
Confidential Report

Client: Analog Devices , Raheen Industrial Estate, Limerick, Ireland. <u>Attention: Mr Tom O'Shea</u>	Test of: EVAL-ADM2582EEB1Z/EVAL- ADM2587EEB1Z Evaluation Board To: EN 55022: 2010
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REPORT REF: 12E3881-2a

TESTED BY: M Kirby / D Dunne

DATE RECEIVED: February 2012

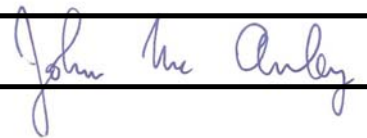
REPORT BY: D Dunne

ISSUE DATE: February 2013

APPROVED SIGNATORY: J McAuley

JOB TITLE: Technical Manager

SIGNATURE:



This report 12E3881-2a supersedes 12E3881-1a

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Test of:
EVAL-ADM2582EEB1Z/EVAL-ADM2587EEB1Z

1 Equipment Under Test (E.U.T.)

1.1 Identification of E.U.T.

Manufacturer:	Analog Devices
Model Name:	EVAL-ADM2582EEB1Z/EVAL-ADM2587EEB1Z
Serial Number:	Unit 1

1.2 Description of E.U.T.

The EUT was a 4 layer evaluation board for the ADM2582E and ADM2587E Signal and Power isolated RS-485 transceiver.

1.3 Modifications incorporated in EUT

There were no modifications incorporated in EUT.

1.4 Support Equipment List

Manufacturer:	Hewlett Packard (Power Supply)
Model Name:	E3631A
Serial Number:	KR92921307

2 Test Specification, Methods and Procedures

2.1 Emissions

Emissions were assessed to the following standards:

EN 55022

Title:

Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement.

2.2 Date of Test

The tests were carried out on one sample of the EUT on the 8th of February 2012.

3 Deviations or Exclusions from the Test Specifications

3.1 Deviations

There were no deviations.

3.2 Exclusions

There were no exclusions from the test specification

4 Operation of E.U.T. During Testing

4.1 Operating Environment

Supply Voltage: 5 Volt.

4.2 Operating Modes:

The EUT was operated with $V_{cc} = 5V$, the driver and receiver enabled and driving out a low on TxD. The device is connected in half-duplex mode, connecting pin A to Y and pin B to Z. A termination resistor of 56Ω is connected between Y and Z to simulate a RS-485 load.

5 Results

5.1 Radiated Emissions

Compliant measurements of radiated emissions were carried out on in an Anechoic Chamber from 30 MHz to 2 GHz. The equipment and cable orientation were investigated to ensure that maximum emissions were obtained at critical frequencies.

The receiver bandwidth was set to 120 kHz for frequencies between 30 MHz and 2 GHz.

See Appendix 3 for results.

5.1.1 Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for the radiated emissions test was ± 5.3 dB (from 30 to 100 MHz), ± 4.7 dB (from 100 to 300 MHz) and ± 3.9 dB (from 300 to 1000 MHz) & ± 3.8 dB (from 1 to 2 GHz).

6 Analysis of Test Results, Conclusions

6.1 Measurement Uncertainties

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4 with a confidence level of 95%.

6.2 Radiated Emissions

The E.U.T. complied with the Class B radiated emission specification of EN 55022, when tested in accordance with the manufacture specification.

Appendix 1
Test Equipment Used:

Instrument:	Mfr:	Model:	Serial No:
Measuring Receiver	Rohde and Schwarz	ESVS30	607
Bilog Antenna	Chase	-	690
Spectrum Analyser	Agilent	E4408B	722
Horn Antenna	EMCO	EMCO 3115	655

**Appendix 2
Test Configurations**



Figure 1: Radiated Emissions Test Set up

**Appendix 3:
Test Results**

Frequency (MHz)	Q.P. Level dB(μ V/m)	EN55022 Class B dB(μ V/m)	Antenna Pol. Vertical/ Horizontal	Antenna Height (m)	Pass / Fail
210.5800	16.9	30	Horizontal	4	Pass
210.5320	19.2	30	Vertical	1	Pass

