

	TEST REPORT				
Secondo i seguenti Standard / According to following Standards					
Test specification	FCC Rules: Code of Federal Regulations (CFR) no. 47 Part 15 Subpart B Section 15.107: 2013 Part 15 Subpart B Section 15.109: 2013				
	ANSI C63.4: 2009-09 Par. 7 AC power-line conducted Par. 8 Radiated emission measu				
Conducted Emissions, FCC section 15.	107; Table (a) limit	Conforme/Compliant			
Radiated Emissions, FCC section 15.10	9; Table (a) limit	Conforme/Compliant			
Richiedente / Applicant's name:	Datalogic ADC Srl				
Indirizzo / Address:	V. San Vitalino 13 40012 Calder	ara di Reno (BO), Italia			
Produttore / Manufacturer:	Datalogic ADC Srl				
Indirizzo / Address:	V. San Vitalino 13 40012 Calderara di Reno (BO), Italia				
Dispositivo sottoposto ai test/ Device Under Test	JOYA SINGLE SLOT DOCK (EUT N° 15LA00102/01) + JOYA X2 PLUS 00 BT C with DE2011 Reader (EUT N° 15LA00101/01)				
Data di emissione/	30 <sup>th</sup> April 2015				
Date of issue	30 ΑβΙΙΙ 2013				
Validità/ Validity	Vedi sezione 1.1 / See section 1	.1			
Test report redatto da/					
Author of Test report	Loris Fruch				
Tecnico/i di prova					
Engineer/s	Loris Fruch				
	Test manager: Giovanni Solari				
Approvato da (+ firma)	Silvano Chialina				
Approved by (+ signature)	Responsabile del laboratorio/				
	Head of the Laboratory				
Laboratorio / Testing Laboratory .:	Emilab Srl				
Indirizzo / Address:	Via F.Ili Solari 5/A – 33020 Amai	ro (UD) - Italy			



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#### 1. Informazioni Generali / General Information

#### 1.0 Laboratorio / Testing Laboratory

Luogo di Prova e partecipanti/ Testing location and participants:			
Testing Laboratory:			
Testing location/ address	Emilab Srl		
	Via F.Ili Solari 5/A - 33020 Amaro (UD) - Italy		
	Tel +39 0433 468625 Fax +39 0433 494739 Email: <u>info@emilab.it</u>		
Partecipanti / Participants:	Loris Fruch		

#### 1.1 Campionamento e Documentazione / Sampling and Documentation

I campioni sono stati consegnati dal Cliente. I risultati dei test contenuti in questo documento si riferiscono esclusivamente al modello e numero di serie provato. E' responsabilità del costruttore assicurare che la produzione dei modelli in serie rispetti i requisiti del presente documento. Questo documento non può essere riprodotto in parte senza il consenso scritto del responsabile del laboratorio EMILAB.

EMILAB non si assume nessuna responsabilità per danni derivanti da interpretazioni che esulano dal contesto e dall'applicazione del presente documento.

The samples was delivered by customer. The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report. This report shall not be reproduced, except in full, without the written approval of the Issuing testing Emilab laboratory.

EMILAB takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

#### 1.2 Specifiche del test / Test specifications

Test performed according	ng to:
Test plan	/
Test specification	All compliance measurements have been carried out using the procedures described in the standards: - ANSI C63.4-2009, Section 15.31 of CFR47 Part 15 – Subpart A (General).
	-FCC Rules: Code of Federal Regulations (CFR) no. 47 Part 15 Subpart B Section 15.107: 2015 Radio Frequency Device
	-FCC Rules: Code of Federal Regulations (CFR) no. 47 Part 15 Subpart B Section 15.109: 2015 Radio Frequency Device
Basic Specifications	ANSI C63.4: 2009-09 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz



