

Electromagnetic Compatibility Engineering Report

On

LTM4655

Prepared for:

**Analog Devices
1630 McCarthy Blvd
Milpitas, CA 95035 USA**

Prepared by:

**TUV Rheinland of North America, Inc.
1279 Quarry Lane, Ste. A
Pleasanton, CA 94566
U.S.A.**

ATTESTATION OF TEST RESULTS

Client:	Analog Devices 1630 McCarthy Blvd Milpitas, CA 95035 USA	Simon Lim Tel. 4084321900 simon.lim@analog.com
Model Name:	LTM4655	Serial Number: N/A
Model Numbers:	LTM4655	Date(s) Tested: October 18, 2018
Test Locations:	TUV Rheinland of North America 1279 Quarry Lane, Ste. A Pleasanton, CA 94566 U.S.A. Tel. (925) 249-9123	TUV Rheinland of North America 5015 Brandin Ct, Fremont, CA 94538 U.S.A. Tel. (925) 249-9123
Test Result:	The above product was found to be Compliant to the above test standard(s).	
Prepared by: Colton Aliff		Reviewed by: Richard Decker
<u>September 18, 2019</u> <small>Date Name Signature</small>		<u>September 18, 2019</u> <small>Date Name Signature</small>
Other aspects:	None	

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1 General Information

1.1 Scope

This report is intended to document the status of conformance with the requirements of the listed standards based on the results of testing performed on October 18, 2018 on the LTM4655 Model No.: LTM4655, manufactured by Analog Devices. This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT (Equipment Under Test) in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report.

1.3 Summary of Test Results

Applicant	Analog Devices 1630 McCarthy Blvd Milpitas, CA 95035 USA
Contact	Simon Lim
Tel.	4084321900
E-mail	simon.lim@analog.com
Description	LTM4655
Model Name	LTM4655
Model Number	LTM4655
Serial Number	N/A
Input Power	DC Powered
Test Date(s)	October 18, 2018

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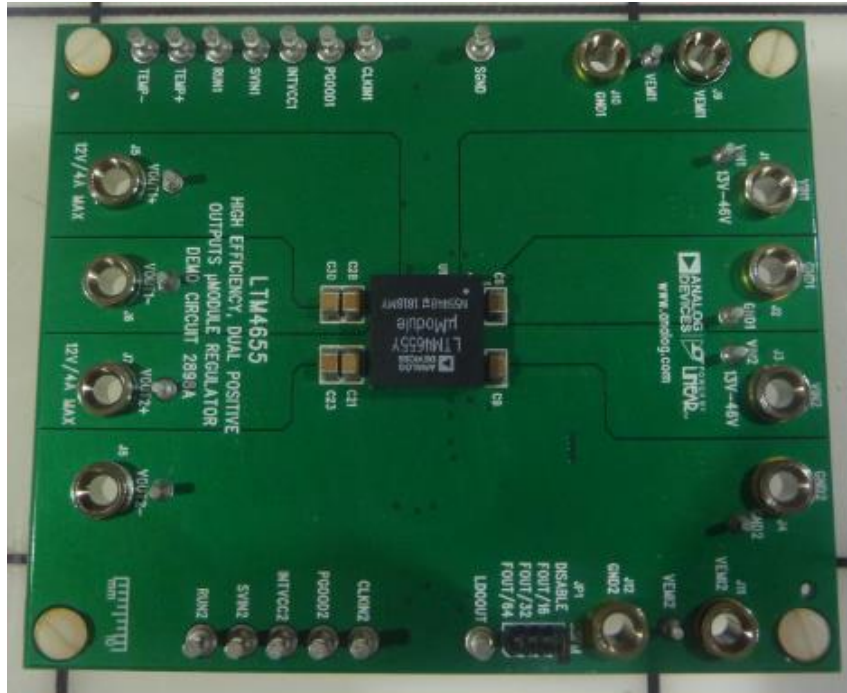


Figure 1 - Photo of EUT – Top



Figure 2 - Photo of EUT – Bottom

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2 Emissions

2.1 Radiated Emissions

This test measures the electromagnetic levels of spurious signals generated by the EUT that radiated from the EUT and may affect the performance of other nearby electronic equipment.

