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The Netherlands
Chamber of Commerce
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Radio test report
99830120 - rev. 2.0

based on:

- FCC Part 15 Subpart B sections 15.107 & 15.109 (10-1-05 Edition)
- RSS-210, Issue 6 (Sept. 2005 edition)

Wireless Audio Module
Panasonic
SE-FX65-1

Contents

MAIN MODULE **3**

1 INTRODUCTION 3
2 PRODUCT 4
3 TEST SCHEDULE 4
4 PRODUCT DOCUMENTATION 5
5 OBSERVATIONS AND COMMENTS 5
6 MODIFICATIONS TO THE SAMPLE 6
7 SUMMARY 6
8 CONCLUSIONS 7

TEST RESULTS MODULE **8**

1 GENERAL INFORMATION 8
1.1 Equipment information 8
1.2 Test conditions 8
2 EMISSION TESTS 9
2.1 Field strength of unwanted emissions 30 - 1000 MHz 9
2.2 Field strength of unwanted emissions > 1000 MHz 10
2.3 Conducted emissions 12

USED TEST EQUIPMENT MODULE **14**

CROSS REFERENCE TABLE **15**

REVISION HISTORY **16**

This report comprises of four modules. The total number of pages is: 16

Main module

1 Introduction

This report contains the result of tests performed by:

Telefication B.V.
Edisonstraat 12a
6902 PK Zevenaar
The Netherlands

Ordering party:

Company name	:	Panasonic AVC Networks Singapore
Address	:	202 Bedok South Avenue 1
Zipcode	:	469332
City/town	:	Singapore
Country	:	Singapore
Date of order	:	30 November 2006

2 Product

A sample of the following product was submitted for testing:

Product description	:	Wireless Audio Module
Manufacturer	:	Panasonic AVC Networks Singapore
Trade mark	:	Panasonic
Type designation	:	SE-FX65-1
FCC ID	:	ACJR07003
IC ID	:	216A-R07003
Hardware version	:	--
Serial number	:	--
Software release	:	--

3 Test schedule

Tests were carried out in accordance with the specification detailed in chapter 7 “Summary” of this report.

Tests were carried out at the following location:

- Telefication, Zevenaar

The samples of the product were received on:

- 28 November 2006

Tests were carried out from:

- 28 November 2006 to 29 November 2006

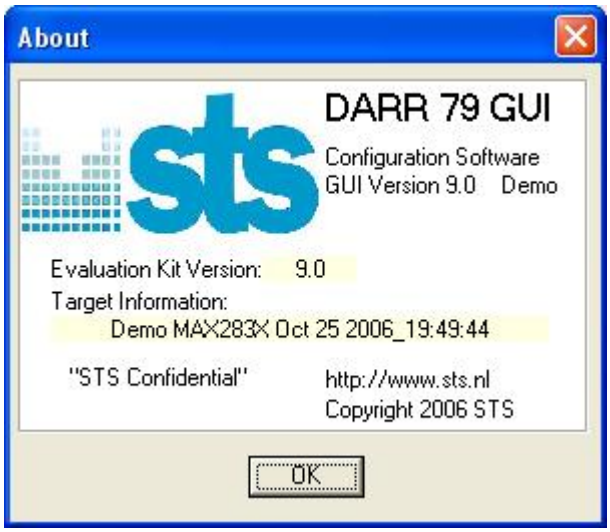
4 Product documentation

For production of this report no product documentation was used.

5 Observations and comments

The product supplied for testing is a 2.4 GHz digital wireless audio transceiver. This product, SE-FX65-1, is a variant of the SH-FX65T-1. The test results of the SH-FX65T-1 module can be found in Telefication Test report 99830130. The differences between the two products are the digital to analogue audio part. This part of the module belongs to the unintentional radiator part. As a consequence only the measurements as stated in clause 7 are performed.