# 1.3 Svolgimento dei test e condizioni generali / Test scheduling and general condition

Svolgimento dei test / Scheduling .....: Data ricezione EUT Date of receipt of EUT.....: 27/03/2015 Data esecuzione test Date (s) of performance of tests....: 22/04/2015 - 30/04/2015 Condizioni ambientali Se non diversamente specificato / If not otherwise specified: I Environment Conditions Temperature: 18-28°C Humidity: 20-90% Pressure: 87-108.56 kPa Intervallo delle tarature/ Minimum 1 year Calibration Interval

#### 1.4 Espressione dei risultati finali / Test case of final verdicts

#### I GIUDIZI NON SONO SOGGETTI AD ACCREDITAMENTO

#### / VERDICTS ARE NOT SUBJECT TO ACCREDITATION

test case does not apply to the test object..: N/A

- test object does meet the requirement ......: Compliant

test object does not meet the requirement .: Not Compliant

#### 1.5 Incertezza / Uncertainty

L'incertezza estesa riportata è espressa come l'incertezza tipo moltiplicata per il fattore di copertura k = 2, che per una distribuzione normale corrisponde ad una probabilità di copertura di circa il 95 %.

The reported expanded uncertainty of measurements is stated as the standard uncertainty of measurement, multiplied by the coverage factor k=2, which for a normal distribution corresponding to a coverage probability of approximately 95%.



### 1.6 Termini, Definizioni e Acronimi/ Terms, definitions and abbreviations

With reference to IEC 60050-161

ALSE absorber-lined shielded enclosure

AM amplitude modulation AN artificial network AV Average Detector

BAN broadband artificial network
BCI Bulk Current Injection
CBCI Common Mode BCI

CDN Coupling Decoupling Network

DBCI Differential Mode BCI DUT Device Under Test

EMC electromagnetic compatibility
EMI electromagnetic interference
EUT Equipment Under test

FSP Functional Performance Status HCP Horizontal Coupling Plate

LISN Line Impedance Simulation Network

OM Operating Modes
PM pulse modulation
PK Peak Detector
RE Radiated Emission
RI Radiated Immunity
QP Quasi-peak Detector
SWR standing wave ratio

VSWR voltage standing wave ratio TEM cell transverse electromagnetic cell



## 2. Apparecchiatura sottoposta a test/ Device Under Test

Datalogic ADC Srl
/
JOYA SINGLE SLOT DOCK (EUT N° 15LA00102/01) + JOYA X2 PLUS 00 BT C with DE2011 Reader (EUT N° 15LA00101/01)
5V DC / 1.2A
/
1
15LA00102/01 + 15LA00101/01
P/N: 91ACC0034 (EUT N° 15LA00102/01) + P/N: 911300117 (EUT N° 15LA00101/01)
Z14P00323 (EUT N° 15LA00102/01) + E14N07409 (EUT N° 15LA00101/01)
1 +1
MVT
1.82.024.02-SS0003
Mode 1: WLAN activation using the "SRU_40NBT_3_3_10_CE" test routine, on 2437MHz in continuous transmit mode. Bluetooth activation using the "BT Cert.exe" test routine, on 2441MHz in continuous transmit mode.  Barcode reading continuously (every 1s) using the "DcdTestNet" test routine.  The JOYA X2 PLUS 00 BT C is connected via USB to the PC and a file is transferred between it and the PC, by the test routine "PAL500E.bat". JOYA X2 battery in recharge mode.
1.8m Power supply cable, 1.9m USB cable
/
Test routines were provided by the applicant.
The WLAN and Bluetooth channels were exercised at the max power level, as declared by the applicant.
The EUT N° 15LA00102/01 was powered by the Switching Power Supply Model Bl20-050300-I Input: AC 100-240V, $50/60$ Hz, $0.5$ A; Output 5V DC, 3A.
During the tests the Switching Power Supply Model Bl20-



#### 3.0 Conducted emission - Condizioni di prova / Test Conditions

Technician / Tecnico: Loris Fruch						
Table No.	TEST: Conducted limits			\		
Method FCC Rules: 47 CFR Part 15 Subpart B: 2015, section 15.107 (a)						
Parameters required prior to the test Laboratory Ambient Temperature 18 to 28 °C						
		Relative Humidity	20 to 90 %			
Parameters recorded during the test		Laboratory Ambient Temperature	22 °C			
		Relative Humidity	64 %			
	red sample scanned over frequency range	150kHz to 30MHz				

