PCTEST ENGINEERING LABORATORY, INC.
6660-B Dobbin Road, Columbia, MD 21045 USA
Tel. 410.290.6652 / Fax 410.290.6554
http://www.pctestlab.com

MEASUREMENT REPORT
FCC Part 15.225 Certification

Applicant Name:
NEC Corporation of America
Radio Communications Systems Division
6535 N. State Highway 161
Irving, TX 75039-2402 USA

Date of Testing:
August 4, 2010
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Test Report Serial No.:
0Y1007271231.A98

FCC ID:	**A98-GHF1946**
APPLICANT:	**NEC Corporation of America**

Application Type:	Certification
Model(s):	KMP7N4V1-1A
EUT Type:	1900 GSM/GPRS and 850 WCDMA/HSPA Phone with Bluetooth, WLAN and RFID
Frequency:	13.56MHz
FCC Classification:	Low Power Communications Device Transmitter (DXX)
FCC Rule Part(s):	FCC Part 15 Subpart C (15.225)

The device bearing the FCC Identifier specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and has been tested in accordance with the measurement procedures specified in ANSI C63.4-2003 (See Test Report). These measurements were performed with no deviation from the standards. Test results reported herein relate only to the item(s) tested.

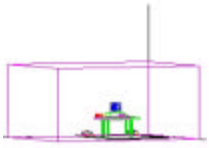
I authorize and attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

NVLAP accreditation does not constitute any product endorsement by NVLAP or any agency of the United States Government. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Randy Ortanez
President

NVLAP Lab Code 100431-0

TABLE OF CONTENTS



MEASUREMENT REPORT
FCC Part 15.225

§ 2.1033 General Information

APPLICANT:	NEC Corporation of America
APPLICANT ADDRESS:	Radio Communications Systems Division 6535 N. State Highway 161 Irving, TX 75039-2402 USA
TEST SITE:	PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS:	6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S):	Part 15 Subpart C (15.225)
MODEL:	KMP7N4V1-1A
FCC ID:	A98-GHF1946
Test Device Serial No.:	004401200580054 ☐ Production ☒ Pre-Production ☐ Engineering
FCC CLASSIFICATION:	Low Power Communications Device Transmitter (DXX)
DATE(S) OF TEST:	August 4, 2010
TEST REPORT S/N:	0Y1007271231.A98

Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21045, U.S.A.

- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (IC-2451).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.

- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (IC-2451) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

1.2 PCTEST Test Location

The map at the right shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity are, the Baltimore-Washington Internt'l (BWI) airport, the city of Baltimore and the Washington, DC area. (*see Figure 1-1*).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 27, 2006.

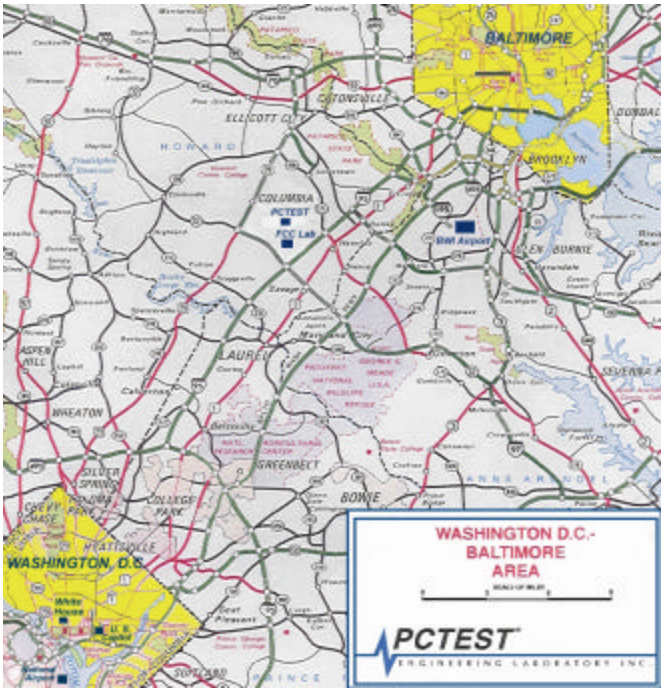


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **NEC 1900 GSM/GPRS and 850 WCDMA/HSPA Phone with Bluetooth, WLAN and RFID FCC ID: A98-GHF1946**. The test data contained in this report pertains only to the emissions due to the RFID transmitter of the EUT.