2.1.1 Overview of Test

Results	Results are Under the Limit (as tested per this report)						Date	October 18, 2018
Model Name	LTM4655			Serial#	N/A			
Configuration	See test plan for details.							
Test Setup	Tested in the 10-meter chamber, placed on floor: see test plan for details.							
EUT Powered By	DC							
Environmental Conditions	October 18, 2018	Temp	25° C	Humidity	44%	Pressure	1016 mbar	
Frequency Range	80 – 1000 MHz							
Perf. Criteria	Class B			Perf. Verification	Readings Under Limit			
Mod. to EUT	See Appendix D			Test Performed By	Benjamin Atsu			

2.1.2 Test Procedure

Radiated emissions tests were performed using the procedures of CISPR 11:2009 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration.

The frequency range from 80 – 1000 MHz was investigated for radiated emissions.

2.1.3 Deviations

There were no deviations from the test methodology listed in the test plan for the radiated emission test.

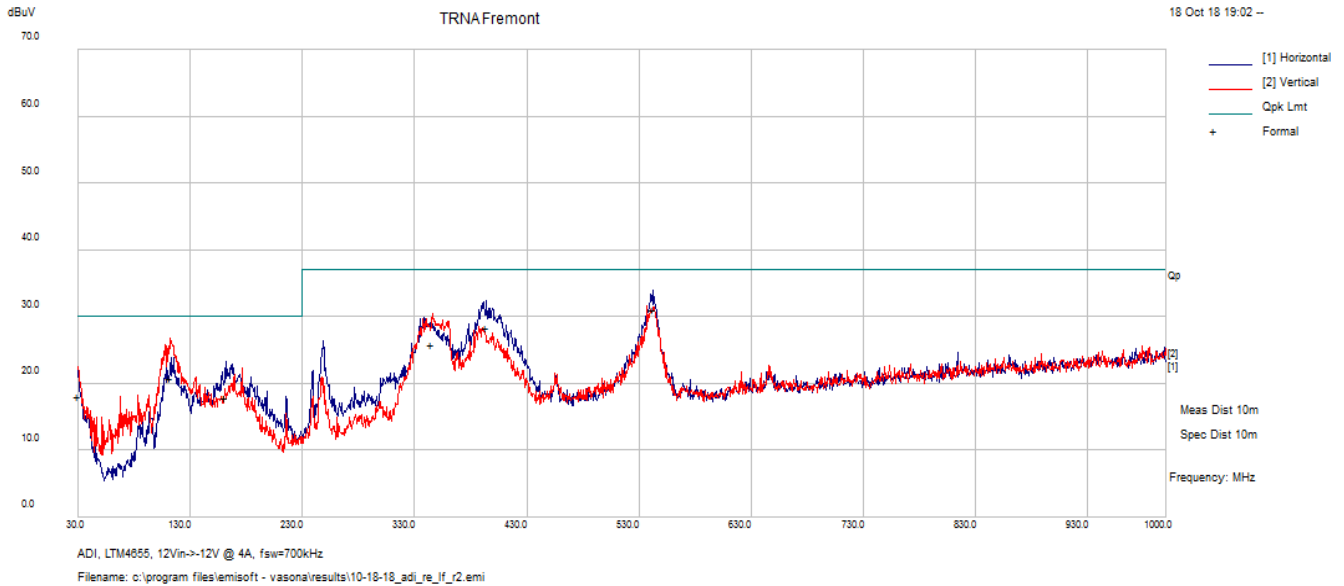
2.1.4 Final Test

All final radiated emissions measurements were below the specification limits.

2.1.5 Plots and Data

Note:

Radiated Emissions Scan 30 – 1000 MHz Vertical / Horizontal



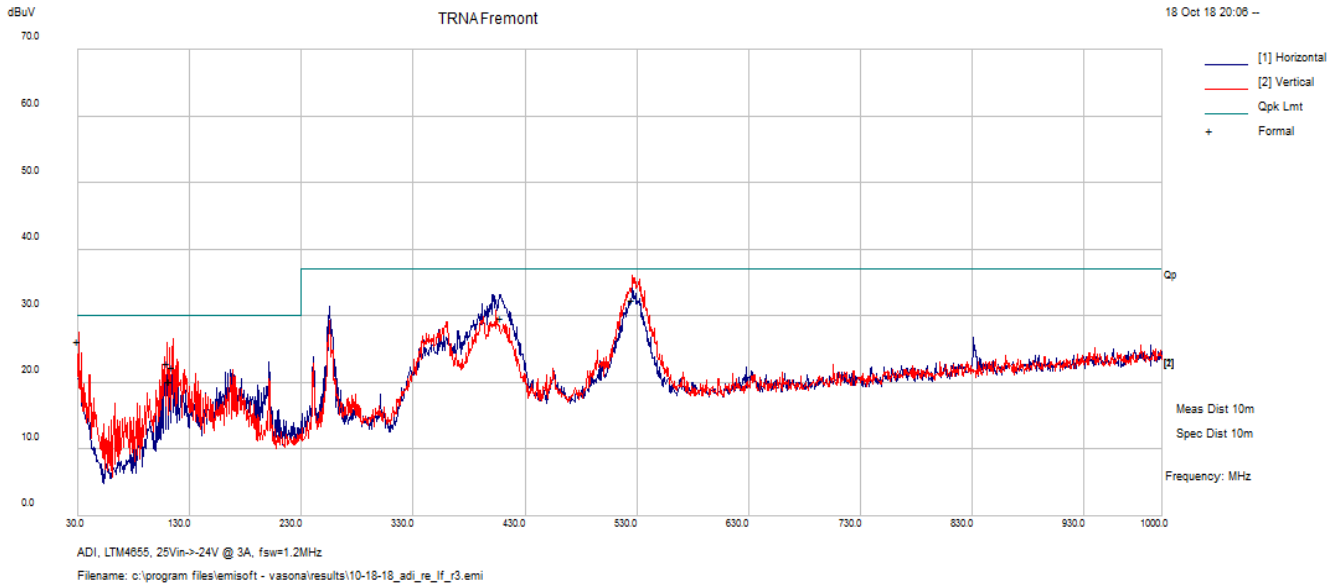
Note:

Frequency MHz	Raw dBuV/m	Cable Loss dB	AF dB	Level dBuV/m	Detector	Polarity H/V	Height cm	Azimuth deg	Limit dBuV/m	Margin dB
345.924063	37.69	2.68	-14.53	25.85	Quasi Max	V	115	138	37	-11.15
112.500313	34.62	1.89	-15.55	20.96	Quasi Max	V	126	140	30	-9.04
161.749688	32.39	2.1	-16.53	17.96	Quasi Max	H	394	174	30	-12.04
542.9925	38.7	3.16	-10.71	31.15	Quasi Max	H	155	210	37	-5.85
394.579375	39.05	2.82	-13.41	28.46	Quasi Max	H	190	238	37	-8.55
30	23.93	1.41	-7.08	18.25	Quasi Max	V	265	296	30	-11.75

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Note:

Radiated Emissions Scan 30 – 1000 MHz
Vertical / Horizontal



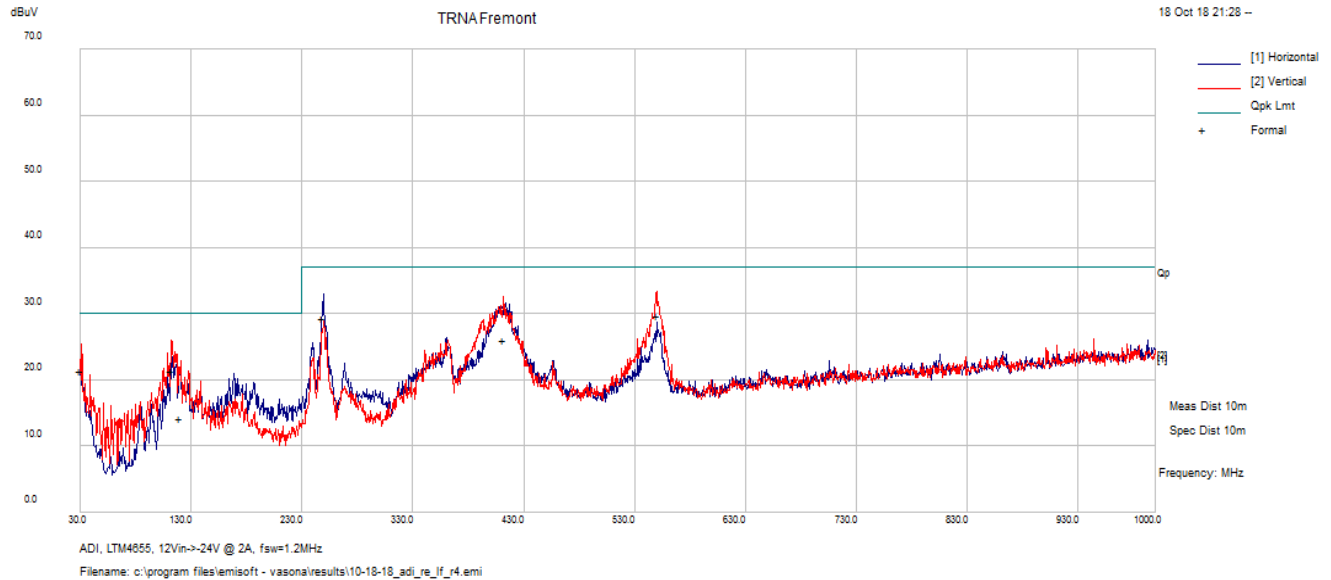
Note:

Frequency MHz	Raw dBuV/m	Cable Loss dB	AF dB	Level dBuV/m	Detector	Polarity H/V	Height cm	Azimuth deg	Limit dBuV/m	Margin dB
30.7125	32.72	1.41	-7.72	26.4	Quasi Max	V	106	93	30	-3.6
525.77875	40.36	3.16	-10.96	32.56	Quasi Max	V	253	210	37	-4.44
114.74125	35.7	1.91	-15.2	22.4	Quasi Max	V	128	257	30	-7.6
408.23	39.79	2.87	-12.87	29.79	Quasi Max	H	245	258	37	-7.21
112.33625	34	1.89	-15.58	20.31	Quasi Max	V	230	258	30	-9.69
109.966563	37.24	1.88	-16.06	23.06	Quasi Max	V	205	284	30	-6.94

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Note:

Radiated Emissions Scan 30 – 1000 MHz
Vertical / Horizontal



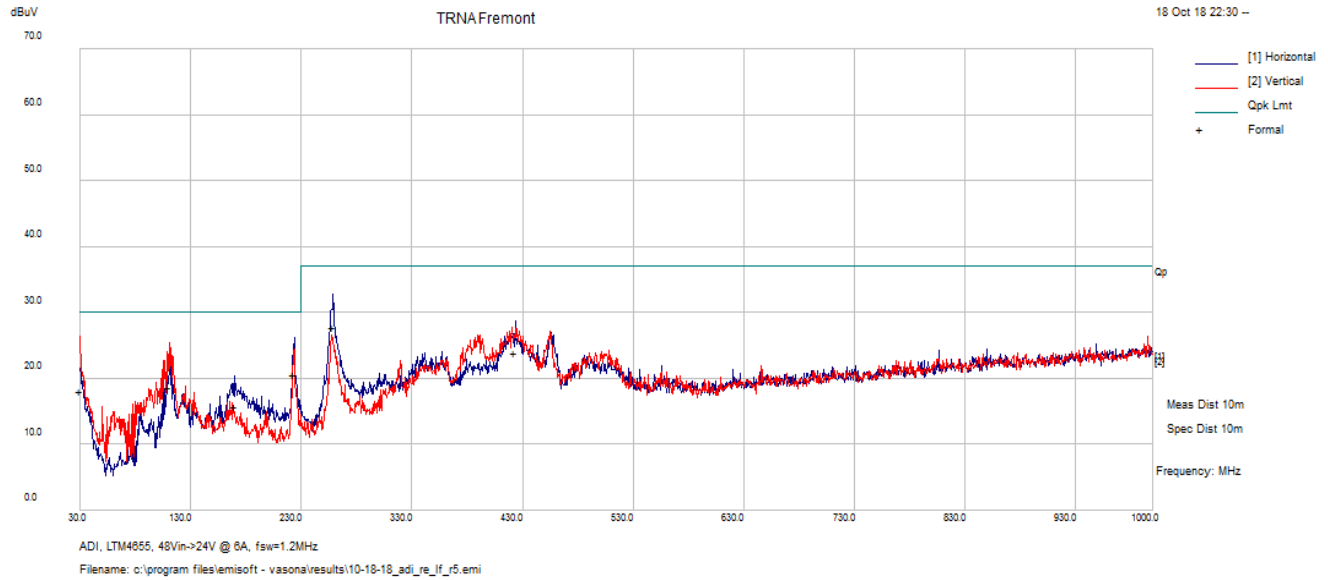
Note:

Frequency MHz	Raw dBuV/m	Cable Loss dB	AF dB	Level dBuV/m	Detector	Polarity H/V	Height cm	Azimuth deg	Limit dBuV/m	Margin dB
550.252188	37.12	3.2	-10.48	29.84	Quasi Max	V	306	50	37	-7.17
120.6875	27.1	1.93	-14.65	14.38	Quasi Max	V	318	52	30	-15.62
30.711563	27.71	1.41	-7.72	21.39	Quasi Max	V	373	113	30	-8.61
249.214688	44.17	2.41	-17.12	29.46	Quasi Max	H	359	189	37	-7.54
412.147188	36.1	2.88	-12.76	26.22	Quasi Max	V	153	250	37	-10.79
112.304688	35.12	1.89	-15.59	21.43	Quasi Max	V	158	273	30	-8.57

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Note:

Radiated Emissions Scan 30 – 1000 MHz
Vertical / Horizontal



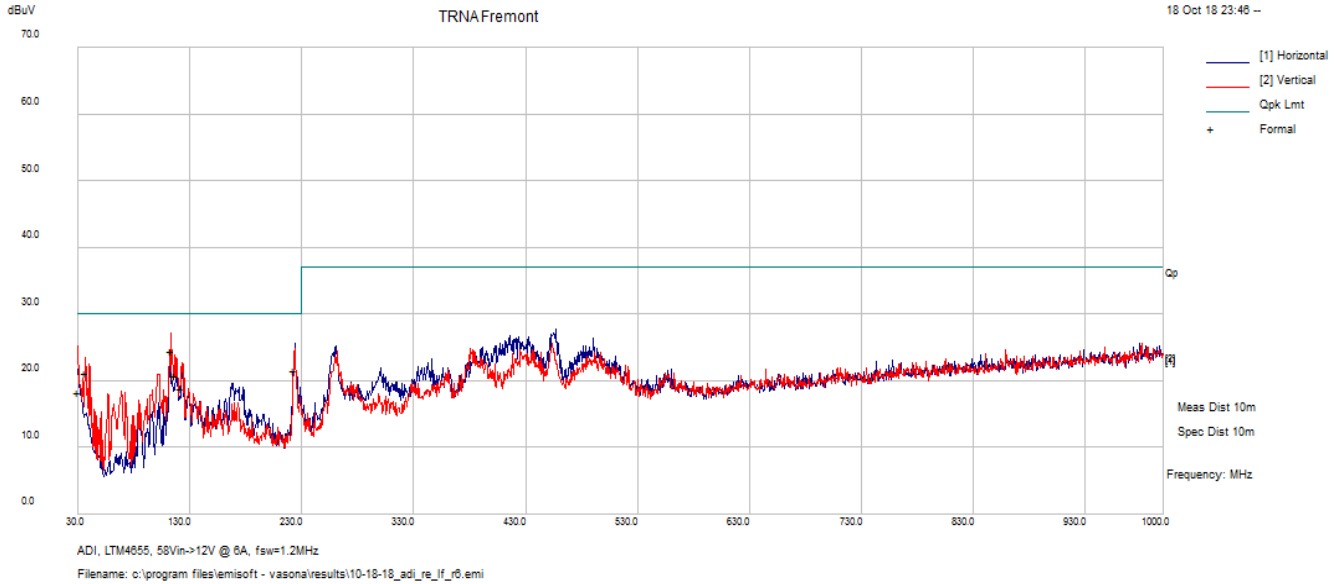
Note:

Frequency MHz	Raw dBuV/m	Cable Loss dB	AF dB	Level dBuV/m	Detector	Polarity H/V	Height cm	Azimuth deg	Limit dBuV/m	Margin dB
423.6325	33.61	2.9	-12.42	24.09	Quasi Max	H	250	65	37	-12.92
223.820313	36.13	2.32	-17.82	20.64	Quasi Max	H	330	157	30	-9.37
258.38375	42.27	2.44	-16.88	27.83	Quasi Max	H	316	199	37	-9.17
30.001328	23.79	1.41	-7.08	18.11	Quasi Max	V	400	223	30	-11.89
169.976563	30.8	2.13	-17.03	15.9	Quasi Max	H	389	271	30	-14.1
110.536875	32.77	1.88	-15.94	18.7	Quasi Max	V	284	272	30	-11.3

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Note:

Radiated Emissions Scan 30 – 1000 MHz
Vertical / Horizontal



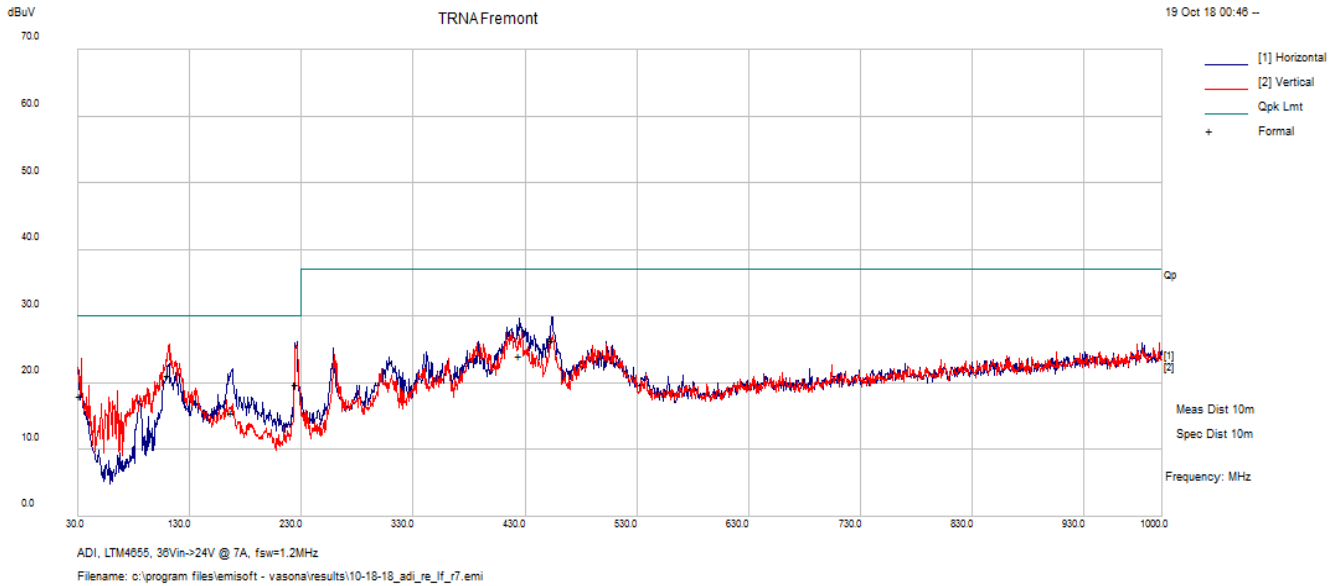
Note:

Frequency MHz	Raw dBuV/m	Cable Loss dB	AF dB	Level dBuV/m	Detector	Polarity H/V	Height cm	Azimuth deg	Limit dBuV/m	Margin dB
30	24.05	1.41	-7.08	18.38	Quasi Max	V	245	97	30	-11.62
223.753438	37.07	2.32	-17.82	21.57	Quasi Max	H	278	160	30	-8.43
122.587813	31.46	1.93	-14.49	18.9	Quasi Max	V	121	273	30	-11.1
36.9175	32.52	1.46	-12.71	21.28	Quasi Max	V	308	275	30	-8.72
116.631875	34.02	1.91	-14.99	20.94	Quasi Max	V	108	308	30	-9.06
113.092813	38.12	1.9	-15.44	24.58	Quasi Max	V	105	331	30	-5.42

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Note:

Radiated Emissions Scan 30 – 1000 MHz
Vertical / Horizontal



Note:

Frequency MHz	Raw dBuV/m	Cable Loss dB	AF dB	Level dBuV/m	Detector	Polarity H/V	Height cm	Azimuth deg	Limit dBuV/m	Margin dB
225.831563	35.34	2.33	-17.74	19.94	Quasi Max	H	260	160	30	-10.07
454.427188	35.43	2.96	-11.8	26.6	Quasi Max	H	154	210	37	-10.4
111.615625	35.03	1.88	-15.73	21.19	Quasi Max	V	112	248	30	-8.81
425.321875	33.7	2.9	-12.38	24.22	Quasi Max	H	146	249	37	-12.78
33.109688	26.25	1.44	-9.47	18.22	Quasi Max	V	400	283	30	-11.78
168.0675	30.47	2.12	-16.94	15.66	Quasi Max	H	342	316	30	-14.34