#### Supplementary information:

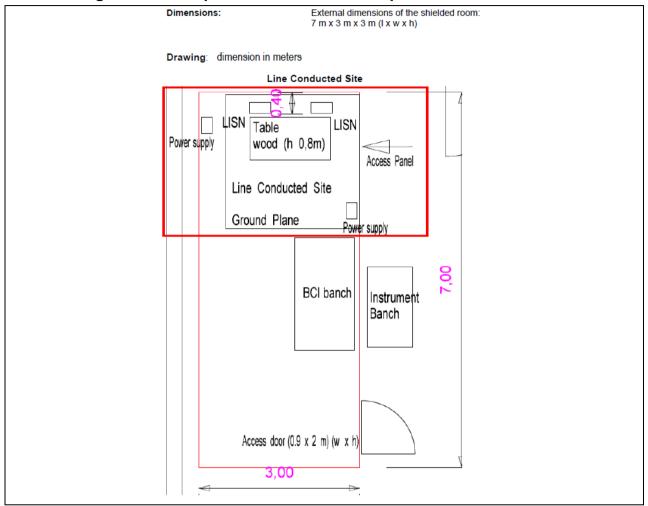
- EUT operating mode 1 (see par. 2 of this document);
- Test executed on 120V 60Hz power supply line;
- The DUT was placed 80cm above the ground plane and at 40cm from the wall of the chamber.
- Test Requirement:
  - Test setup: ANSI C63.4: 2009-09;
  - Test facility Shielded room;
  - Frequency range: 150KHz to 30MHz;
  - IF bandwidth: 9KHz;
  - Max-hold detector: Peak and Average. The measurements with Quasi-Peak detector were performed only for frequencies for which the Peak values was ≥ (limit – 4dB);
- Limits: Sections 15.107 Table (a) of 47 CFR Part 15;
- Artificial hand not used because the EUT is not a handheld equipment;

#### 3.1 Apparecchiature utilizzate / Test Equipment Used – Conducted emission

Apparecchiature usate/ Equipment Used	Modello/Model	Costruttore/ Manufacturer	Numero di serie/ Serial Number
EMI Receiver MXE	N9038A	Agilent Technologies	MY51210230
LISN	NSLK 8128	Schwarzbeck	8128-336
Cable 10m	MIL C-17 OLWG7	CCI/SAXTON	M17/16.4-00001
Cable RF da 6m	PE142LL	Pasternak	EL038210
Shielded Chamber	RFD-100	ETS-Lindgren	2012
Shielded Chamber DC Filter	N5004	ETS-Lindgren (ETSL)	121226
AC Power Supply	KBT-100-C-109-451	BEHLMAN	5896



#### 3.2 Fotografie del setup / Photo of the test setup – Conducted emission



#### 3.3 Risultati / Results - Conducted emission

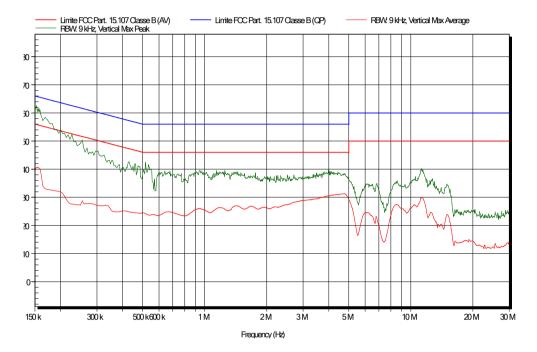
The result of the test is: **PASS**. See the details in the charts of the following paragraphs.