Manufacturer / Model	FCC ID	Description
NEC / Model: KMP7N4V1-1A	A98-GHF1946	1900 GSM/GPRS and 850 WCDMA/HSPA Phone with Bluetooth, WLAN and RFID

Table 2-1. EUT Equipment Description

2.2 Operation Mode

The NEC Model: KMP7N4V1-1A, FCC ID: A98-GHF1946 was set to continuously transmit at 13.56MHz. This was performed using manufacturer software loaded on the phone to allow for continuous transmission. Please see Section 8.0 for more information on the test setup.

2.3 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

2.4 Labeling Requirements

Per 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

3.0 DESCRIPTION OF TEST

3.1 Evaluation Procedure

The measurement procedure described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C63.4-2003) was used in the measurement of the **NEC 1900 GSM/GPRS and 850 WCDMA/HSPA Phone with Bluetooth, WLAN and RFID FCC ID: A98-GHF1946.**

Deviation from measurement procedure……None

3.2 Conducted Emissions

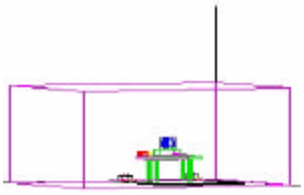


Figure 3-1. Shielded Enclosure Line-Conducted Test Facility

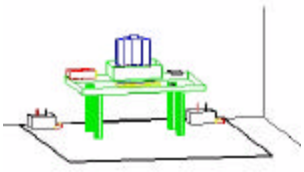


Figure 3-2. Line Conducted Emission Test Set-Up

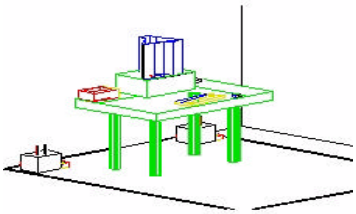


Figure 3-3. Wooden Table & Bonded LISNs

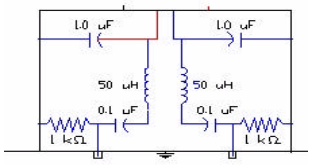


Figure 3-4. LISN Schematic Diagram

The line-conducted facility is located inside a 16'x20'x10' shielded enclosure, manufactured by Ray Proof Series 81 (*see Figure 3-1*). The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-5. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 1.5m away from the sidewall of the shielded room (*see Figure 3-2*). Solar Electronics and EMCO Model 3725/2 (10kHz-30MHz) 50Ω/50µH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room (*see Figure 3-3).* The EUT is powered from the Solar LISN and the support equipment is powered from the EMCO LISN. Power to the LISNs are filtered by a high-current high-insertion loss Ray Proof power line filter (100dB 14Hz-10GHz). The purpose of the filter is to attenuate ambient signal interference and this filter is also bonded to the shielded enclosure. All electrical cables are shielded by braided tinned copper zipper tubing with an inner diameter of ½". If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the Solar LISN. The LISN schematic diagram is shown (*see Figure 3-4*). All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion). Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer to determine the frequency producing the maximum EME from the EUT.

The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to CISPR quasi-peak and average mode. The bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each EME emission. Each emission was maximized by: switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable; whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in the test setup photographs. Each EME reported was calibrated using the Agilent E8257D (250kHz – 20GHz) PSG Signal Generator.

3.3 Radiated Emissions

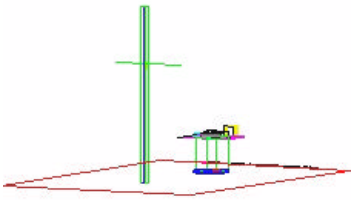


Figure 3-5. 3-Meter Test Site

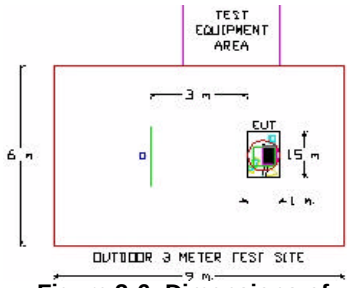


Figure 3-6. Dimensions of Outdoor Test Site

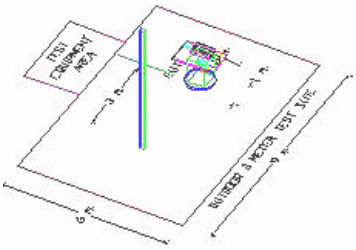


Figure 3-7. Turntable and System Setup

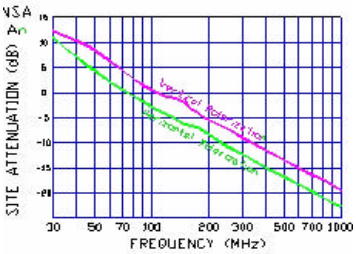


Figure 3-8. Normalized Site Attenuation Curves (H&V)

Preliminary measurements were made in a shielded anechoic chamber at 3-meter using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, and turntable azimuth with respect to the antenna was noted for each frequency found. The spectrum was scanned from 30 to 1000 MHz using a biconilog antenna. Above 1 GHz, linearly polarized double ridge horn antennas were used. For measurements below 30MHz a magnetic loop antenna was used.