The PCB is equipped with two integral PCB antennas. The product was controlled by a test tool named DARR 79 GUI Configuration Software (GUI Version 9.0 Demo)



For measurements on the receiving mode of the module the following register of the MAX2831 radio chip was changed: Register 13, the VCO bias bits D12:10 = 000 instead of 011

A reservation was made to perform radiated emission measurement on the following Open Area Test Site:

TNO Electronic Products & Services (EPS) B.V
Smidshornerweg 18
9822 TL Niekerk
The Netherlands

FCC listed : 90828
Industry Canada : IC3501

Since the exploratory measurements revealed no emissions in the frequency range 30 - 1000 MHz, the final measurements on the Open Area Test Site, as listed above, were judged unnecessary.

6 Modifications to the sample

No modifications were made to the sample.

7 Summary

The product is intended for use in the following application area(s):

INTENTIONAL RADIATOR OPERATING IN THE FREQUENCY BAND 2400 - 2483.5 MHz

The sample was tested according to the following specification(s):

FCC Part 15 Subpart B sections 15.107 & 15.109 (10-1-05 Edition);
RSS-210, Issue 6 (Sept. 2005 edition).

8 Conclusions

The samples of the product showed **NO NON-COMPLIANCES** to the specification stated in chapter 7 of this report.

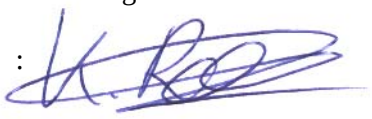
The results of the tests as stated in this report, are exclusively applicable to the product items as identified in this test report. Telefication does not accept any responsibility for the results stated in this test report, with respect to the properties of product items not involved in these tests.

All tests are performed by:

name : ing. K.A. Roes

function : Test Engineer

signature :



Review of test report by:

name : ing. P. A. Suringa

function : Senior Engineer Radio/EMC

signature :

The above conclusions have been verified by the following signatory:

Date : 17 January 2007

name : J.P. van de Poll

function : Co-ordinator Test Group

signature :

Test results module

1 General information

1.1 Equipment information

Operating frequency range	2412, 2438, 2464 MHz
Antenna	Internal
Host connection	Dedicated

1.2 Test conditions

Temperature: 24 ºC Humidity: 48 %

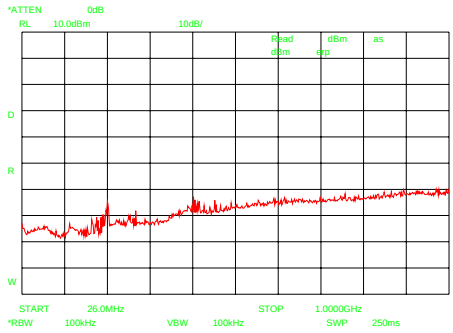
2 Emission tests

2.1 Field strength of unwanted emissions 30 - 1000 MHz

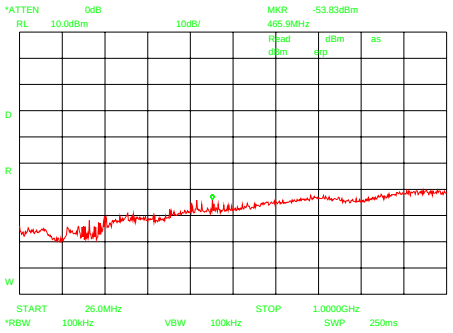
Compliance standard	:	FCC part 15, subpart B, section 15.109 (a)
Method of test	:	ANSI C63.4-2003, sections 5.5, 8.2.3, 8.2.4 & 8.3.1.2; FCC part 15, subpart A, section 15.31(m), 15.33, 15.35.
EUT condition	:	Active
Test results	:	

Exploratory measurements of unwanted emissions 30 - 1000 MHz

Ch 1/2/3:



pre-scan data 26 - 1000 MHz
polarization horizontal (max. hold)



pre-scan data 26 - 1000 MHz
polarization vertical (max. hold)

Prior to the tests on the OATS (Open Area Test Site) radiated emission measurements at 3 m distance in a Fully Anechoic Chamber (FAC) have been carried out to determine on which frequencies radiation can be expected

As the pre-compliance test results did not reveal any emissions less than 20 dB below the limit, compliance tests on an OATS were considered unnecessary.