Table 1: Radiated Emissions, Class B Limits – Anechoic Chamber at 10 metres

Frequency (GHz)	Peak Level dB(μ V/m)	Peak Limit dB(μ V/m)	Antenna Pol. Vertical/ Horizontal	Antenna Height (m)	Pass / Fail
1.04710	40.02	70	Vertical	1	Pass
1.04750	41.25	70	Horizontal	1	Pass
1.25720	45.79	70	Vertical	1	Pass
1.25782	47.34	70	Horizontal	1	Pass
1.67640	42.69	70	Horizontal	1	Pass

Table 2: Radiated Emissions 1 – 2 GHz, Class B Limits – Anechoic Chamber at 3 metres

Frequency (GHz)	A.V. Level dB(μ V/m)	A.V. Limit dB(μ V/m)	Antenna Pol. Vertical/ Horizontal	Antenna Height (m)	Pass / Fail
1.04710	29.19	50	Vertical	1	Pass
1.04750	30.7	50	Horizontal	1	Pass
1.25720	34.86	50	Vertical	1	Pass
1.25782	35.57	50	Horizontal	1	Pass
1.67640	32.23	50	Horizontal	1	Pass

Table 3: Radiated Emissions 1 – 2 GHz, Class B Limits – Anechoic Chamber at 3 metres

RADIATED EMISSIONS

08. Feb 12 15:49

Op Cond: Normal
Operator:
Test Spec:
Comment:

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
30M	1000M	120k	120k	PK	5ms	0dB	LN OFF	60dB

Transducer No.	Start	Stop	Name	
3	9	20M	1000M	CEIL615
19	30M	1000M	BILOG	

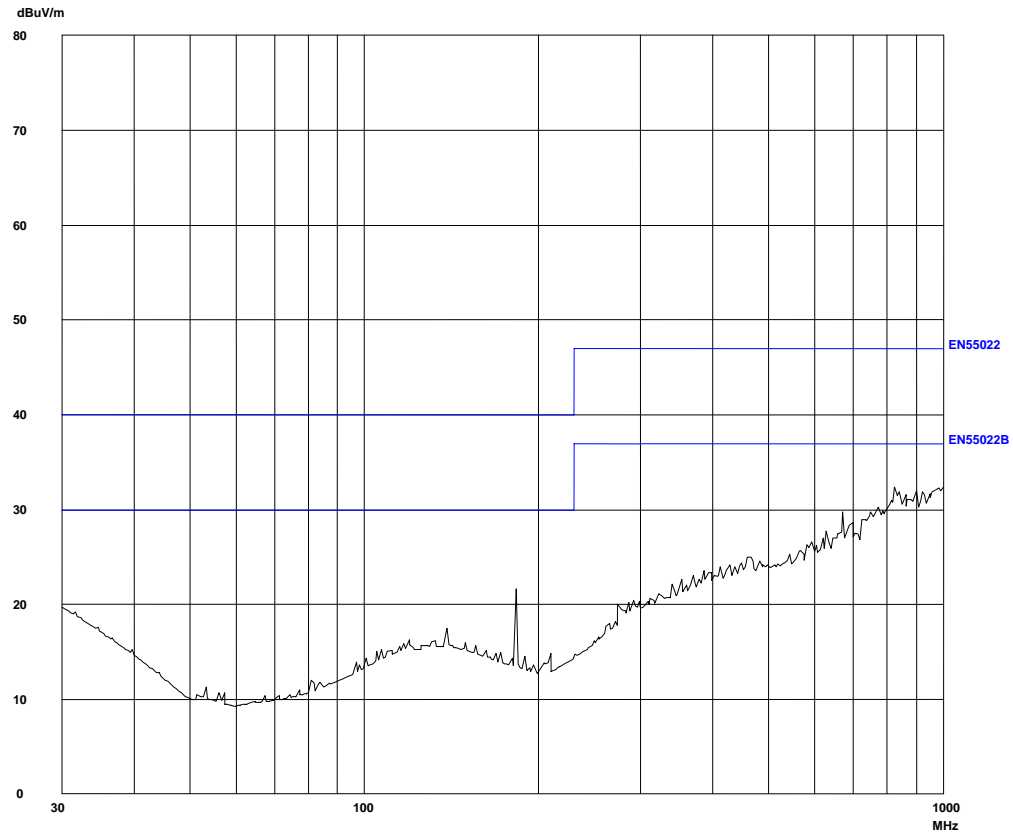


Figure 1: Horizontal, scan from 30 MHz to 1000 MHz

RADIATED EMISSIONS

08. Feb 12 15:52

Op Cond: Normal
Operator:
Test Spec:
Comment:

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
30M	1000M	120k	120k	PK	5ms	0dB	LN OFF	60dB

Transducer No.	Start	Stop	Name	
3	9	20M	1000M	CEIL615
19	30M	1000M	BILOG	

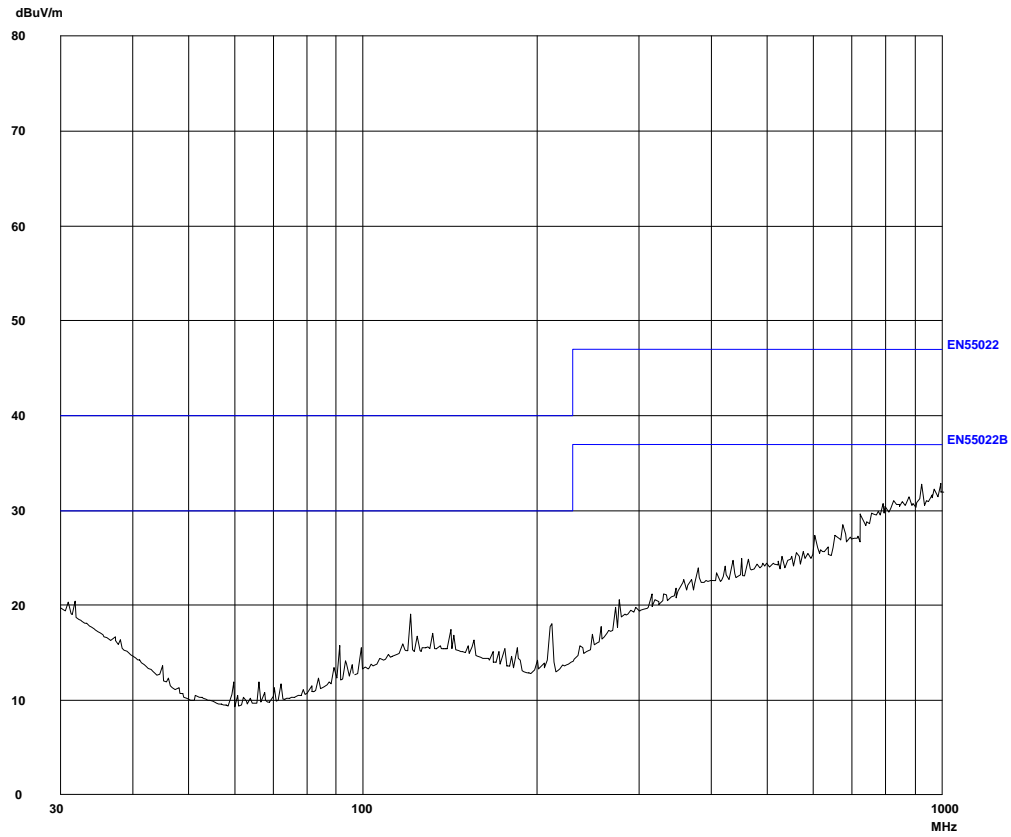