Final measurements were made outdoors at 3-meter test range using Roberts™ Dipole antennas or horn antennas (*see Figure 3-5*) for above 30MHz and a loop antenna for below 30MHz. The test equipment was placed on a wooden and plastic bench situated on a 1.5m x 2m area adjacent to the measurement area (*see Figure 3-6*). Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The detector function was set to CISPR quasi-peak mode and the bandwidth of the spectrum analyzer was set to 100kHz for frequencies below 1GHz or 1MHz for frequencies above 1GHz. Above 1GHz the detector function was set to average mode (RBW = 1MHz, VBW = 10Hz). Emissions below 30MHz were made with a RBW of 10kHz and a VBW of 10Hz.

The half-wave dipole antenna was tuned to the frequency found during preliminary radiated measurements. The EUT, support equipment and interconnecting cables were re-configured to the set-up producing the maximum emission for the frequency and were placed on top of a 0.8-meter high non-metallic 1 x 1.5 meter table (*see Figure 3-7*). The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME emission. The turntable containing the system was rotated and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by: varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in the test setup photographs. Each EME reported was calibrated using the Agilent E8257D (250kHz – 20GHz) PSG Signal Generator. The Theoretical Normalized Site Attenuation Curves for both horizontal and vertical polarization are shown in Figure 3-8.

4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:
"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antennas of the NEC 1900 GSM/GPRS and 850 WCDMA/HSPA Phone with Bluetooth, WLAN and RFID are **permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

The **NEC 1900 GSM/GPRS and 850 WCDMA/HSPA Phone with Bluetooth, WLAN and RFID FCC ID: A98-GHF1946** unit complies with the requirement of §15.203.

5.0 SAMPLE CALCULATIONS

5.1 Conducted Emission Measurement Sample Calculation

@ 20.3 MHz

Class B limit	**= 60.0 dBmV (Quasi-peak limit)**
Reading	= - 57.8 dBm (calibrated quasi-peak level)
Convert to dbµV	= - 57.8 + 107 = 49.2 dBµV
Margin	= 49.2 - 60.0 = - 10.8 dB
	= **10.8 dB below limit**

5.2 Radiated Emission Measurement Sample Calculation

@ 66.7 MHz

Class B limit	**= 100 mV/m = 40.0 dBmV/m**
Reading	= - 76.0 dBm (calibrated level)
Convert to dbµV	= - 76.0 + 107 = 31.0 dBµV
Antenna Factor + Cable Loss	= 5.8 dB/m
Total	= 36.8 dBµV/m
Margin	= 36.8 - 40.0 = - 3.2 dB
	= **3.2 dB below limit**

Note:

$$\text{Level [dB}\mu\text{V]} = 20 \log_{10} (\text{Level [}\mu\text{V/m]})$$

$$\text{Level [dB}\mu\text{V]} = \text{Level [dBm]} + 107$$

6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	11713A	Attenuation/Switch Driver	12/2/2009	Annual	12/2/2010	3439A02645
Agilent	8447D	Broadband Amplifier	3/18/2010	Annual	3/18/2011	1937A03348
Agilent	8447D	Broadband Amplifier	3/18/2010	Annual	3/18/2011	2443A01900
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/2/2009	Annual	12/2/2010	3008A00985
Agilent	85650A	Quasi-Peak Adapter	12/2/2009	Annual	12/2/2010	3303A01872
Agilent	85650A	Quasi-Peak Adapter	3/30/2010	Annual	3/30/2011	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	3/30/2010	Annual	3/30/2011	2618A02866
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	3/30/2010	Annual	3/30/2011	2542A11898
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/2/2009	Annual	12/2/2010	3638A08713
Agilent	E4407B	ESA Spectrum Analyzer	3/30/2010	Annual	3/30/2011	US39210313
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	10/1/2009	Annual	10/1/2010	US42510244
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/30/2010	Annual	3/30/2011	MY45470194
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	146
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	147
Emco	6502	Active Loop Antenna (10k - 30 MHz)	4/8/2010	Biennial	4/8/2012	267
Emco	3816/2	LISN	9/8/2008	Biennial	9/8/2010	9707-1077
Emco	3816/2	LISN	9/8/2008	Biennial	9/8/2010	9707-1079
Pasternack	PE7000-6	6 dB Attenuator	N/A		N/A	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/17/2009	Biennial	7/17/2011	A051107
Agilent	85685A	RF Preselector	12/2/2009	Annual	12/2/2010	2901A00853

