CETECOM ICT Services GmbH
Untertürkheimer Straße 6-10 . D-66117 Saarbrücken Phone: +49 (0) 681-598-0 Fax:-9075
RSC-Laboratory

Deutscher Akkreditierungs Rat DAR

Accredited testing-laboratory

DAR registration number: DAT-P-176/94-D1

Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97

Recognized by the Federal Communications Commission
Anechoic chamber registration no.: 90462 (FCC)
Anechoic chamber registration no.: 3463A-1 (IC)
Certification ID: DE 0001
Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

Test report no.	**:**	**1-1268-02-02/09-PP**
Type identification	**:**	**KX-TPA50**
Applicant	**:**	**Panasonic Corporation of North America**
FCC ID	**:**	**ACJ96NKX-TPA50**
IC Certification No	**:**	**216A-KXTGP500**
Test standards	**:**	**FCC Part 15, subpart D**
		Industry Canada RSS-213, Issue 2

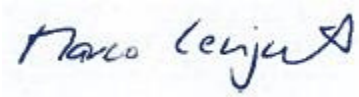
Table of contents

1 General information

1.1 Notes

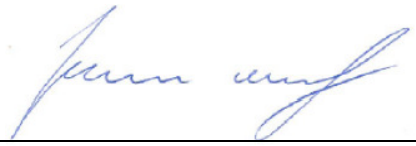
The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:



2009-08-25	**Marco Lenjoint**	
Date	Name	Signature

Technical responsibility for area of testing:



2009-08-25	**Joachim Wolf**	
Date	Name	Signature

1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10
66117 Saarbrücken
Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
e-mail: info@ICT.cetecom.de
Internet: http://www.cetecom-ict.de

State of accreditation: **The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025**
DAR registration number: DAT-P-176/94-D1

Accredited by: **Federal Motor Transport Authority (KBA)**
DAR registration number: KBA-P 00070-97

Testing location, if different from CETECOM ICT Services GmbH:

Name :
Street :
Town :
Country :
Phone :
Fax :

1.3 Details of applicant

Name:	**Panasonic Corporation of North America**
Street:	**One Panasonic Way, Panazip 4B-8**
Town:	**Secaucus, NJ 07094**
Country:	**USA**
Telephone:	**201 348-7758**
Fax:	**201 392-4564**
Contact:	**Mr. Richard Mullen**
E-mail:	**/**
Telephone:	**/**

1.4 Application details

Date of receipt of order:	**2009-08-25**
Date of receipt of test item:	**2009-08-25**
Date of start test:	**2009-08-25**
Date of end test	**2009-08-25**
Persons(s) who have been present during the test:	**/**

2 Test standard/s:

FCC Part 15, subpart D	**Isochronous UPCS Device 1920 – 1930 MHz**
Industry Canada RSS-213, Issue 2	**2 GHz Licence-exempt Personal Communication Service Devices (LE-PCS)**

3 Technical tests

3.1 Details of manufacturer

Name:	**Panasonic Communications Co., Ltd.,**
	Communication Network Company
Street:	**1-62, 4-chome Minoshima, Hakataka-ku**
Town:	**Fukuoka-shi 812-8531**
Country:	**Japan**

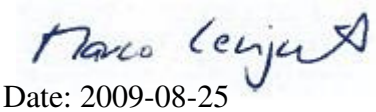
3.1.1 Test Item

Kind of test item	:	**UPCS Portable station**
Type identification	:	**KX-TPA50**
S/N serial number	:	**/**
HW hardware status	:	**Prototype sample**
SW software status	:	**SW 1.41**
Tested to Radio Standards Specification (RSS) No.	:	**RSS-213 Issue 2**
Open Area Test Site Industry Canada Number	:	**IC 3463A-1**
Frequency Band [MHz]	:	**1920 – 1930**
Frequency Range (or fixed frequency)	:	**1921.536 – 1928.448 MHz**
Type of Modulation	:	**Digital (Gaussian Frequency Shift Keying)**
Number of channels	:	**5 RF Channels, 5x12 = 60 TDMA Duplex Channels**
Antenna information	:	**1 permanently attached antennas, no ext. connector**
RF Power [W] (max)	:	**/** **/**
Occupied Bandwidth (99% BW)	:	**/**
Emission Designator (TRC-43)	:	**/**
Receiver Spurious (worst case)	:	**/**
Transmitter Spurious (worst case)	:	**/**
Power Supply	:	**DC 2.4 V NIMH battery, Desktop charger**
Temperature Range	:	**-20 °C to 50 °C**

FCC ID: ACJ96NKX-TPA50
IC: 216A-KXTGP500

ATTESTATION: I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:



Date: 2009-08-25

Test engineer: Marco Lenjoint

3.2 Description of the tested Device

3.3 Test Environment

Description	Shortcut	Unit	Value
Nominal Temperature	T_{nom}	°C	**21 - 24**
Nominal Humidity	H_{nom}	%	**30 -50**
Nominal Power Source	V_{nom}	V	**2.4 V DC**

3.4 Other Comments

The tested device supports full and long slot operation mode. The used operation mode has no influence to the recorded measurement results.

