



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

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TEST REPORT

Application No.: SZEM1701000631LM (GZEM1701000503LM)
Applicant: GLOBAL(LED) LIGHTING SOLUTIONS
Address of Applicant: Suite 402, 4th floor, Northbank Buiding Lane, Northbank Lane Century City Town, 7441
Equipment Under Test (EUT):
EUT Name: x-Glo strip light
Model No.: x-Glo-60-24v、x-Glo-36-24v、x-Glo-30-24v、x-Glo-24-24v、x-Glo-18-24v、x-Glo-12-24v ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standards: EN 55015:2013+A1:2015
EN 61000-3-2:2014
EN 61000-3-3:2013
EN 61547:2009
Date of Receipt: 2014-10-23 (for original report of SZEM141000576803)
Date of Test: 2014-10-27 to 2014-10-28 (for original report of SZEM141000576803)
Date of Issue: 2014-11-12 (for original report of SZEM141000576803)
2016-06-06 (for report of SZEM160600421301)
2017-01-23 (for new report of SZEM170100063101)

Test Result :	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.



Jack Zhang

EMC Laboratory Manager



The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Test Summary

Item	Standard	Method	Class	Result
Conducted Disturbance at Mains Terminals (9kHz-30MHz)	EN 55015:2013 +A1:2015	EN 55015:2013 +A1:2015	N/A	Pass
Radiated Disturbance (30MHz-300MHz)	EN 55015:2013 +A1:2015	CISPR 22:2008	N/A	Pass
Radiated Disturbance (Magnetic field Induced Current) (9kHz-30MHz)	EN 55015:2013 +A1:2015	EN 55015:2013 +A1:2015	N/A	Pass
Harmonic Current Emission	EN 61000-3-2:2014	EN 61000-3-2:2014	Class C	Pass
Voltage Fluctuations and Flicker	EN 61000-3-3:2013	EN 61000-3-3:2013	Clause 5 of EN 61000-3-3	Pass
Electrostatic Discharge	EN 61547:2009	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz)	EN 61547:2009	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass
Electrical Fast Transients/Burst at Power Port	EN 61547:2009	EN 61000-4-4:2012	1kV 5/50ns Tr/Th 5kHz Repetition Frequency	Pass
Surge at Power Port	EN 61547:2009	EN 61000-4-5:2014	1.2/50µs Tr/Th 1kV Line to Line 2kV Line to Ground	Pass
Conducted Immunity at Power Port(150kHz-80MHz)	EN 61547:2009	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass
Voltage Dips and Interruptions	EN 61547:2009	EN 61000-4-11:2004	0 % UT for 0.5per 70 % UT for 10per UT is Supply Voltage	Pass

N/A: Not applicable



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Remark for the report SZEM160600421301:

Original model No. in report SZEM141000576803: Type 1: C-FR-F10X, C-FR-ProF10X, C-FR-F11X, C-FR-ProF11X, C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X (X=B, CJ, FCJ) ;

C-FR-F17X, C-FR-ProF17X (X= A, B, C) ;

Type 2: C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X (X=A) ;
C-FR-F16X, C-FR-ProF16X (X= A, B, C) ;

Type 3: C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X,
C-FR-F17X, C-FR-ProF17X (X= D) ;

Type 4: C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X,
C-FR-F16X, C-FR-ProF16X (X= S) ;

Only the model C-FR-F16S, C-FR-F21A, C-FR-F15B, C-FR-F17D was tested in report SZEM141000576803, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the models in each type, with only difference being appearance and model No..

New model No. in report SZEM160600421301: C-FR-F10X, C-FR-ProF10X, C-FR-F11X, C-FR-ProF11X, C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X (X=B, CJ, FCJ or blank, stands for single color);

C-FR-F17X, C-FR-ProF17X (X= A, B, C or blank, stands for single color);

C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X, (X=A, stands for RGB color); C-FR-F16X, C-FR-ProF16X (X= A, B, C or blank, stands for RGB color);

C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X, C-FR-F17X, C-FR-ProF17X (X=D, stands for two color mixed);

C-FR-F15X, C-FR-ProF15X, C-FR-F21X, C-FR-ProF21X, C-FR-F22X, C-FR-ProF22X, C-FR-F16X, C-FR-ProF16X (X=S, stands for color chasing);

This report was an additional report copied from the report SZEM141000576803, just changing the address of applicant and model No., Since the electrical circuit design, layout, components used and internal wiring for the models in the report SZEM141000576803 were exactly the same as the models in this report, only the appearance is different.