Table 6-1. Annual Test Equipment Calibration Schedule

7.0 ENVIRONMENTAL CONDITIONS

The temperature is controlled within range of 15°C to 35°C.

The relative humidity is controlled within range of 10% to 75%.

The atmospheric pressure is controlled within the range 86-106kPa (860-1060mbar).

8.0 TEST DATA

8.1 Summary

Company Name: NEC Corporation of America

FCC ID: A98-GHF1946

Frequencies Examined: 13.56MHz

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (Tx)					
15.225 (a)	In-Band Emissions	15,848µV/m @ 30m 13.553 – 13.567 MHz	RADIATED	PASS	Section 8.3
2.1049	20 dB Bandwidth	N/A		PASS	Section 8.2
15.225 (b)	In-Band Emissions	334µV/m @ 30m 13.410 – 13.553 MHz 13.567 – 13.710 MHz		PASS	Section 8.3
15.225 (c)	In-Band Emissions	106µV/m @ 30m 13.110 – 13.410 MHz 13.710 – 14.010 MHz		PASS	Section 8.3
15.225 (d) 15.209	Out-of-Band Emissions	Emissions outside of the specified band (13.110 – 14.010 MHz) must meet the radiated limits detailed in 15.209		PASS	Section 8.4
15.225 (e)	Frequency Stability Tolerance	± 0.01% of Operating Frequency	Temperature Chamber	PASS	Section 8.6
15.207	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.207 limits or < RSS-Gen table 2 limits	LINE CONDUCTED	PASS	Section 8.5