Figure 2: Vertical, scan from 30 MHz to 1000 MHz

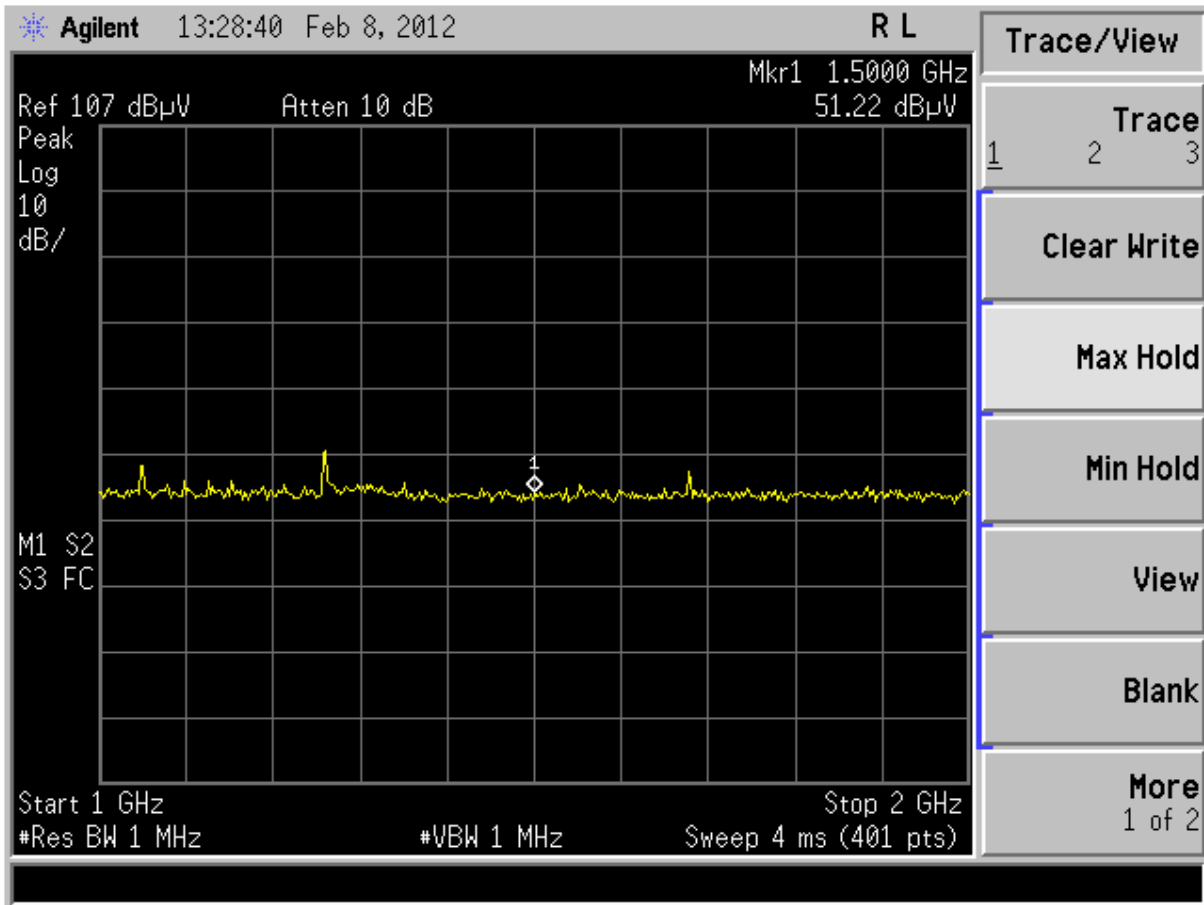


Figure 3: Horizontal, scan 1 GHz to 2 GHz

NOTE: The spectra shown above are the raw data. Please see results table for the final results

