.04	42.05	56.00	46.00	8.97	3.96
Neutral	7705	51.28	49.96	44.31	0.60	50.56	44.91	60.00	50.00	9.44	5.09
Neutral	9909	49.97	48.32	44.3	0.70	49.02	45.00	60.00	50.00	10.98	5.00

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-11: APX6000 700/800 (RX = 851.0125 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	195.4	51.36	49.83	41	0.23	50.06	41.23	63.80	53.80	13.75	12.58
Phase	388.6	40.09	37.97	36.28	0.23	38.20	36.51	58.09	48.09	19.89	11.58
Phase	454.3	41.03	40.12	38.16	0.22	40.34	38.38	56.80	46.80	16.46	8.42
Phase	5191	47.08	45.89	42.26	0.21	46.10	42.47	60.00	50.00	13.91	7.54
Phase	7268	47.86	46.1	40.1	0.32	46.42	40.42	60.00	50.00	13.58	9.58
Phase	9799	48.08	46.01	41.74	0.42	46.44	42.17	60.00	50.00	13.57	7.84
Neutral	194.9	52.41	51.15	40.78	0.28	51.43	41.06	63.83	53.83	12.39	12.76
Neutral	390.2	42.25	41.1	39.94	0.25	41.35	40.19	58.06	48.06	16.71	7.87
Neutral	454.1	39.57	38.39	36.48	0.24	38.63	36.72	56.80	46.80	18.17	10.08
Neutral	5195	48.56	47.65	44.16	0.49	48.14	44.65	60.00	50.00	11.87	5.36
Neutral	7273	47.71	45.7	40.5	0.60	46.30	41.10	60.00	50.00	13.70	8.90
Neutral	9805	49.13	45.81	39.31	0.70	46.51	40.01	60.00	50.00	13.49	9.99

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-12: APX6000 700/800 (TX = 869.8875 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	388.9	44.10	42.89	41.07	0.23	43.12	41.30	58.09	48.09	14.97	6.79
Phase	4984	46.28	44.84	40.28	0.21	45.05	40.49	56.00	46.00	10.96	5.52
Phase	5823	49.74	48.63	43.55	0.21	48.84	43.76	60.00	50.00	11.17	6.25
Phase	7635	50.99	50.01	43.32	0.32	50.33	43.64	60.00	50.00	9.67	6.36
Phase	9252	48.10	46.67	40.83	0.42	47.10	41.26	60.00	50.00	12.91	8.75
Phase	1022	48.74	47	41.66	0.23	47.23	41.89	56.00	46.00	8.77	4.11
Neutral	388.9	45.24	44.01	42.75	0.25	44.26	43.00	58.09	48.09	13.82	5.08
Neutral	3494	45.81	44.91	43.61	0.36	45.27	43.97	56.00	46.00	10.73	2.03
Neutral	4919	47.90	47.16	42.61	0.49	47.65	43.10	56.00	46.00	8.36	2.91
Neutral	5631	50.09	49.19	49.19	0.49	49.68	49.68	60.00	50.00	10.33	0.33
Neutral	10552	48.29	46.55	42.53	0.79	47.34	43.32	60.00	50.00	12.66	6.68
Neutral	9772	50.41	49.08	42.82	0.70	49.78	43.52	60.00	50.00	10.22	6.48
Neutral	9256	50.11	48.57	44.62	0.70	49.27	45.32	60.00	50.00	10.73	4.68
Neutral	7509	51.60	49.87	45.86	0.60	50.47	46.46	60.00	50.00	9.53	3.54

Notes:

A minimum of six highest emissions as compared to the limits are reported.

