Actions Mesures

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EMC TEST REPORT

Nr 3323-FCC

This test report applies only on equipment described hereafter.

Proposal number: 200502-2638

Date of test..... : February 28th, 2005

Location..... : SMEE ***Actions Mesures*** Laboratory - 38 VOIRON

Performed by..... : Laurent CHAPUS

Customer..... : **GEMPLUS** (Represented by Mr. Pierre André Collet)
ZI Athelia III – Voie Antiope
13705 LA CIOTAT
FRANCE

Product..... : **MySIM COPIER 3G**
(FCC ID: MESMSC3G)

Type of test ..... : **Radiated Emission Test**

Applied standards or specification: **FCC Part 15, Subpart B**
CISPR 22 (2003)
ANSI C63-4 (2003)

Level ..... : CISPR 22 Class B

Test objective..... : Qualification

Results ..... : **Sample tested in configuration and description presented in this test report complies with prescriptions and limits of CISPR 22 standards (class B).**

 This report contents 6 pages

Written by..... : Laurent CHAPUS

Date : March 7th , 2005

Approved by .....: Jean-Pierre ORY

1. System test configuration

1.1. JUSTIFICATION:

The system was configured for testing in a typical fashion (as a customer would normally use it).
The equipment MySIMCOPIER3G permits the data transfer (copy of personal data such as number of phone, messages) from an old SIM card to a new one.

1.2. HARDWARE IDENTIFICATION:

*** Equipment Under Test (EUT):** **MySIMCOPIER3G** **Sn: none**

- Input/output : none
- Frequencies : 6MHz-1.5MHz
- Power supply: 3x 1.5V batteries (LR44)

1.3. AUXILIARIES:

The FCC IDs for all equipment, plus description of all cables used in the tested system are:

Trade Mark – Model Number (Serial number)	FCC ID	Description	Cables description
MySIM COPIER 3G * (sn: none)	**MESMSC3G**	**Smart card (SIM) copier**	No cable
2x GEMPLUS SIM cards (sn: none)	**None**	**SIM cards**	

*: Equipment under test

1.4. RUNNING MODE:

For testing the **MySIMCOPIER3G**, a special inboard soft (EMC Soft) is used to operate the equipment in a continuous way. Data from an old SIM card is transferred to a new one during the test of the equipment.

1.5. I/O CABLES:

No I/O cable used for the test.

1.6. EQUIPMENT MODIFICATIONS:

No equipment modification has been necessary during testing to achieve compliance to CIRPR22 Class B levels. The unit tested was representative to a production unit.

2. Radiated emission data

2.1. TEST SET-UP:

The equipment under test and auxiliaries are set on a non-conducted table of 80cm height, above the ground plane.
New batteries are used during the test.

The installation of EUT is identical for pre-characterization measures in a 3 meters full anechoic chamber and for measures on a 10 meters Open site.

2.2. TEST EQUIPMENT:

Test Equipment from 30MHz to 1GHz on the 10 meters open site:

Equipment	Company	Model	Serial
Spectrum Analyzer	HP	8568B	2732A04140
Quasi-Peak adapter	HP	85650A	2811A01136
RF Pre-selector	HP	85685A	2833A00773
Biconical Antenna	EMCO	3104C	9401-4636
Log Periodic Antenna	EMCO	3146	2178
OATS			

EMCO-1050, 6 meters height antenna mast & EMCO-1060, 3 meters diameter Turntable.

A 10 meters Open site located in SMEE ***Actions Mesures*** - Voiron (FRANCE).