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2.1.6 Photos

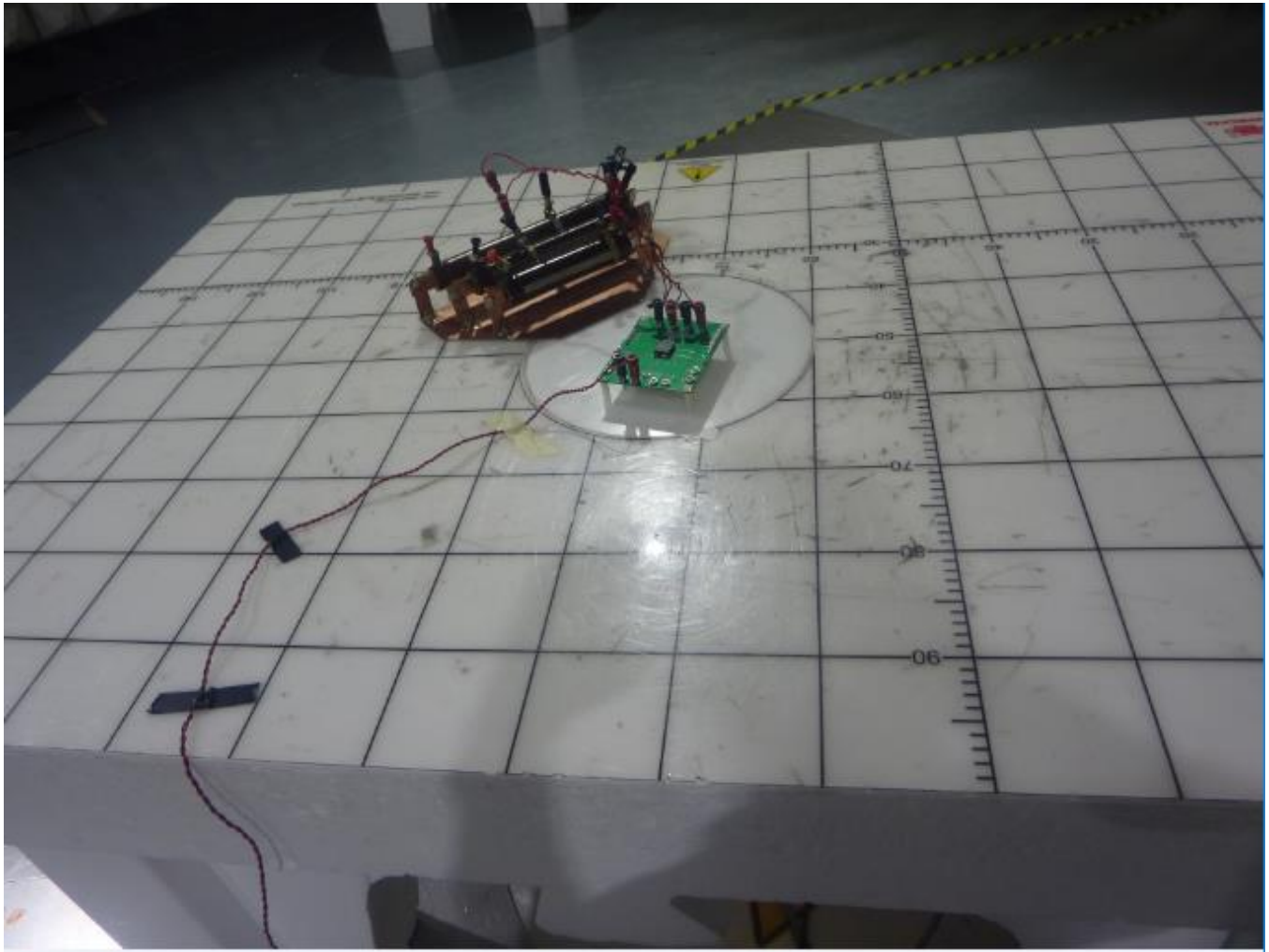


Figure 3 - Radiated Emissions Test Setup 30 - 1000 MHz – Front

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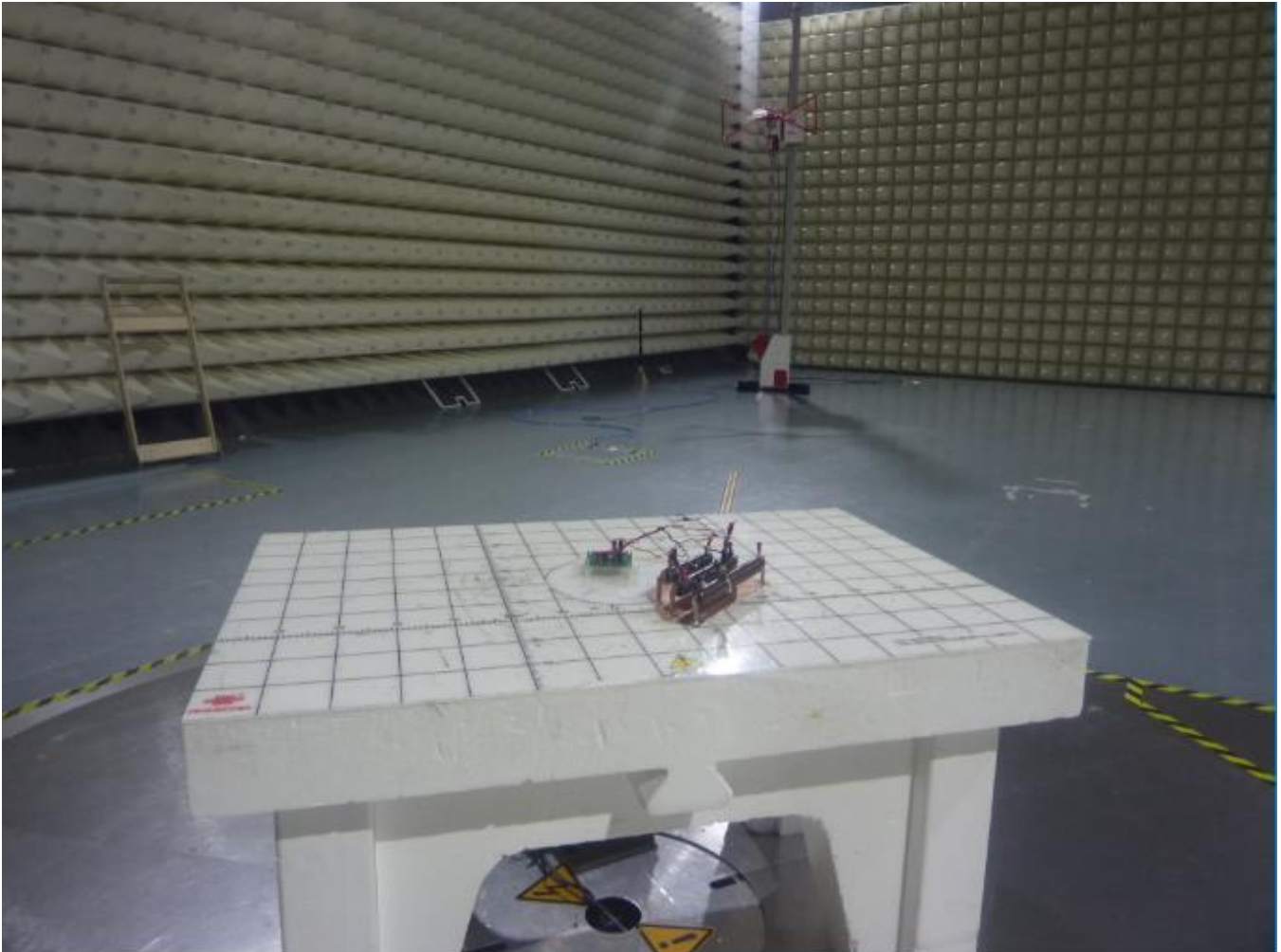


Figure 4 - Radiated Emissions Test Setup 30 - 1000 MHz – Back

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Appendix A

3 Test Plan

This test report is intended to follow the test plan outlined herein unless otherwise stated. The test plan provides product information, reference standards, and testing details. The product information was provided by the client. Test procedure information will reference standards or internal TUV Rheinland NA procedures.

3.1 General Information

Client	Analog Devices
Address	1630 McCarthy Blvd
	Milpitas, CA 95035 USA
Contact Person	Simon Lim
Telephone	4084321900
e-mail	simon.lim@analog.com

3.2 EUT Designation

Model Name	LTM4655
Model Number	LTM4655

3.3 EUT Defined Description

LTM4655

END OF REPORT