4 Statement of Compliance

4.1 Summary of Measurement Results

☒ **No deviations from the technical specifications were ascertained**

☐ There were deviations from the technical specifications ascertained

CFR 47 Part 15 UPCS

Name of test	FCC CFR 47 Paragraph	IC RSS-213 Paragraph	Verdict
Coordination with fixed microwave	15.307(b)	N/A	Not Tested
Digital Modulation Techniques	15.319(b)	6.1	Not Tested
Labeling requirements	15.19(a)(3)	RSS-GEN 5.2	Not Tested
Antenna requirements	15.317, 15.203	4.1(e)	Not Tested
Power Line Conducted Emission	15.107(a), 15.207(a)	6.3 RSS_GEN 7.2.2	Complies
Emission Bandwidth	15.323(a)	6.4	Not Tested
In-band Emission	15.323(d)	6.7.2	Not Tested
Out-of-band Emissions	15.323(d)	6.7.1	Not Tested
Peak Transmit Power	15.319(c)(e), 15.31(e)	6.5	Not Tested
Power Spectral Density	15.319(d)	4.3.2.1	Not Tested
Automatic discontinuation of transmission	15.319(f)	4.3.4(a)	Not Tested
Carrier frequency stability	15.323(f)	6.2	Not Tested
Frame repetition stability	15.323(e)	4.3.4(c)	Not Tested
Frame period and jitter	15.323(e)	4.3.4(c)	Not Tested
Monitoring threshold, Least interfered channel	15.323(c)(2);(5); (9)	4.3.4(b)	Not Tested
Monitoring of intended transmit window and maximum reaction time	15.323(c)(1)	4.3.4	Not Tested
Threshold monitoring bandwidth	15.323(c)(7)	4.3.4	Not Tested
Reaction time and monitoring interval	15.323(c)(1);(5); (7)	4.3.4	Not Tested
Access criteria test interval	15.323(c)(4);(6)	4.3.4	N/A[1]
Access criteria functional test	15.323(c)(4);(6)	4.3.4	N/A[1]
Acknowledgments	15.323(c)(4)	4.3.4	Not Tested
Transmission duration	15.323(c)(3)	4.3.4	Not Tested
Dual access criteria	15.323(c)(10)	4.3.4	Not Tested
Alternative monitoring interval	15.323(c)(10);(11)	4.3.4	N/A[2]
Spurious Emissions (Antenna Conducted)	15.323(d)	6.7.1	Not Tested
Spurious Emissions (Radiated)	15.319(g), 15.109(a), 15,209(a)	4.3.3 RSS-GEN 7.2.3	Not Tested
Receiver Spurious Emissions	N/A	6.8	Not Tested

[1] Only applicable for EUT that can initiate a communication link
[2] The client declares that the tested equipment does not implement this provision
[3] The tested equipment has integrated antennas only
[4] Only requirement FCC 15.109 for unintentional radiators was tested radiated

5 Measurements and results

5.1 Power Line Conducted Emissions

Measurement Procedure:

ANSI C63.4-2003 using 50µH/50 ohms LISN.