Measurement uncertainty: N/A

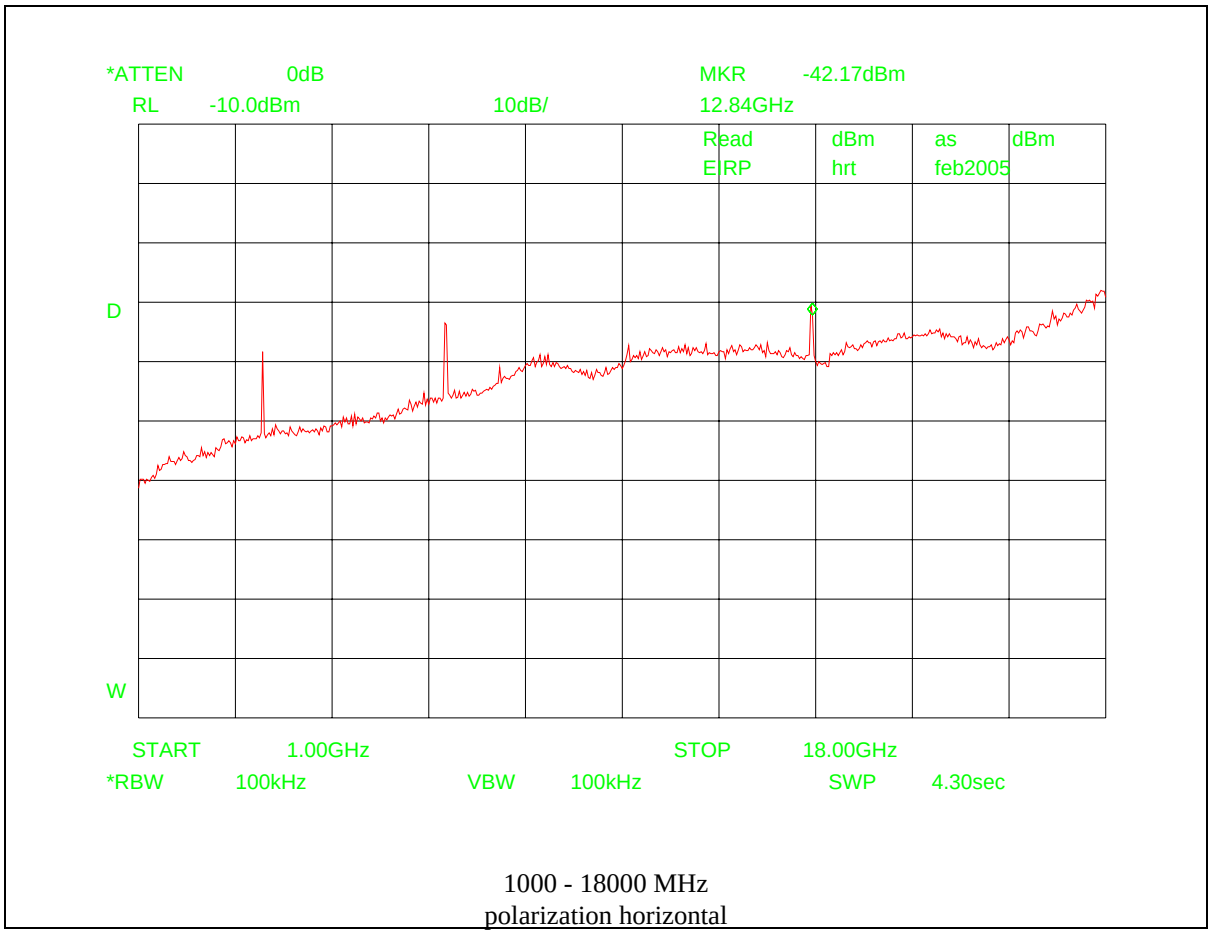
2.2 Field strength of unwanted emissions > 1000 MHz