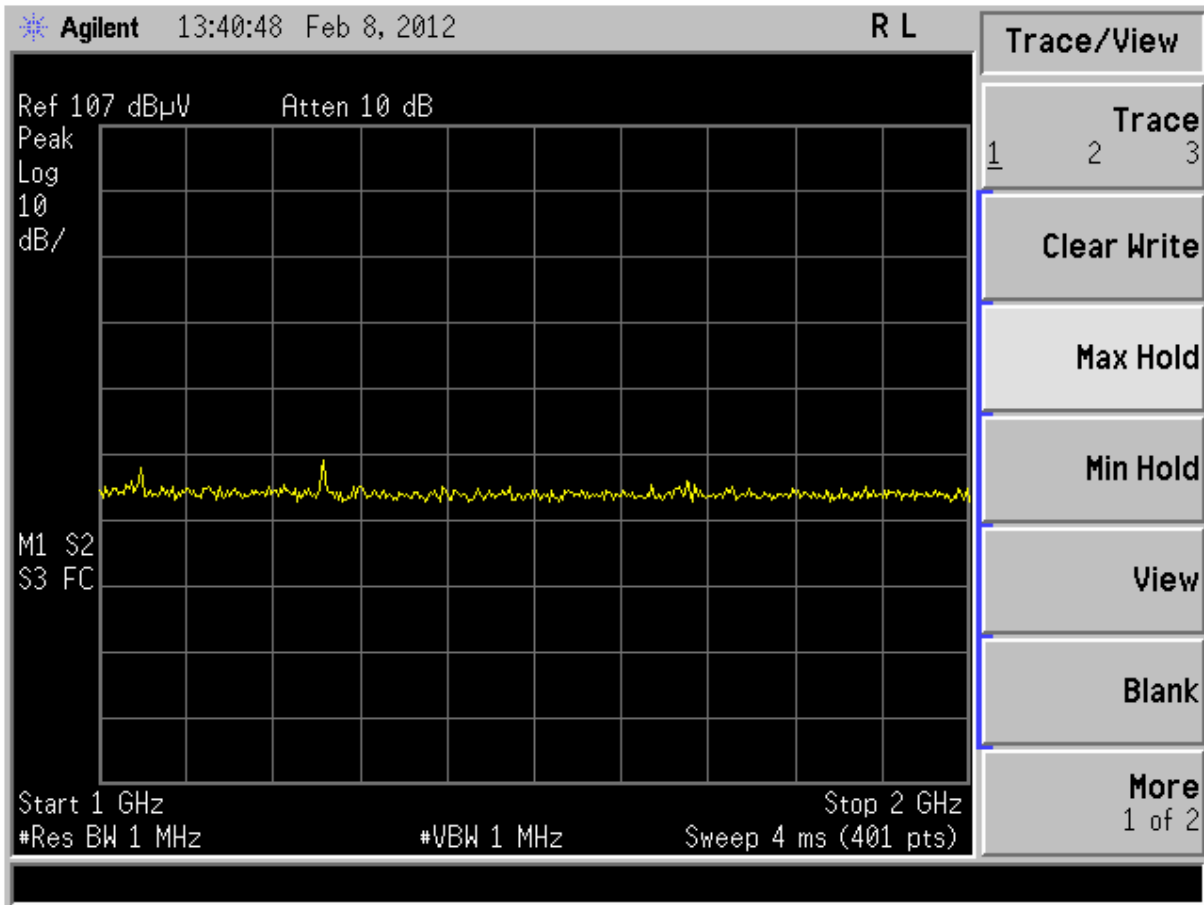


Figure 4: Vertical, scan 1 GHz to 2 GHz

NOTE: The spectra shown above are the raw data. Please see results table for the final results

RADIATED

07. Feb 12 10:36

Op Cond: Normal
Operator: J McAuley
Test Spec: EN 55022
Comment: NO CABLES

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
30M	1000M	120k	120k	PK	5ms	0dB	LN OFF	60dB