Test Result: **Pass**

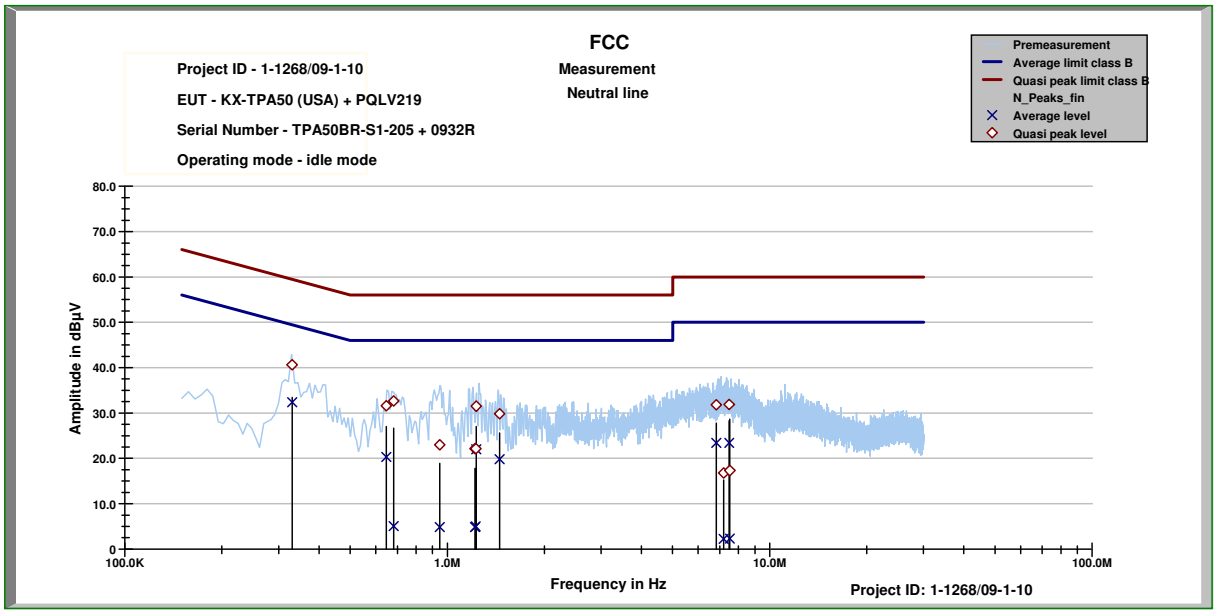
Measurement Data: **See attached graph, (Peak detector).**

Highest measured value (L1 and N):

All values were below the Average Limit even when measured with the Peak Detector.

Requirement: FCC 15.207 (a)

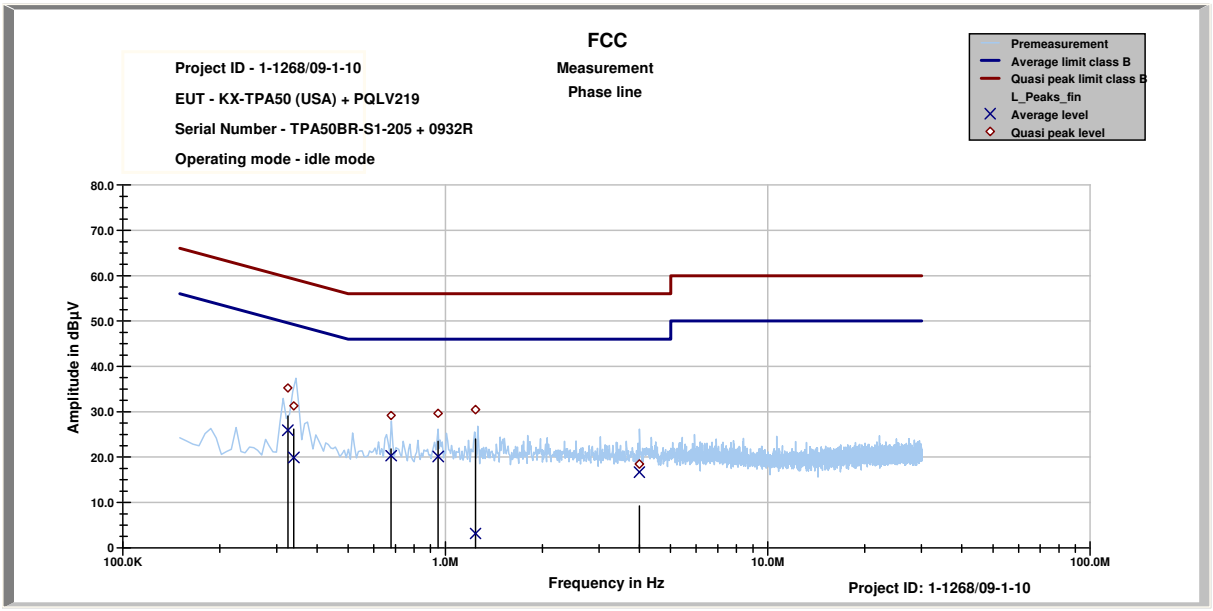
AC Adaptor:
Model: PQLV219
Marker's ID: "LJ" in a circle