Compliance standard : FCC Part 15 Subpart B section 15.109 (a)
Method of test : ANSI C63.4-2003, sections 5.5, 8.2.3, 8.2.4 & 8.3.1.2;
FCC part 15, subpart A, section 15.31(m), 15.33, 15.35.

Test results :

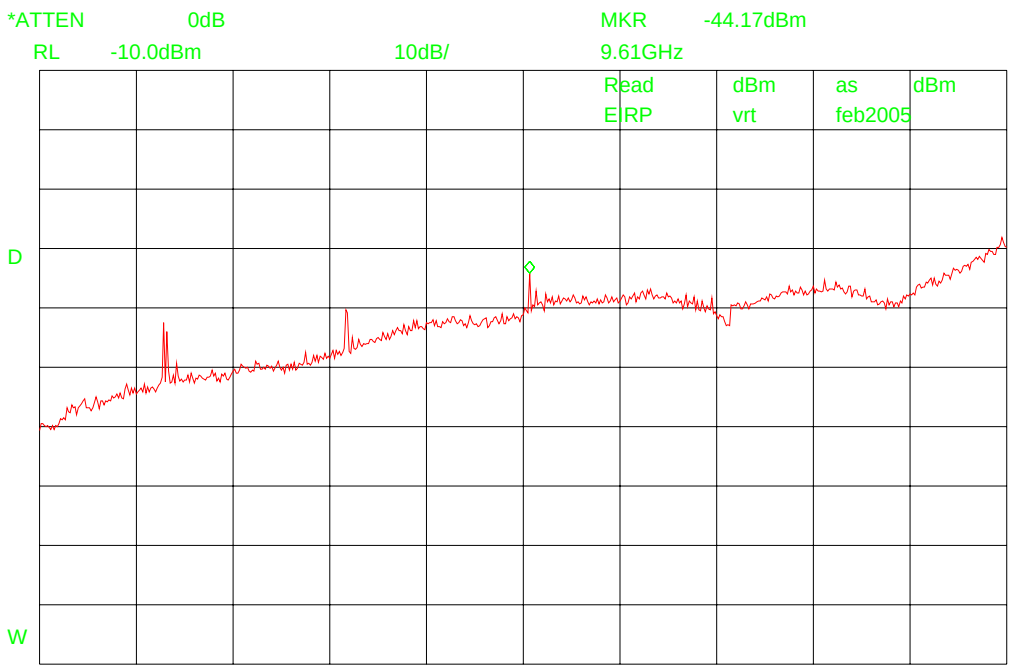
Unwanted emissions (dBm e.i.r.p):

Ch 1/2/3:



1000 - 18000 MHz
polarization horizontal

Ch 1/2/3:



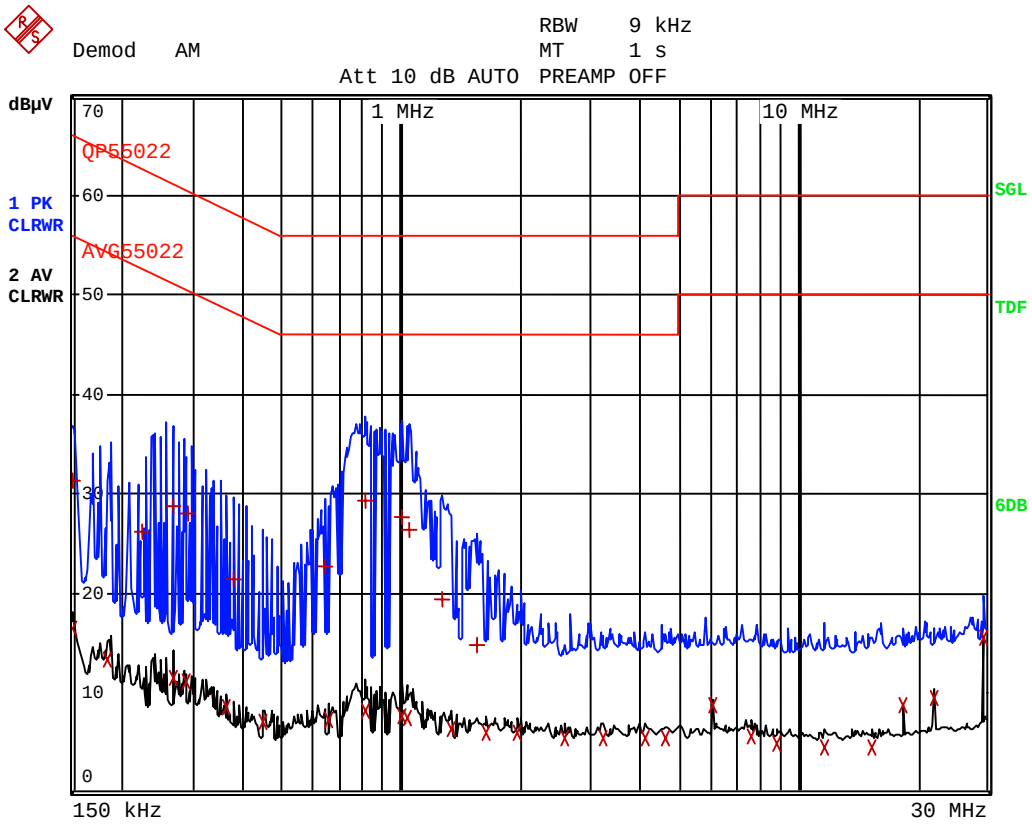
1000 - 18000 MHz
polarization vertical

Spurious Emission Levels			
Frequency (GHz)	Pol	RBW(kHz)	Level (dBµV/m) (Pk)
3.2	H	100 kHz	43.5
12.8	H	100 kHz	51.7
3.2	H	100 kHz	43
13	H	100 kHz	52.5
5.3	H	100 kHz	43.3
13	H	100 kHz	53.1
Measurement uncertainty		f ≤ 1 GHz: +2.6/-3.3 dB; f > 1 GHz: +4.5/-6.1 dB	
Note: RBW (kHz); refers to the bandwidth of the measuring receiver or spectrum analyzer			