Transducer No.	Start	Stop	Name	
3	9	20M	1000M	CEIL615
19	30M	1000M	BILOG	

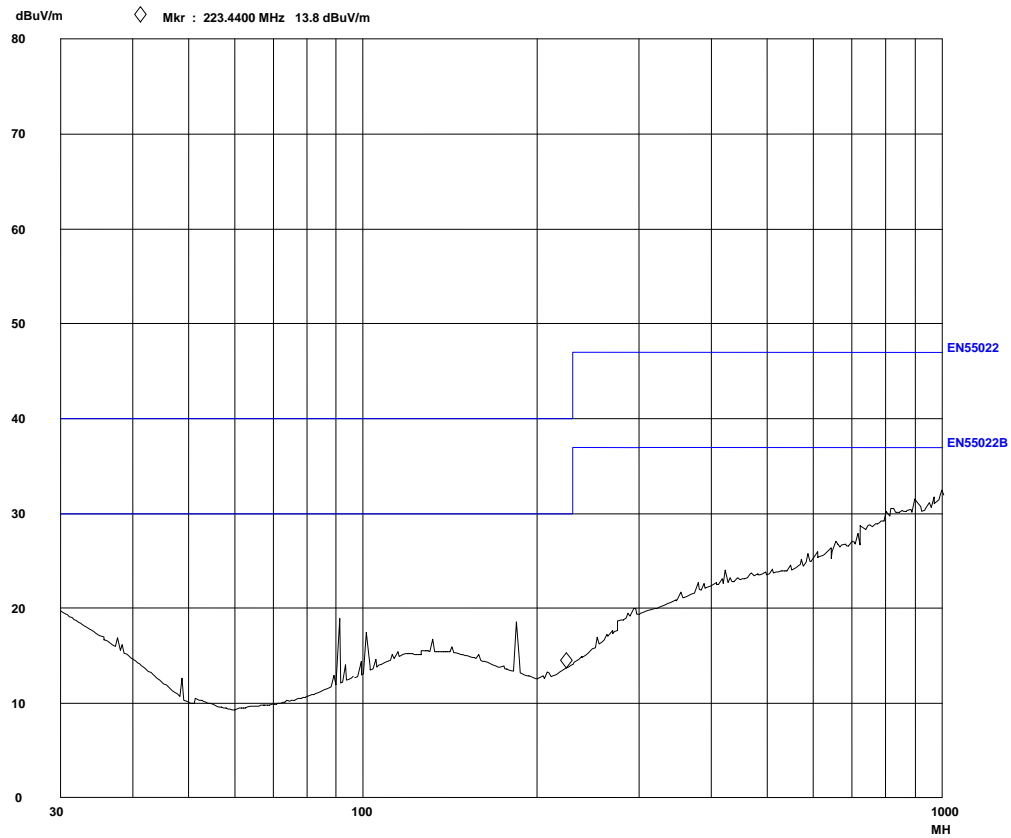


Figure 5: Vertical, Background scan 30 MHz to 1000 MHz

RADIATED

07. Feb 12 10:39

Op Cond: Normal
Operator: J McAuley
Test Spec: EN 55022
Comment: NO CABLES

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
30M	1000M	120k	120k	PK	5ms	0dBLN	OFF	60dB

Transducer No.	Start	Stop	Name	
3	9	20M	1000M	CEIL615
19	30M	1000M	BILOG	

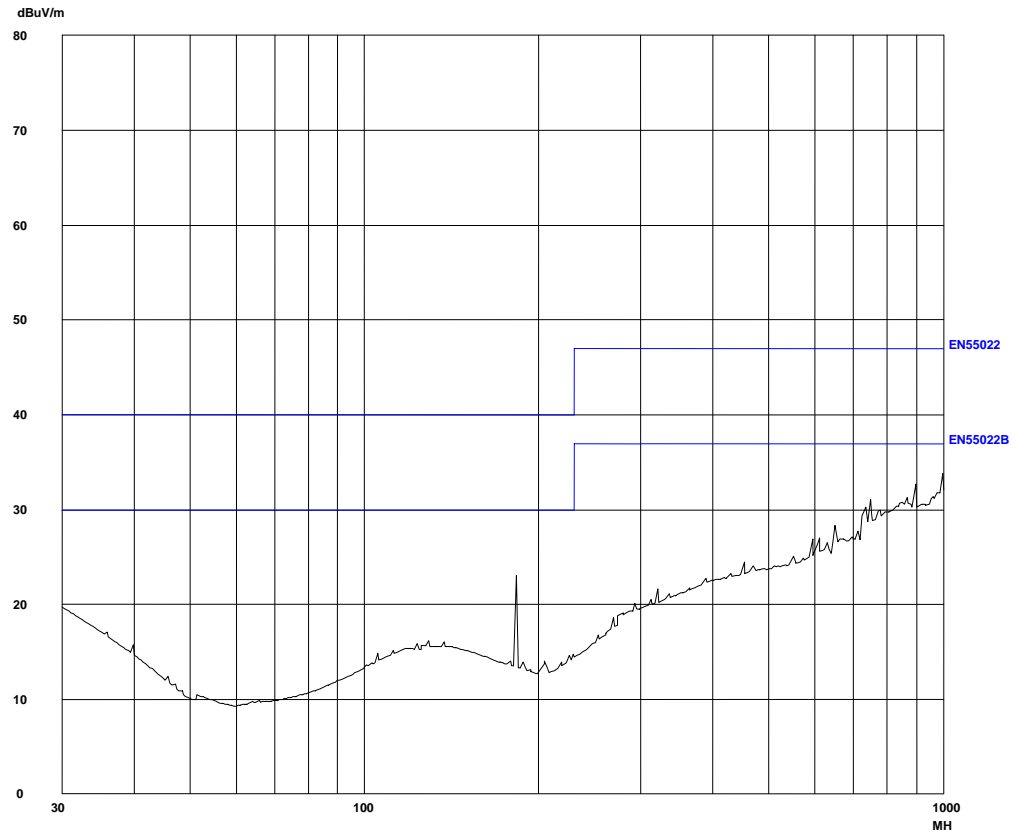


Figure 6: Horizontal, Background scan 30 MHz to 1000 MHz