Idle mode, neutral line

10:34:15 AM, Tuesday, August 25, 2009

Frequency	Quasi peak level	Margin quasi peak	Average level	Margin average
MHz	dBµV	dBµV	dBµV	dBµV
0.32993	40.60	18.85	32.35	18.51
0.64687	31.61	24.39	20.28	25.72
0.68181	32.66	23.34	5.06	40.94
0.94773	22.98	33.02	4.84	41.16
1.21903	22.13	33.87	4.80	41.20
1.22508	22.12	33.88	4.95	41.05
1.22925	31.49	24.51	22.00	24.00
1.4537	29.83	26.17	19.79	26.21
6.8261	31.81	28.19	23.40	26.60
7.1971	16.76	43.24	2.23	47.77
7.4848	31.88	28.12	23.41	26.59
7.5237	17.29	42.71	2.29	47.71



Idle mode, phase line

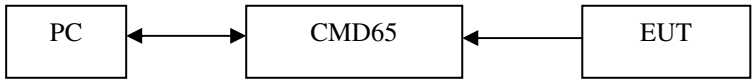
10:34:15 AM, Tuesday, August 25, 2009

Frequency	Quasi peak level	Margin quasi peak	Average level	Margin average
MHz	dBµV	dBµV	dBµV	dBµV
0.32474	35.23	24.35	25.93	25.08
0.33903	31.26	27.96	19.90	30.70
0.67943	29.17	26.83	20.28	25.72
0.95019	29.64	26.36	20.13	25.87
1.24113	30.48	25.52	3.14	42.86
3.9991	18.45	37.55	16.66	29.34

6 Test Setups

6.1 Frequency Measurements

Test Set-up 1:



This setup is used for measuring Carrier Frequency Stability at nominal and extreme temperatures.

For long term Frequency Stability, the EUT was in loopback-mode and was controlled with the CMD65, the modulation pattern was set to 01010101….

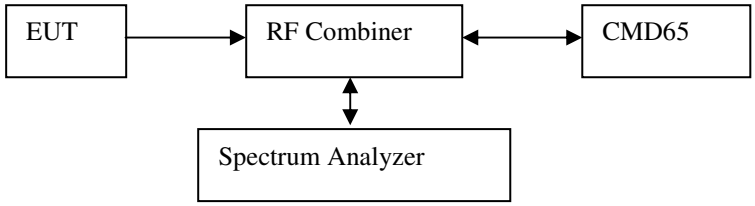
6.2 Timing Measurements

Test Set-up 2:

This setup is used for measuring Frame Repetition Stability, Frame Period and Jitter.

6.3 Conducted Emission Test

Test Set-up 3:



This setup is used for all conducted emission tests.

The EUT was in loopback-mode and was controlled with the CMD65, the modulation pattern was set to Pseudo-Random bit sequence to simulate normal speech.

6.4 Radiated Emission Test

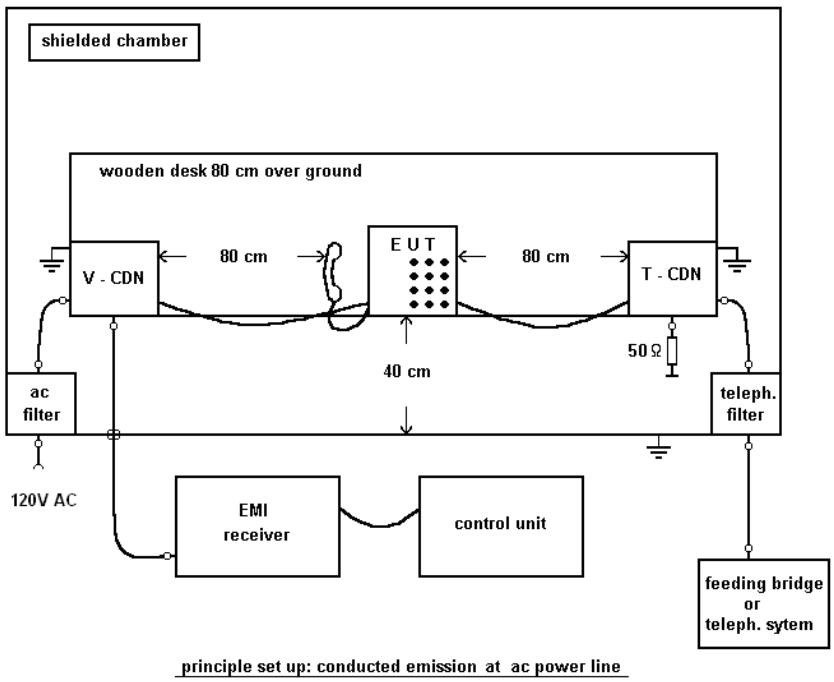
Test Set-up 4:

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are conform with specifications ANSI C63.2-1987 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2003 clause 4.2.
Antennas are conform with ANSI C63.2-1996 item 15.