Table 8-1. Summary of Test Results

8.2 20dB Bandwidth Measurement

§2.1049

The 20dB bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

Frequency	Occupied Bandwidth
13.56MHz	420kHz

Table 8-2. 20dB Bandwidth Measurement

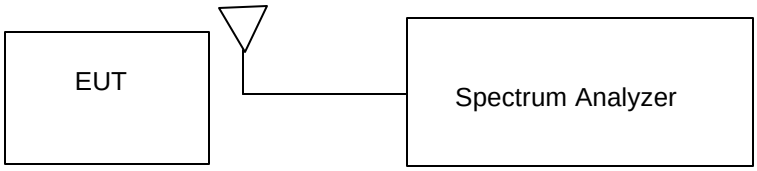


Figure 8-1. Test Instrument & Measurement Setup

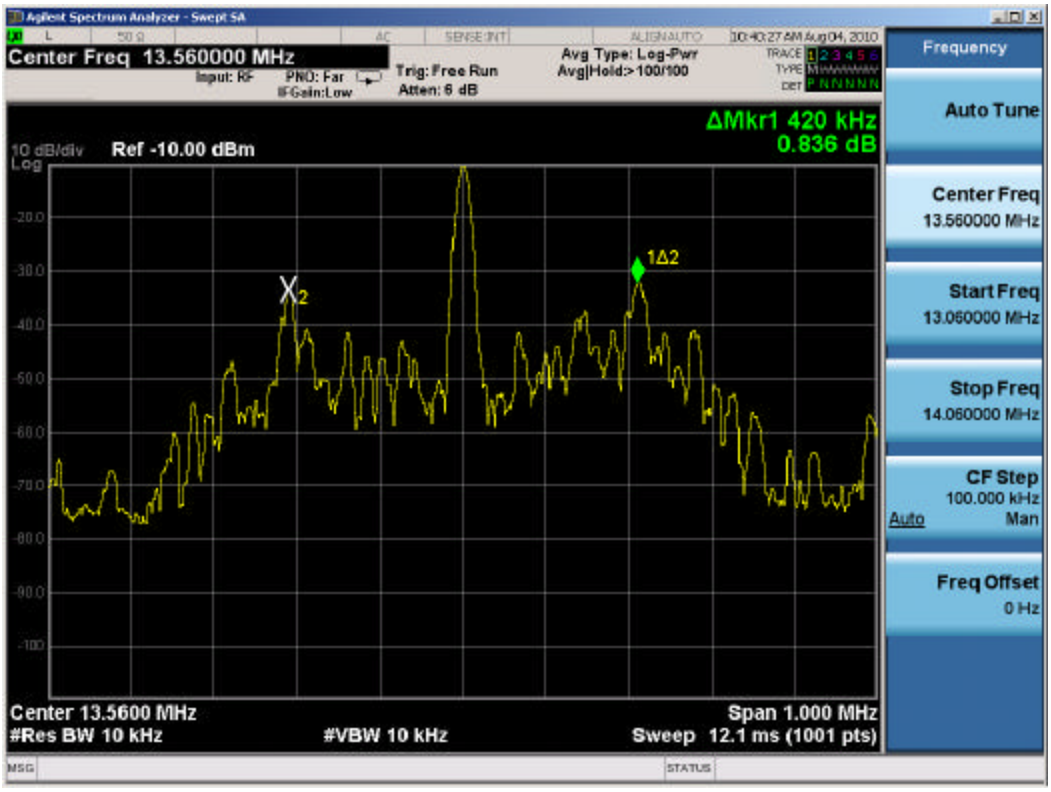


Figure 8-2. Occupied Bandwidth Plot

8.3 In-Band Radiated Spurious Emission Measurements

§15.225(a), (b), (c)

Radiated emissions testing was performed in the band 13.110 – 14.010 MHz.

Frequency: 13.56MHz

Measurement Distance: 3 Meters

Frequency [MHz]	Level [dBm]	AFCL [dB]	Antenna Position	3m Field Strength [dBµV/m]	30m Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
13.35	-95.71	10.07	Y	21.35	-18.65	40.51	-59.15
13.42	-104.73	10.06	Y	12.33	-27.67	50.47	-78.14
13.56	-70.91	10.05	Y	46.14	6.14	84.00	-77.86
13.63	-103.84	10.05	Y	13.21	-26.79	50.47	-77.27
13.71	-101.60	10.05	Y	15.45	-24.55	40.51	-65.06
13.77	-96.09	10.04	Y	20.95	-19.05	40.51	-59.55
13.84	-103.07	10.04	Y	13.97	-26.03	40.51	-66.54

Table 8-3. In-Band Radiated Measurements

NOTES:

1. All measurements were performed using a loop antenna. The antenna was positioned in three orthogonal positions (X front, Y side, Z top) and the position with the highest emission level was recorded.

2. Measurements were performed at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)(2).

   Extrapolation Factor = $20 \log_{10}(30/3)^2 = 40$dB

3. All measurements were recorded using a spectrum analyzer employing a peak detector.

8.4 Radiated Spurious Emission Measurements, Out-of-Band

§15.225(d) / §15.209

The EUT was tested from 9kHz up to the 1GHz excluding the band 13.110 – 14.010 MHz. All measurements were recorded with a spectrum analyzer employing an average detector for emissions below 30MHz. Above 30MHz a Quasi-peak detector was used. All out-of-band emissions must not exceed the limits shown in Table 8-4 per Section 15.209. A loop antenna was used for searching for emissions below 30MHz.

Frequency	Field Strength [mV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 8-4. Radiated Limits – Out of band

Sample Calculation

- Field Strength Level $_{[dB\mu V/m]}$ = Analyzer Level $_{[dBm]}$ + 107 + AFCL $_{[dB]}$ + Duty Cycle Correction $_{[dB]}$

Notes:

- AFCL = Antenna Factor $_{[dB]}$ + Cable Loss $_{[dB]}$

Radiated Spurious Emission Measurements, Out-of-Band (Cont'd)