Table 4.2.5-13: APX6000 700/800 (RX = 869.8875 MHz)

Line Tested	Frequency (kHz)	Recorded Value (dBµV)			Correction Factor (dB)	Corrected Value (dBµV)		Limits (dBµV)		Margin (dB)	
		Peak	QP	Avg		Peak	Avg	QP	Avg	QP	Avg
Phase	389.2	41.98	41.12	40.19	0.23	41.35	40.42	58.08	48.08	16.73	7.66
Phase	454.4	41.09	40.06	38.1	0.22	40.28	38.32	56.79	46.79	16.52	8.48
Phase	3829	44.48	43.51	40.87	0.39	43.90	41.26	56.00	46.00	12.10	4.74
Phase	4931	43.98	42.83	37.95	0.21	43.04	38.16	56.00	46.00	12.97	7.85
Phase	5968	48.31	46.38	41.4	0.21	46.59	41.61	60.00	50.00	13.42	8.40
Phase	7653	49.62	48.51	42.31	0.32	48.83	42.63	60.00	50.00	11.17	7.37
Phase	9793	47.72	45.62	39.27	0.42	46.05	39.70	60.00	50.00	13.96	10.31
Neutral	3750	45.05	43.83	41.1	0.36	44.19	41.46	56.00	46.00	11.81	4.54
Neutral	4850	45.38	43.76	40.28	0.49	44.25	40.77	56.00	46.00	11.76	5.24
Neutral	5885	49.81	49.01	45	0.49	49.50	45.49	60.00	50.00	10.51	4.52
Neutral	7762	50.69	48.72	42.41	0.60	49.32	43.01	60.00	50.00	10.68	6.99
Neutral	9635	48.41	48.03	42.52	0.70	48.73	43.22	60.00	50.00	11.27	6.78
Neutral	11315	47.61	45.14	40.09	0.79	45.93	40.88	60.00	50.00	14.07	9.12

Notes:

A minimum of six highest emissions as compared to the limits are reported.

5.0 Measurement Uncertainty

General

Measurement Uncertainty is based on the following publications:

- CISPR 16-4-2: Uncertainties, statistics and limit modeling – Uncertainty in EMC measurements
- The Guide to the Expression of Uncertainty in Measurement (GUM): 1995
- ANSI / NCSL Z540.2-1997 (R2002) U.S. Guide to Expression of Uncertainty in Measurement

Calculations for measurement uncertainty are available upon request.

Emissions:

Table 5.0-1: Values of U_{Cispr} and U_{Lab}

Measurement	U_{Cispr}	U_{Lab}
Conducted disturbance (mains port) (9 kHz – 150 kHz) (150 kHz – 30 MHz)	4.0 dB 3.6 dB	2.54 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1 000 MHz)	5.2 dB	3.93 dB

NOTE U_{Cispr} resembles a value of measurement uncertainty for a specific test, which was determined by considering uncertainties associated with the quantities listed in CISPR 16-4-2:2003 Section 4.2.

Compliance or non-compliance with a disturbance limit shall be determined in the following manner.

If U_{Lab} is less than or equal to U_{Cispr} in Table 5.0-1, then:

- o compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- o non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{Lab} is greater than U_{Cispr} , then:

- o compliance is deemed to occur if no measured disturbance, increased by $(U_{\text{Lab}} - U_{\text{Cispr}})$, exceeds the disturbance limit;
- o non-compliance is deemed to occur if any measured disturbance, increased by $(U_{\text{Lab}} - U_{\text{Cispr}})$, exceeds the disturbance limit.

The ACS calculated MU is much less than the internationally accepted MU, therefore an adjustment to the measured result as mentioned above is not necessary.

6.0 Conclusion

The EUT is determined to meet the conducted emissions requirements as defined by the applicable regulatory agencies.

Appendix A: Model Variants

ACS Report: 10-2073.C01.11.B
Report Revision: B
Report Issue Date: September 10, 2010

Table A.1: APX6000 700/800 Model Variants Description

Variants	Description	Test
H98UCH9PW7AN	dual display , full keypad	Yes
H98UCF9PW6AN	dual display, limited keypad	---
H98UCD9PW5AN	single top display, no keypad	---

The model tested was considered by the manufacturer the worse case of all model variants declared here.