



EMC & ELECTRICAL SAFETY COMPLIANCE TESTS LABORATORY

CE Notified Body n. 0397 (Electromagnetic Compatibility – Decree MI.S.E. 04.04.13)

MI.S.E. Laboratory accreditation Certificate (DM 84/02): n. 110 of 04.10.11

Notified Body Electric Material Safety Test (Decree MI.S.E. 17.04.13)

TEST REPORT NUMBER N. 18L/2015

Customer	ACME SYSTEMS S.r.l. Via Aldo Moro, 53 00055 Ladispoli (RM) - Italy
Item	Arietta G25
Target	Tests on emission and immunity electromagnetic compatibility
Normative References	EN 55022 (2009); EN 55024 (2012)
Date of tests	05;06.02.2015
Nr. of pages	16
Test result	Passed
Date	09.02.2015

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1. TARGET

Target of this report is the tests on emission and immunity electromagnetic compatibility concerning a system called Arietta G25, assembled by ACME SYSTEMS S.r.l.. The Tests have been made at the OCE Laboratory in Palestrina (Rome).





2. DEVICE UNDER TEST

2.1 Identification of device under test (DUT)

Applicant:	ACME SYSTEMS S.r.l.
Description:	Linux Embedded Boards
Manufacturer:	ACME SYSTEMS S.r.l.
Model:	Arietta G25
Serial number:	Absent
Destination:	Class B





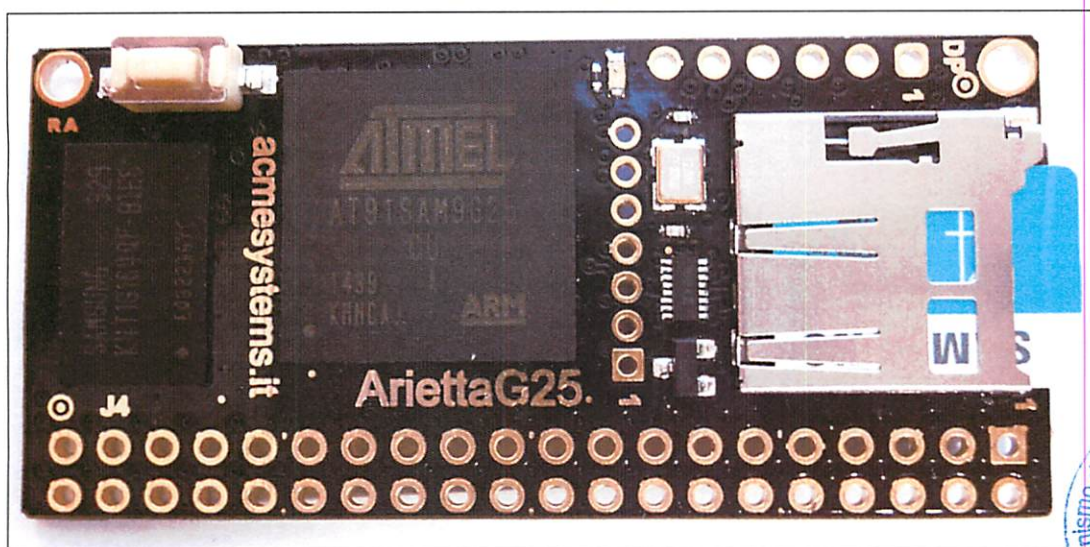
2.2 Description of device under test

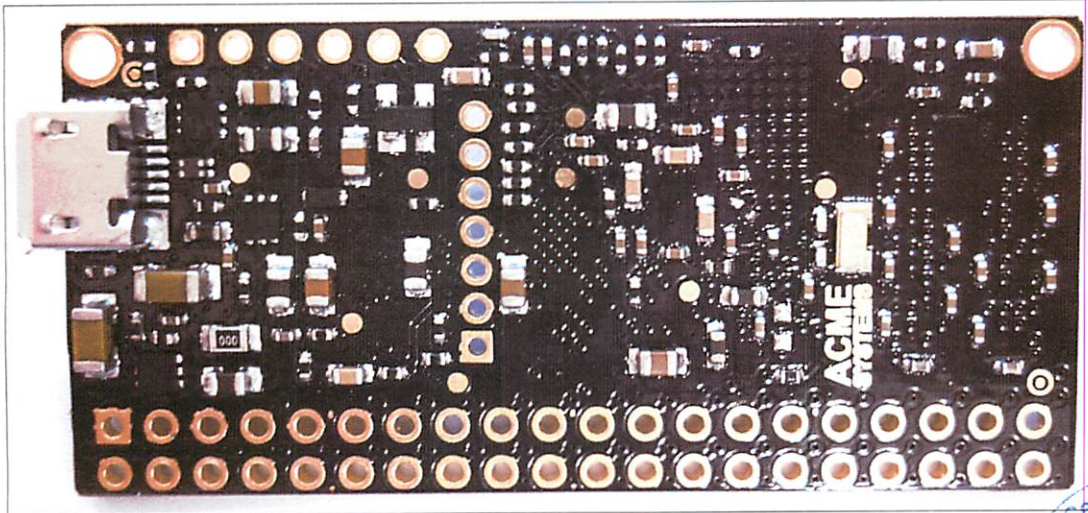
Linux Embedded module:

Main features

- CPU Atmel AT91SAM9G25 SoC (ARM9 @ 400Mhz)
- DDR2 Ram 128 or 256 MByte
- Power supply: 5VDC via microUSB or 3.3VDC using the PCB pads
- Line levels: TTL 3.3V (NOT 5V tolerant)
- Operative temperature range:
 - ARIETTA-G25 (128MByte RAM): -20 +70 °C
 - ARIETTA-G25-256 (256MByte RAM): -0 +70 °C
- Size: 53x25mm
- PCB layers: 8

Here two pictures of the equipment presented for the test:







3. OPERATIVE CONDITION OF DUT (Device Under Test)

3.1 Power supply type

During the test the device has been supplied by 5V_{DC}.

3.2 Operative conditions

All tests were performed with the DUT system (mounted on a evaluation board) turned on as in the normal operating conditions.

3.3 Performance evaluation criteria (only for immunity tests)

The performance evaluation of the DUT system operation during the tests of immunity to electromagnetic disturbances is based on the tests outlined in paragraph 3.4.

The EN 55024 **susceptibility criteria** were observed during all the immunity tests for evaluating the performance of the DUT.

3.4 Performance evaluation of DUT (only for immunity tests)

During immunity test the DUT was operated as in normal operational environment, checking the functionality.





4. VARIATION TO THE DUT

During the tests execution, no variation has been made on the DUT.





5. PERFORMED TESTS

In the following table the performed tests are listed:

Port	Range of freq. (MHz)	Level	Test	Reference Standard	Result
Envelope	30 -1000	Class B	Radiated emission	EN 55022	Ok
Envelope	-----	± 8 KV (air) ± 4 KV (contact)	Electrostatic discharge immunity	EN 55024	Ok
Envelope	80–1000	3 V/m modulated	Electromagnetic radiated field immunity	EN 55024	Ok
Envelope	0.00005	1 A/m	Mains frequency magnetic field immunity	EN 55024	Ok





6. TEST RESULTS

6.1 Emission Measuring

The DUT was kept 80 cm away from the reference ground plane.

6.1.1 Radiated emission measurement

Ref. Std.: EN 55022
Limit: according to EN 55022
Test Equipment: Receiver PMM9060; Log-periodic Antenna Frankonia BTA-M
Environmental Conditions: Temperature: 20°C, RH: 40%
Uncertainty: -2.56 / +4.74 (dB)

Port	Range of freq. (MHz)	Detector	Reference Standard	Figure
Envelope	30 - 1000	Peak	EN 55022	1