§15.225(d) / §15.209

Tx Frequency 13.56MHz

Measurement Distance: 3 Meters

Frequency [MHz]	Level [dBm]	AFCL [dB]	Pol [H/V]	3m Field Strength [dBmV/m]	Limit [dBmV/m]	Margin [dB]
27.12	-99.55	8.14	V	15.58	69.54	-53.96
40.68	-93.93	12.19	V	25.26	40.00	-14.74
54.24	-99.36	12.40	V	20.04	40.00	-19.96
67.80	-92.91	10.87	V	24.96	40.00	-15.04
81.36	-103.32	7.86	V	11.54	40.00	-28.46
94.92	-97.49	10.66	V	20.17	43.52	-23.35
108.48	-105.59	11.69	V	13.10	43.52	-30.42
122.04	-102.10	12.15	V	17.05	43.52	-26.47
135.60	-104.78	14.45	V	16.66	43.52	-26.86
149.16	-102.03	16.87	V	21.85	43.52	-21.67
162.72	-102.69	18.23	V	22.53	43.52	-20.99
176.28	-94.13	15.54	V	28.41	43.52	-15.11
189.84	-102.49	13.24	V	17.75	43.52	-25.77
203.40	-94.49	11.69	V	24.21	43.52	-19.32
216.96	-104.28	11.73	V	14.45	46.02	-31.57
230.52	-96.78	11.78	V	22.00	46.02	-24.02
244.08	-105.29	11.81	V	13.53	46.02	-32.49
257.64	-99.18	12.15	V	19.96	46.02	-26.06

Table 8-5. Radiated Measurements

NOTES:

1. All measurements were recorded using a spectrum analyzer employing an average detector for below 30MHz and a Quasi-peak detector for above 30 MHz.
2. Both Vertical and Horizontal polarities of the receive antenna were evaluated with the worst case emissions being reported. Below 30MHz the Loop antenna was positioned in 3 separate radials.
3. The EUT is supplied with nominal AC voltage and/or a new/fully-recharged battery.
4. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.

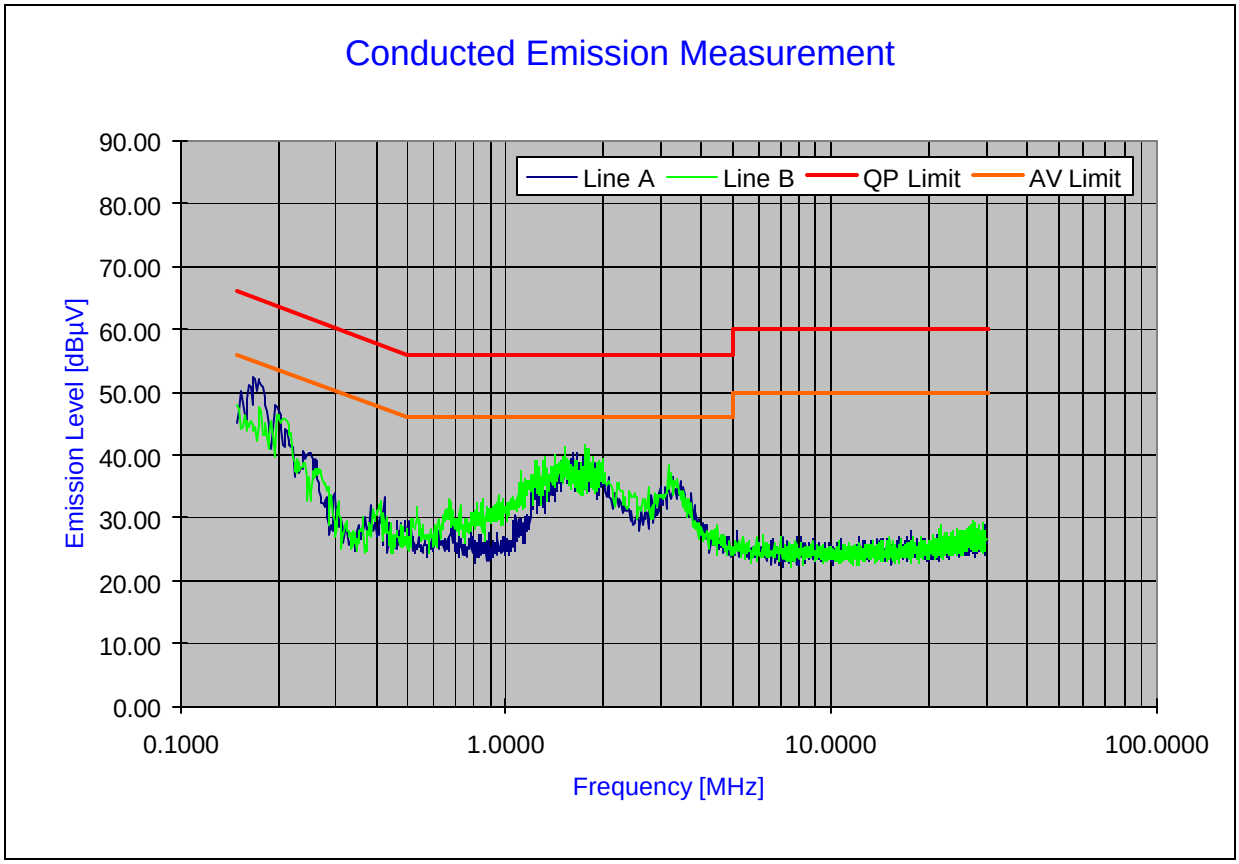
8.5 Line Conducted Measurement Data

§15.207; RSS-Gen (7.2.2)

PCTEST Engineering Laboratory Inc.