#### 3.3.1 Grafici dei risultati / Graphical representation data - Conducted emission

Conducted emission measured on 120V 60Hz Line1 (from 0.15MHz to 30MHz IF 9KHz): peak detector (green trace) and average detector (red trace) with quasi-peak limit (blue line) and average limit (red line)

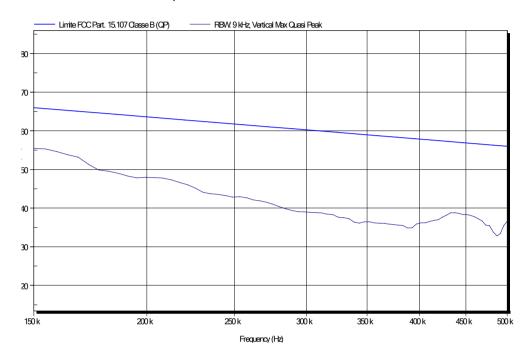
Emission measured in dBµV





Conducted emission measured on 120V 60Hz Line1 (from 0.15MHz to 0.5MHz IF 9KHz): quasi-peak detector (blue trace) with quasi-peak limit (blue line)

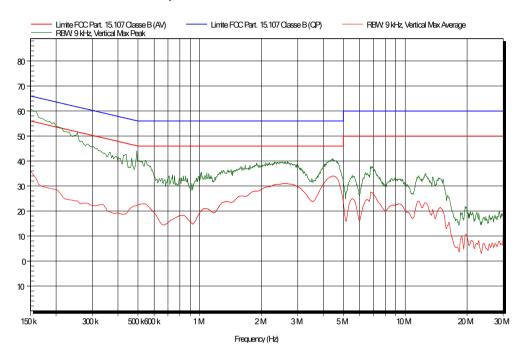
#### Emission measured in $dB\mu V$





Conducted emission measured on 120V 60Hz Line2 (from 0.15MHz to 30MHz IF 9KHz): peak detector (green trace) and average detector (red trace) with quasi-peak limit (blue line) and average limit (red line)

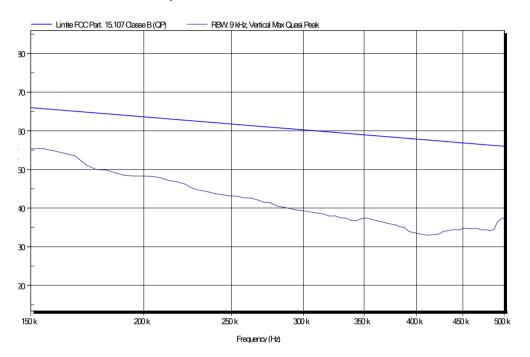
#### Emission measured in $dB\mu V$





Conducted emission measured on 120V 60Hz Line2 (from 0.15MHz to 0.5MHz IF 9KHz): quasi-peak detector (blue trace) with quasi-peak limit (blue line)

#### Emission measured in $dB\mu V$





#### 4.0 Radiated Emissions - Condizioni di prova / Test Conditions

Technician / Tecnico: Loris Fruch					
Table No.	TEST: Radiated emission li	mits		\	
Method	Method FCC Rules: 47 CFR Part 15 Subpart B: 2015, section 15.109 (a)				
Parameters required prior to the test Laboratory Ambient Temperature 18 to 28 °C					
Relative Humidity 20 to 90 %					
Parameters re	corded during the test	Laboratory Ambient Temperature	20 °C		
		Relative Humidity	66 %		

#### Supplementary information:

- EUT operating mode 1 (see par. 2 of this document);
- The DUT was placed on turn-platform on a dielectric table 0.8m above the ground plane. The turn table was rotated from 0° to 360° to determine the position of maximum emission level;
- Test Requirement:
  - Test setup: ANSI C63.4: 2009-09;
  - Test facility: semi-anechoic chamber for f<1GHz and full anechoic chamber for f>1GHz;
  - Test distance: 3 meters;
  - The receiving antenna, from 30MHz to 1GHz varied from 1m to 4m high to find the highest emission and was positioned in both horizontal and vertical polarization. For the measures from 1GHz to 12.75GHz the antenna height is fixed to 1m (corresponding to the vertical centre of EUT);
  - Frequency range: in accordance with section 15.33 b (1) of FCC, as declared by the custom the highest frequency generated or used in the device is lower than 2.5GHz, thus the upper frequency of measurement range is 12.75GHz;
  - IF bandwidth: 120KHz from 30MHz to 1GHz and 1MHz from 1GHz to 12.75GHz:
  - The measure from 30MHz to 1GHz was made with the bi-log antenna, the measure from 1GHz to 12.75GHz was made with the wide band horn antenna;
  - Max-hold pre-scan detector: Peak for f<1GHz, Peak and Average for f>1GHz;
  - Limits: Sections 15.109 Table (a) of 47 CFR Part 15;
  - Remarks: as specified at Section 15.35 of 47 CFR Part 15, for frequencies above 1GHz the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test;
- The measurements with Quasi-Peak detector were performed only for frequencies for which the Peak values was ≥ (limit – 4dB);