RADIATED EMISSION PEAK

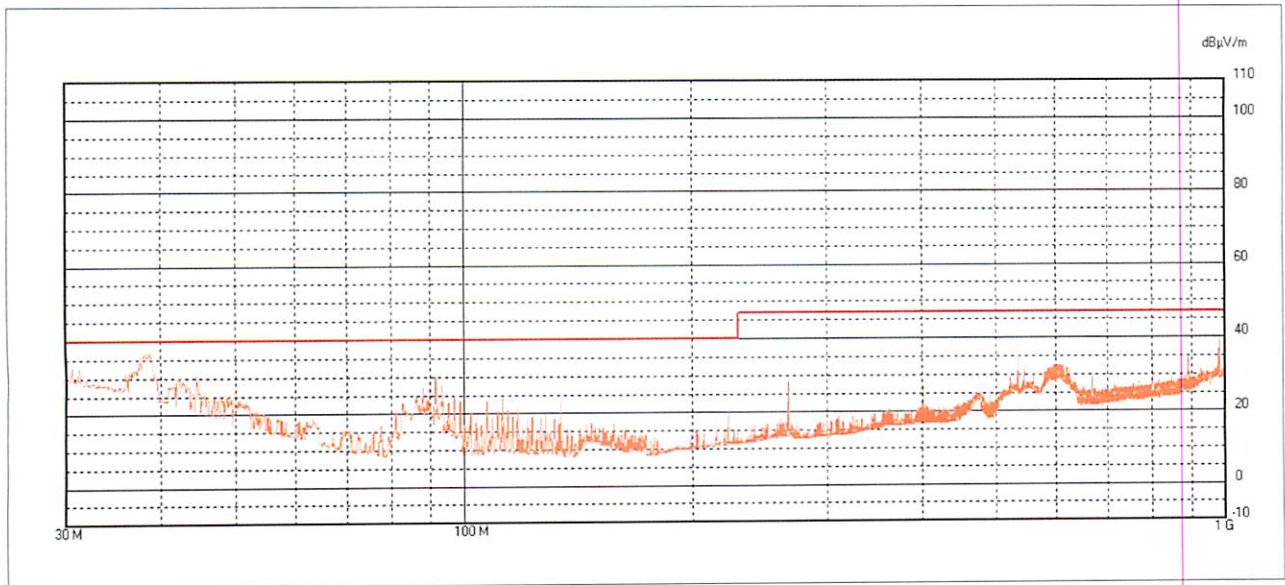


Figure 1

Measuring parameters:

Preselector	Preampli	Attenuation	Limit	BW	Detector
ON	OFF	0 dB	R022QP-B	120 KHz	Peak





6.2 Immunity tests

6.2.1 Electrostatic discharge immunity test

Reference document: EN 61000-4-2
Level: ± 8 KV(air), ± 4 KV(contact)
Test Equipment: Schaffner NSG 435
Environmental Conditions: Temperature: 20°C, RH: 40%
Uncertainty: $\pm 5\%$

Port	Number of Discharges	Discharge Voltage (KV)	Reference Standard	Susceptibility Criterion	Note
Envelope	10	± 8 (air)	EN 55024	B	1
Envelope	10	± 4 (contact)	EN 55024	B	2

- (1) N.A.;
 (2) Indirect





6.2.2 Radiated electromagnetic field immunity test

Reference document: EN 61000-4-3

Level: see table

Test Equipment: Generator: Rhode & Schwarz SM300; Amplifier: Kalmus 737FC; Frankonia Amplifier FLG30C; Log-periodic antenna Frankonia BTA-M; Management software Frankonia; Isotropic sensor PMM EP 330

Environmental Conditions: Temperature 20°C, RH 40%

Uncertainty: ± 3.26 (V/m)

Port	Freq. Range (MHz)	Step Freq.	Polariz. Antenna	Livel (V/m)	Reference Standard	Susceptibility Criterion
Envelope	80-1000	1% f	V	3	EN 55024	A
Envelope	80-1000	1% f	O	3	EN 55024	A





6.2.3 Mains frequency magnetic field immunity test

Ref. doc.: EN 61000-4-8

Level: EN 55024

Instrumentation: Generator PMM DAS-G120, coil DANA DAS S120

Environment Condition: Temperature 20°C, humidity 40%

Uncertainty: < 8%

Port	Range freq. (Hz)	Level (A/m)	Reference Standard	Susceptibility Criterion
Envelope	50	1	EN 55024	A





The test results of this document refer just to the tested sample.

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Tested By:


Francesco Scaramella

Approved By:


Ettore Catelli (Responsible Engineer)

Palestrina, 09 February 2015



Annex

PROSPECTUS INSTRUMENTATION

INSTRUMENT	Serial Number	Calibration Certificate	Expiry Calibration
NARDA PMM 9060	000WE90105	1116790V29g13	29-07-2015
FRANKONIA BTA-M	050010M	309AN3367	11-09-2015
NARDA PMM 9010	495WX10807	1116789V29g13	29-07-2015
SCHAFFNER NSG 435	001351	1116796V30g13	30-07-2015
ROHDE&SCHWARZ SM300	100951	1116782V29g13	29-07-2015
KALMUS 737FC	7607B-1	207541V23I13	23-10/2015
FRANKONIA FLG-30C	1021	1116785V29g13	29-07-2015
PMM EP 330	101WJ50220	13-S-10351	10-09-2015
PMM DAS G120	9702DA5001G	1116793V30g13	30-07-2015
DANA DAS S120	assente	Verifica funzionale	N.A.