Company : NEC Corporation of America
Model Number : KMP7N4V1-1A
FCC ID Code : A98-GHF1946
Standard : FCC Part 15C, 15.207

Power Source : AC120V/60Hz
Tested Date : 08/04/2010
Note : Tested with RFID On



Ver.1.1 ©PCTEST 2006.08

Plot 8-1. Line-Conducted Test Plot

Notes:

1. All Modes of operation were investigated and the worst-case emissions are reported.
2. The limit for intentional radiator devices from 150k to 30MHz is specified in Section 15.207 of the Title 47 CFR.
3. Line A = Phase; Line B = Neutral
4. Traces shown in plot are made using a peak detector.
5. Deviations to the Specifications: None.

Line Conducted Measurement Data (Cont'd)

§15.207; RSS-Gen (7.2.2)

No.	Line	Frequency [MHz]	Factor [dB]	QP [dBµV]	Limit [dBµV]	Margin [dB]	Average [dBµV]	Limit [dBµV]	Margin [dB]
1	A	0.150	6.85	45.86	66.00	-20.14	34.41	56.00	-21.59
2	A	0.157	6.85	42.06	65.63	-23.57	29.82	55.63	-25.81
3	A	0.201	6.87	40.07	63.56	-23.49	28.29	53.56	-25.27
4	A	1.503	7.10	31.85	56.00	-24.15	24.02	46.00	-21.98
5	A	1.528	7.11	31.67	56.00	-24.33	23.82	46.00	-22.18
6	A	1.588	7.11	31.83	56.00	-24.17	23.17	46.00	-22.83
7	A	1.626	7.12	32.02	56.00	-23.98	23.38	46.00	-22.62
8	A	1.728	7.13	31.31	56.00	-24.69	23.47	46.00	-22.53
9	A	1.762	7.13	31.36	56.00	-24.64	23.44	46.00	-22.56
10	A	1.779	7.13	31.63	56.00	-24.37	24.39	46.00	-21.61
11	B	1.322	7.08	30.38	56.00	-25.62	21.90	46.00	-24.10
12	B	1.420	7.10	31.24	56.00	-24.76	23.04	46.00	-22.96
13	B	1.488	7.10	31.87	56.00	-24.13	22.36	46.00	-23.64
14	B	1.518	7.11	31.84	56.00	-24.16	22.06	46.00	-23.94
15	B	1.568	7.11	31.45	56.00	-24.55	22.02	46.00	-23.98
16	B	1.637	7.12	31.69	56.00	-24.31	22.99	46.00	-23.01
17	B	1.747	7.13	30.51	56.00	-25.49	22.65	46.00	-23.35
18	B	1.803	7.13	30.86	56.00	-25.14	24.07	46.00	-21.93
19	B	1.874	7.14	31.98	56.00	-24.02	23.23	46.00	-22.77
20	B	1.975	7.15	31.72	56.00	-24.28	24.30	46.00	-21.70

Table 8-6. Line-Conducted Test Data

Notes:

1. All Modes of operation were investigated and the worst-case emissions are reported.
2. The limit for intentional radiators from 150kHz to 30MHz is specified in Section 15.207 of the Title 47 CFR.
3. Line A = Phase; Line B = Neutral
4. Traces shown in plot are made using a peak detector.
5. Deviations to the Specifications: None.

8.6 Frequency Stability Test Data

§15.225

Part 15.225 requires that devices operating in the 13.553 – 13.567 MHz shall maintain the carrier frequency within 0.01% of the operating frequency over the temperature variation of -20 degrees to +50 degrees C at normal supply voltage.