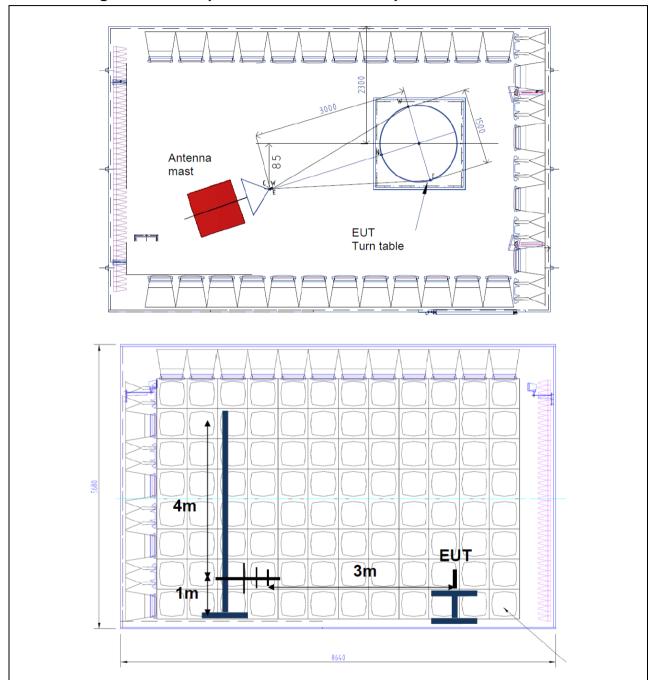


#### Apparecchiature utilizzate / Test Equipment Used – Radiated Emissions 4.1

Apparecchiature usate/ Equipment Used	Modello/Model	Costruttore/ Manufacturer	Numero di serie/ Serial Number
EMI Receiver MXE	N9038A	Agilent Technologies	MY51210230
Antenna Bilog	Bilog CBL6111C	Chase	2415
Antenna Horn	VT10180DRHA10NK	Vector Telecom	140763010001
PreAmplificatore RF	HP8447F, OPT H64	Hewlett/Packard	3113A07568
Band Reject Filter	JXWBLB-T-BR-2400-2483	A-INFOMW	J1084090807001
RF Cable	S5LL-400	Spin electronics	01-053-12
RF Cable	S5LL-900	Spin electronics	02-053-12
RF Cable	41.275.000-L03	CPE Italia Spa	F4538
RF Cable	41.275.000-L04	CPE Italia Spa	F4539
Multi-Device Controller	2090	ETS LINDGREN	81311
Palo d'antenna elettrico	2175	ETS LINDGREN	136028
SAC3 – DC Filter	N6006	ETS-Lindgren (ETSL)	202031
Semi-Anechoic			
Chamber	-	ETS-Lindgren (ETSL)	5207
AC Power Supply	KBT-100-C-109-451	BEHLMAN	5896



### 4.2 Fotografie del setup / Photo of the test setup – Radiated Emissions



Note: for frequencies from 30MHz to 1GHz the height of receiving antenna was changed from 1m to 4m, for frequencies from 1GHz to 12.75GHz the height of receiving antenna was fixed to 1m;



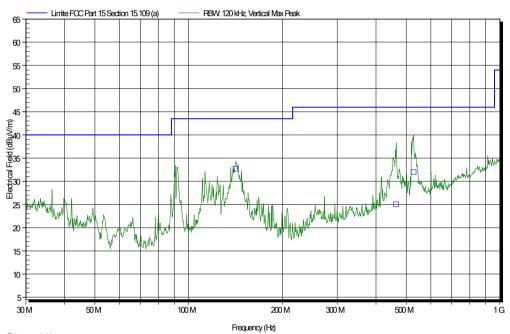
#### 4.3 Risultati / Results - Radiated Emissions

The result of the test is: **PASS**. See the details in the charts/tables of the following paragraphs.