9 kHz - 150 MHz: Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.
150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, passive loop antenna.
30 MHz - 200 MHz: Quasi Peak measurement, 120 KHz Bandwidth, bilog antenna
200MHz - 1GHz: Quasi Peak measurement, 120 KHz Bandwidth, bilog antenna
1GHz: Average, RBW 1MHz, VBW 10 MHz, waveguide horn

6.5 Power Line Conducted Emissions Test

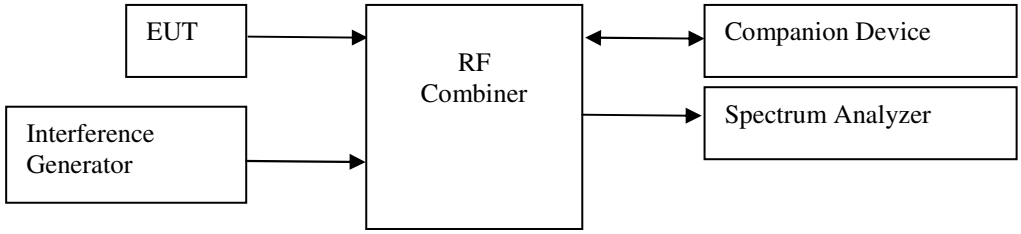
Test Set-up 5:



principle set up: conducted emission at ac power line

6.6 Monitoring Tests

Test Set-up 6:



This test setup is used for all Monitoring and Time and Spectrum Access Procedure tests. The path loss from the signal generator to the EUT is measured with a power meter before the testing is started.

A clock signal is used to synchronize the Interference Generator to the start of the DECT frame, this signal always comes from the base station. If the EUT is a DECT portable Part (i.e. a handset) the clock signal will come from the Companion Device.

7 Used Test Equipment

No.	Instrument/Ancillary	Manufacturer	Type	Serial-No.	Internal identification
	Radiated Emission				
F-1	Control Computer	F+W		FW0502032	300003303
F-2	Trilog antenna	Schwarzbeck	VULB 9163	9163-295	---
F-3a	Amplifier	Veritech Microwave Inc.	0518C-138	- / -	- / -
F-4b	Switch	HP	3488A	- / -	300000368
F-5	EMI Test receiver	R&S	ESCI	100083	300003312
F-6	Turntable Controller	EMCO	1061 3M	1218	300000661
F-7	Tower Controller	EMCO	1051 Controller	1262	300000625
F-8	Tower	EMCO	1051 Tower	1262	300000625
F-9	EMI Test receiver	R&S	ESU	- / -	300003555
	Power Line Conducted Emission				
I-1	Spectrum Analyzer	Agilent	E4440A	MY48250080	300003812
I-2	RF Preselector	Agilent	N9039A	MY48260003	300003825
I-3	Signal Generator	Agilent	N5183A	MY47420220	300003813
I-4	Relay Matrix	R&S	PSU	890167/024	300001168
I-5	Computer	Medion	- / -	- / -	300002898
I-6	Software	ETC Lindgren	Tile!	- / -	- / -
I-7	AC power supply	Grundig	RT 5A	- / -	300001263
I-8	Two Line V-Network	R&S	ESH3-Z5	- / -	300001210
	Conducted				
1	Spectrum Analyzer	R&S	FSV30	100763	- / -
2	Signal Generator	R&S	SMU200A	101633	300003496
3	Oscilloscope	Tektronix	DPO 7254	B022702	300003573
4	Oscilloscope	Tektronix	DPO 4034	C020330	300003740
5	Counter	Philips	PM 6654C	316568/002	- / -
6	Signaling Unit	R&S	CMD 65	825486/005	300000103
7	Combiner	R&S	1025.3400.02	- / -	- / -
80	Combiner	Suhner	4901.19A	- / -	- / -
9	Combiner	Weinschel	1515	KW438	- / -
10	Step Attenuator	R&S	DPSP	860898/005	- / -
11	Detector	Hewlett Packard	HP 8473C	03690	- / -
12	Attenuator	Narda	4779-50	9101	- / -
13	Attenuator	Narda	4779-30	9305	- / -
14	Attenuator	Narda	4779-20	9310	- / -
15	Control PC	F+W	/	FW0712052	300003735