OPERATING FREQUENCY: 13,560,000 Hz

REFERENCE VOLTAGE: 3.8 Vdc

DEVIATION LIMIT: ± 0.01 % = 1356Hz

VOLTAGE (%)	POWER Battery	TEMP (ºC)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %		+ 20 (Ref)	13,559,980	-20	-0.000147
100 %		- 20	13,560,018	18	0.000133
100 %		- 10	13,559,978	-22	-0.000162
100 %		0	13,560,023	23	0.000170
100 %		+ 10	13,559,981	-19	-0.000140
100 %		+ 20	13,560,020	20	0.000147
100 %		+ 25	13,559,983	-17	-0.000125
100 %		+ 30	13,560,013	13	0.000096
100 %		+ 40	13,559,980	-20	-0.000147
100 %		+ 50	13,560,018	18	0.000133
Battery End Point	3.40	+ 20	13,559,978	-22	-0.000162
115 %	4.37	+ 20	13,560,020	20	0.000147

Table 8-7. Frequency Stability Test Data

Frequency Stability Test Data (Cont'd)
§15.225

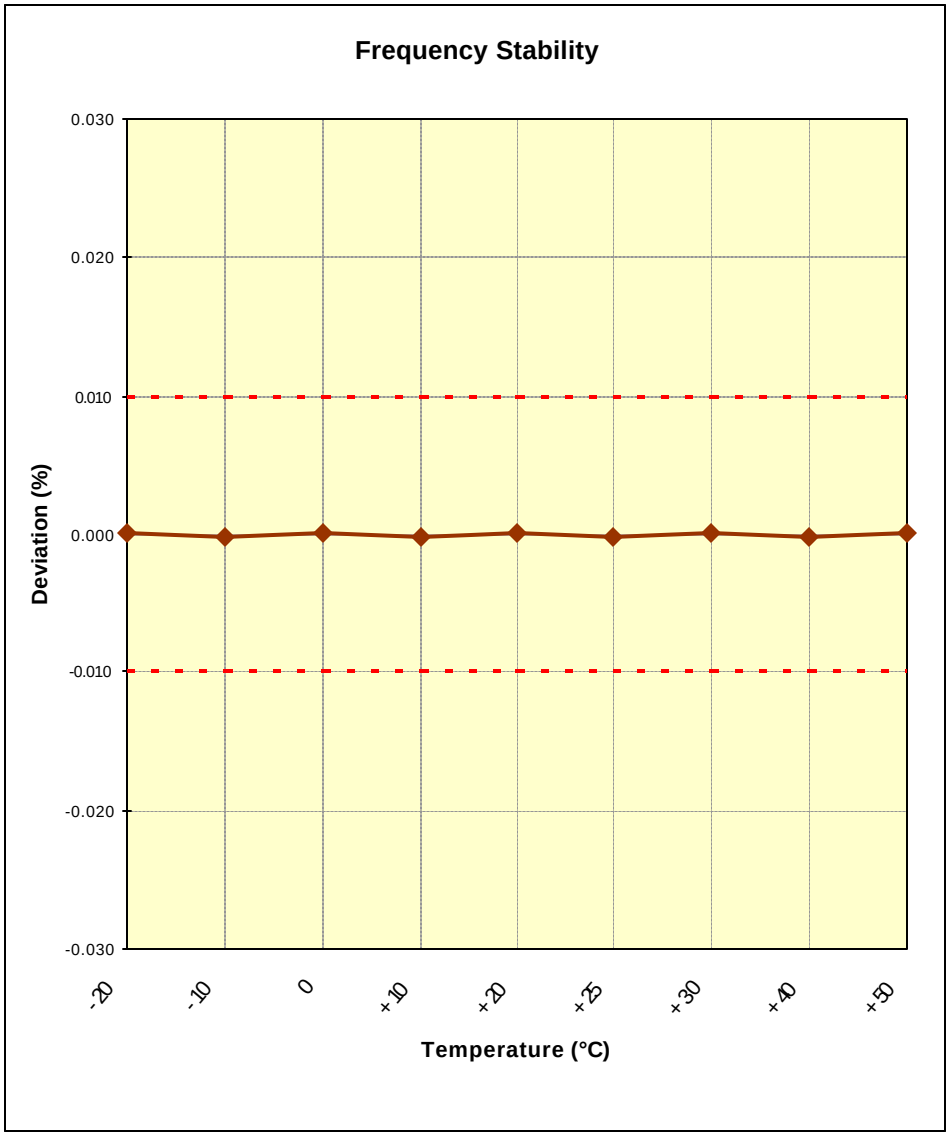


Figure 8-3. Frequency Stability Plot

9.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **NEC 1900 GSM/GPRS and 850 WCDMA/HSPA Phone with Bluetooth, WLAN and RFID FCC ID: A98-GHF1946** has been tested to show compliance with the requirements specified in §15.225 of the FCC Rules.