# 4.3.1 Tabelle e grafici dei risultati / Tables and graphical representation data – Spurious Radiated Emissions

#### Measures from 30MHz to 1GHz

Radiated emissions measured from 30MHz to 1GHz: peak detector (green trace) with Q-Peak limit (blue line). Vertical polarization.

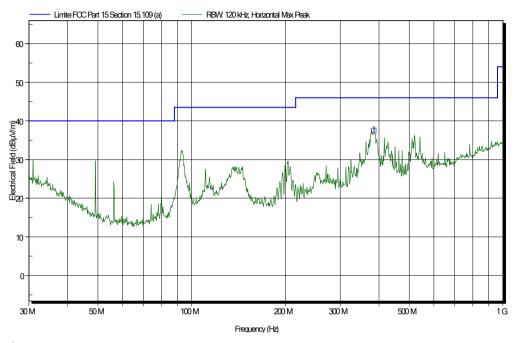


Signal list

Frequency [MHz]	Quasi-Peak [dBµV/m]	Quasi-Peak Limit [dBµV/m]	EUT Angle [°]	Antenna Height [mt]	Result
141.538	32.69	43.50	252	1.00	Pass
464.033	25.05	46.00	108	1.64	Pass
527.818	31.99	46.00	216	1.41	Pass



Radiated emissions measured from 30MHz to 1GHz: peak detector (green trace) with Q-Peak limit (blue line). Horizontal polarization.



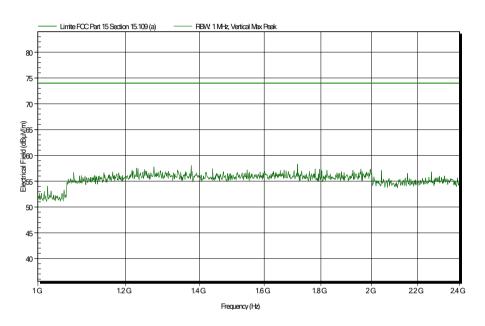
Signal list

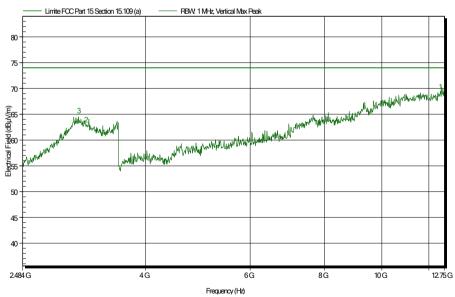
Frequency [MHz]	Quasi-Peak [dBµV/m]	Quasi-Peak Limit [dBµV/m]	EUT Angle [°]	Antenna Height Imtl	Result
384.006	37.51	46.00	170	3.09	Pass



#### Measures from 1GHz to 12.75GHz

Radiated emissions measured from 1GHz to 12.75GHz: Peak detector (green trace) with Peak limit (green line). Vertical polarization.