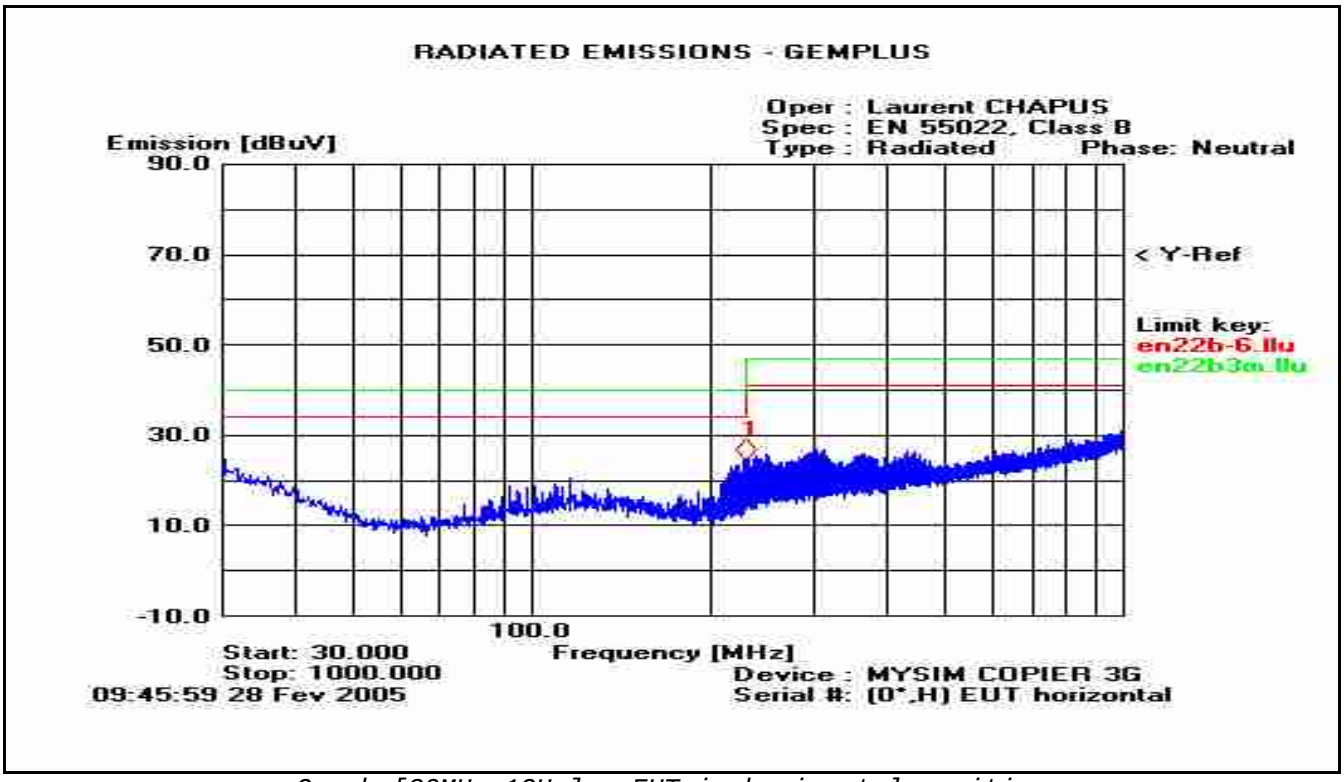
Pre-scan, test Equipment from 30MHz to 1GHz:

Equipment	Company	Model	Serial
EMC Analyzer	HP	8591EM	3536A00384
Amplifier	HP	8447F H64	3113A06394
Antenna (30MHz-1GHz)	CHASE	CBL6111A	1628

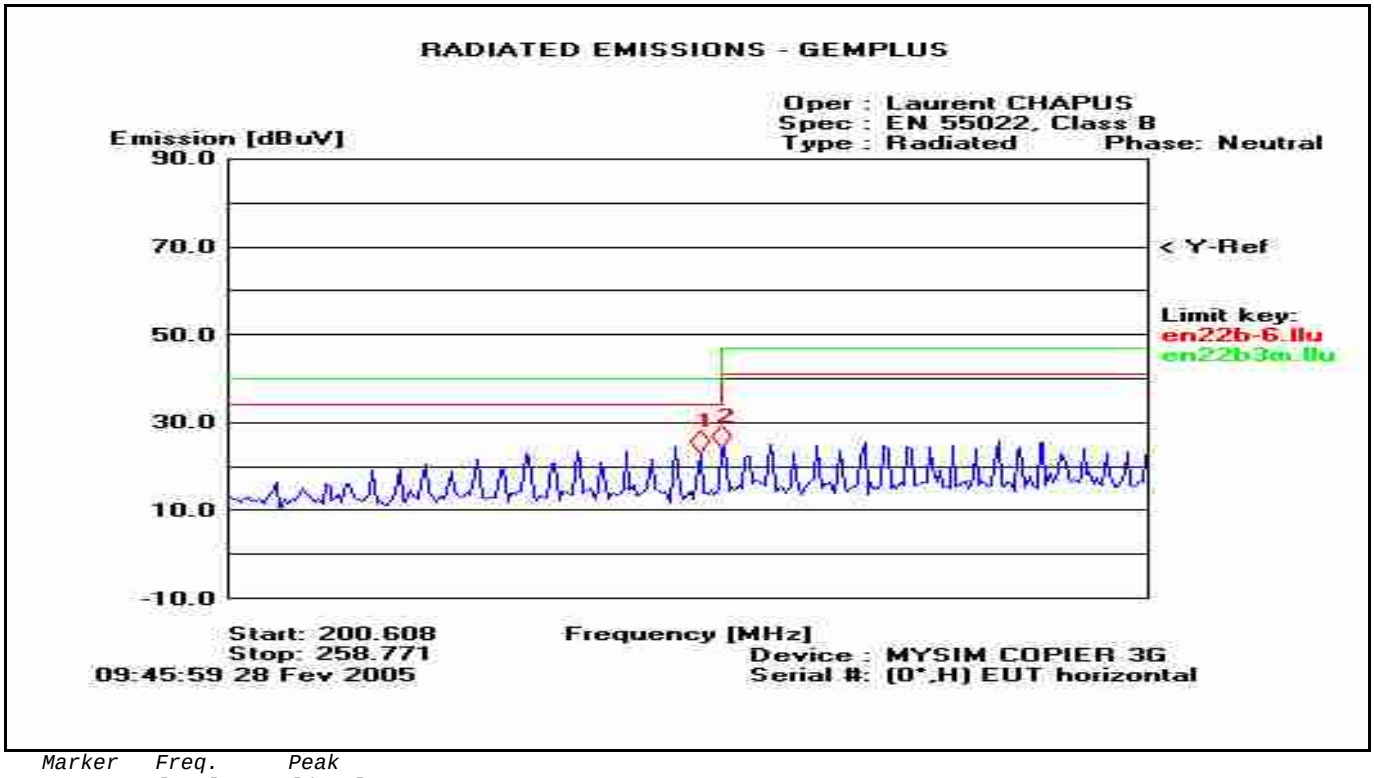
2.3. TEST SEQUENCE AND RESULTS:

2.3.1. Pre-characterization at 3 meters

A pre-scan of all the setup has been performed in a 3 meters full anechoic chamber. The distance between EUT and antenna is 3 meters. Test is performed in horizontal (H) and vertical (V) polarization, and on 4 faces of the EUT. See below for graph example.
EUT is tested in both vertical and horizontal positions.
Graphs are obtained in PEAK detection.



Graph [30MHz-1GHz] – EUT in horizontal position
(RBW is 120kHz; VBW is 300kHz)



Marker	Freq. [MHz]	Peak [dBuV]
1	228.6	23.08
2	230.0	24.28

2.3.2.Characterization on 10 meters open site from 30MHz to 1GHz

The product has been tested according to ANSI C63.4 (2003) and CISPR 22 (2003). Radiated emissions were measured on an open area test site. A description of the facility is on file with the FCC.

The product has been tested with new batteries, at a distance of 10 meters from the antenna and compared to the CISPR 22 Class B limits. Measurement bandwidth was 120kHz from 30MHz to 1GHz.
Antenna height search was performed from 1m to 4m for both horizontal and vertical polarization. Continuous linear turntable azimuth search was performed with 360 degrees range.
Frequency band investigated is 30MHz to 1GHz.

Equipment was moved to position that maximized emission. A summary of the worst case emissions found in all test configurations and modes is shown on clause 2.3.1.

Frequency list has been created with anechoic chamber pre-scan results.

2.3.3. Qualification results

Frequency list has been created with anechoic chamber pre-characterization results. Measurements are performed in QUASI-PEAK detection.

EUT set in horizontal position:

No	Frequency (MHz)	Qpeak Limit * (dBµV/m)	Qpeak (dBµV/m)	Qpeak-Lmt (dB)	Angle (deg)	Hgt (cm)	Pol	Tot Corr. (dB)	Comments
1	228.502	30.0	17.2	**-12.8**	143	376	H	13.8	
2	229.962	30.0	18.6	**-11.4**	175	391	H	13.8	Worst margin

EUT set in vertical position:

No	Frequency (MHz)	Qpeak Limit * (dBµV/m)	Qpeak (dBµV/m)	Qpeak-Lmt (dB)	Angle (deg)	Hgt (cm)	Pol	Tot Corr. (dB)	Comments
1	229.962	30.0	17.9	**-12.1**	79	118	V	13.8	

*: CISPR22 Class B limits

Results: COMPLY.

2.4. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follow:

FS = RA + AF + CF – AG

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Factor
AG = Amplifier Gain

Assume a receiver reading of 52.5dBµV is obtained. The antenna factor of 7.4 and a cable factor of 1.1 is added. The amplifier gain of 29dB is subtracted, giving a field strength of 32 dBµV/m.

FS = 52.5 + 7.4 + 1.1 – 29 = 32 dBµV/m

The 32 dBµV/m value can be mathematically converted to its corresponding level in µV/m.

Level in µV/m = Common Antilogarithm [(32dBµV/m)/20] = 39.8 µV/m.

3. CONCLUSION

Sample of the equipment MySIMCOPIER3G (sn: none) tested in the configuration described in this report, complies with prescriptions and limits of the CISPR 22 (2003) standard, class B.