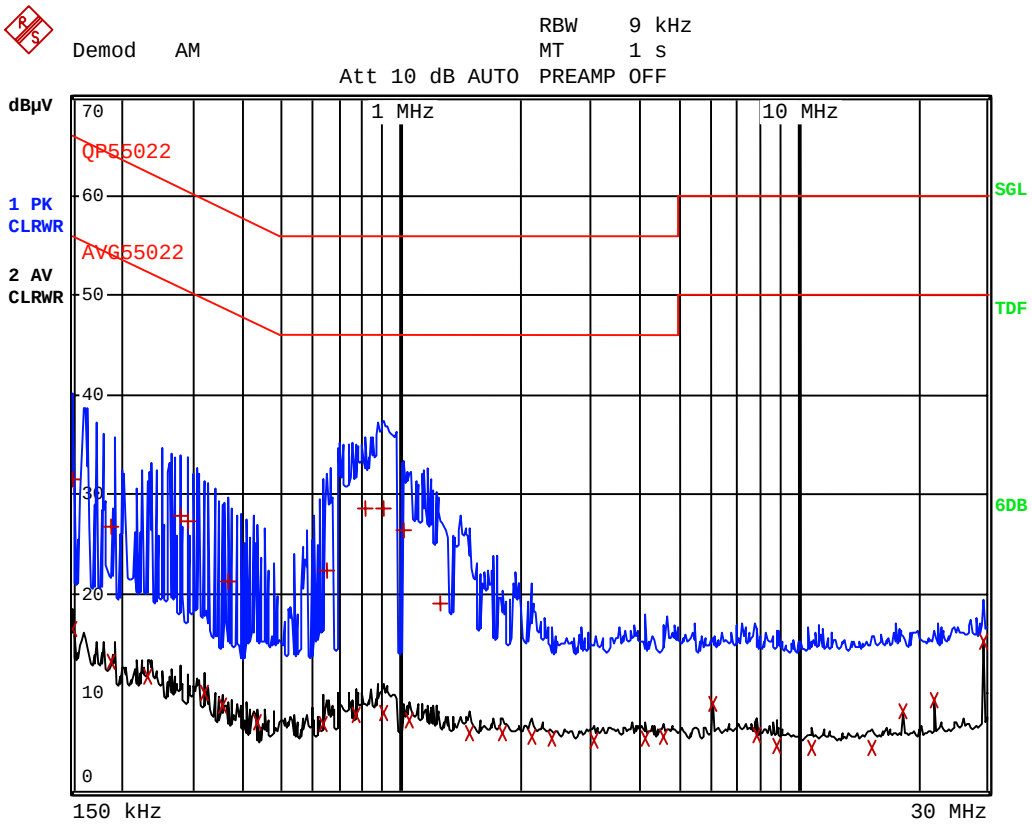
2.3 Conducted emissions

Compliance standard	:	FCC part 15, subpart B, section 15.107 (a).
Configuration	:	Module with support PCB
Method of test	:	ANSI C63.4-2003, sections 5.2 & 6.2.2; FCC part 15, subpart A, section 15.35.
Test results	:	

Mains port N



Mains port L1



Measurement uncertainty: +3.1 dB / -3.1 dB

Used test equipment module

The following measurement equipment was used:

Description	ID / SN	Manufacturer	Model	Used at par.
Spectrum Analyzer	TE 00481	Hewlett Packard	HP8563E	2.1, 2.2
RF Pre-amplifier up to 1000 MHz	TE 00098	Rohde & Schwarz	ESV-Z3	2.1
RF Pre-amplifier 1 - 26.5 GHz	TE 00093	Hewlett Packard	HP8449B	2.2
Biconilog antenna	TE 00700	Emco	3143	2.1
Horn Antenna	TE 00532	Emco	3115	2.2
Anechoic Chamber	TE 01064	Euroshield	RFD-F-100	2.1, 2.2
Thermo-hygrometer	TE 00096	Lufft	B145	
Antenna tower	--	HD	AS 620p	2.1
Turntable	--	HD	DS 412	2.1, 2.2
Turntable controller	--	HD	HD 050	2.1, 2.2
Test receiver	TE 11128	Rohde & Schwarz	ESCI	2.3
Pulse limiter	TE 00227	Rohde & Schwarz	ESH3-Z2	2.3
Artificial mains network	TE 00208	Rohde & Schwarz	ESH2-Z5	2.3
Test (host) computer	--	Medion	Notebook	2.3
Test (host) computer	--	Dell	Optiplex GXa	2.3

Cross reference table

General	
CNR RSS-Gen Issue 1	**FCC 47 CFR Ch. 1 part 15 subpart B (10-1-05 Edition)**
Par. 7.2.2	§ 15.107
Category II receiver	
CNR RSS-Gen Issue 1	**FCC 47 CFR Ch. 1 part 15 subpart B (10-1-05 Edition)**
Par. 6	§ 15.109

Revision history

REVISION	DATE	REMARKS
1.0	15 January 2007	- Corrected product type designation; - Changed FCC ID; - Added IC ID.
2.0	17 January 2007	- Corrected product type designation in chapter 5.