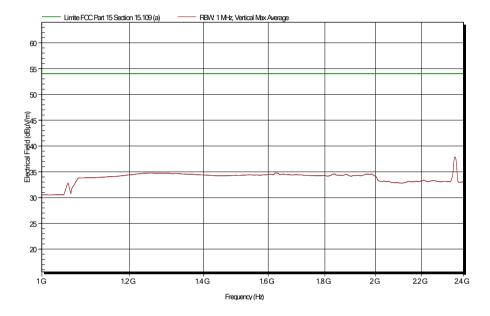


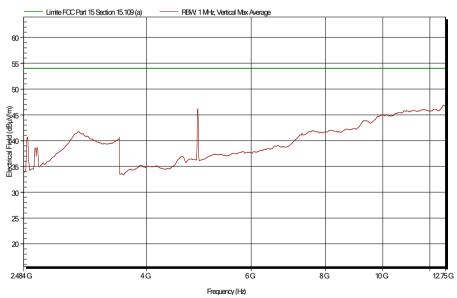
Signal list

Frequency [GHz]	Peak [dBµV/m]	Peak Limit [dΒμV/m]	EUT Angle [°]	Antenna Height [mt]	Result
3.089	64.70	74.00	252	1.00	Pass
3.129	64.13	74.00	36	1.00	Pass
12.735	70.45	74.00	144	1.00	Pass



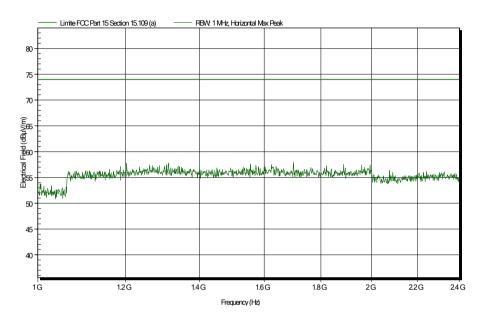
Radiated emissions measured from 1GHz to 12.75GHz: Average detector (brown trace) with Average limit (red line). Vertical polarization.

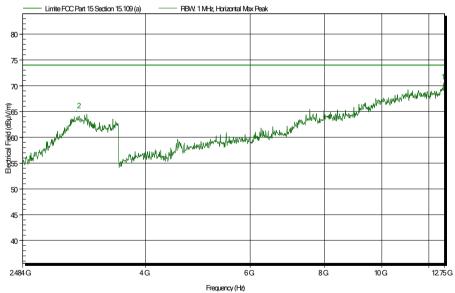






Radiated emissions measured from 1GHz to 12.75GHz: Peak detector (green trace) with Peak limit (green line). Horizontal polarization.



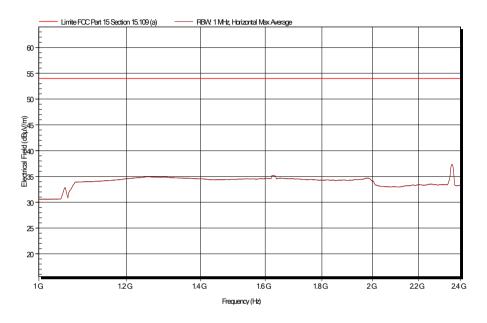


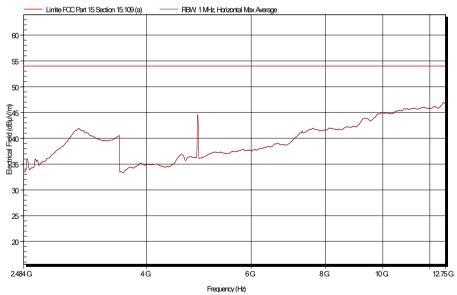
Signal list

Frequency [GHz]	Peak [dBµV/m]	Peak Limit [dBµV/m]	EUT Angle [°]	Antenna Height [mt]	Result
3.087	65.16	74.00	324	1.00	Pass
12.672	70.78	74.00	360	1.00	Pass



Radiated emissions measured from 1GHz to 12.75GHz: Average detector (brown trace) with Average limit (red line). Horizontal polarization.







## Allegato 1 / Annex 1: Incertezza / Uncertainty

#### A.1.1 Radiated Emissions CISPR 16

From 30MHz to 200MHz using Bi-log antenna Field intensity : +/- 5.5 dB

From 200MHz to 1000MHz using Bi-log antenna Field intensity : +/- 4.4 dB

Above 1GHz using Horn antenna : +/- 5.4 dB

#### A.1.2 Conducted Emissions CISPR 16

Voltage Method : +/- 2.6 dB