Additionally, just updated the below standards.

Original report standard

EN 55015:2013

EN 61000-3-2: 2006/A1:2009/A2:2009

EN 61000-4-5:2006

EN 61000-4-6:2009

The newest report standard

EN 55015:2013+A1:2015

EN 61000-3-2:2014

EN 61000-4-5:2014

EN 61000-4-6:2014

Reviewed the updated standards, all the technical requirements for the EUT are identical between the original and the newest standards' version.

Therefore original data was kept in this report SZEM160600421301.



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Remark for the report SZEM170100063101:

Model No.: x-Glo-60-24v、x-Glo-36-24v、x-Glo-30-24v、x-Glo-24-24v、x-Glo-18-24v、x-Glo-12-24v

This report SZEM170100063101 was an additional report copied from the report SZEM160600421301, just changed the information of applicant, product name and model No., deleted the trade mark. Since the electrical circuit design, layout, components used and internal wiring for the models in the report SZEM160600421301 were exactly the same as the models in this report, only different on model No. and appearance.

Therefore original data was kept in this report SZEM170100063101.



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4 General Information

4.1 Details of E.U.T.

Power Supply:

Input voltage: DC 24V

4.2 Description of Support Units

Description	Manufacturer	Model No.
LED Controller	Supply by client	LT-800
Decoder	Supply by client	LT-1809
Class2 power supply	Supply by client	CLG-100-24
LED Controller	Supply by client	T3-5A

4.3 Standards Applicable for Testing

Table 1 : Tests Carried Out Under EN 55015:2013+A1:2015

Method	Item	Status
EN 55015:2013+A1:2015	Conducted Disturbance at Mains Terminals (9kHz-30MHz)	✓
EN 55015:2013+A1:2015	Conducted Disturbance at Load Terminals (150kHz-30MHz)	×
CISPR 22:2008	Radiated Disturbance(30MHz-300MHz)	✓
EN 55015:2013+A1:2015	Radiated Disturbance (Magnetic field Induced Current)(9kHz-30MHz)	✓
EN 55015:2013+A1:2015	Insertion Loss	×

Table 2 : Tests Carried Out Under EN 61000-3-2:2014

Method	Item	Status
EN 61000-3-2:2014	Harmonic Current Emission	✓

Table 3 : Tests Carried Out Under EN 61000-3-3:2013

Method	Item	Status
EN 61000-3-3:2013	Voltage Fluctuations and Flicker	✓

Table 4 : Tests Carried Out Under EN 61547:2009

Method	Item	Status
EN 61000-4-2:2009	Electrostatic Discharge	✓
EN 61000-4-3:2006 +A1:2008+A2:2010	Radiated Immunity(80MHz-1GHz)	✓
EN 61000-4-4:2012	Electrical Fast Transients/Burst at Power Port	✓
EN 61000-4-4:2012	Electrical Fast Transients/Burst at Signal Port	×
EN 61000-4-5:2014	Surge at Power Port	✓
EN 61000-4-6:2014	Conducted Immunity at Power Port(150kHz-80MHz)	✓
EN 61000-4-6:2014	Conducted Immunity at Signal Port(150kHz-80MHz)	×
EN 61000-4-11:2004	Voltage Dips and Interruptions	✓

×

Indicates that the test is not applicable

✓

Indicates that the test is applicable



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4.4 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053

Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: The light of the EUT

Audio: None



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5 Equipment List

Conducted Disturbance at Mains Terminals(9kHz-30MHz)					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2015-06-10
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2015-10-24
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2015-05-16
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2015-05-16
5	Coaxial Cable	SGS	N/A	SEL0025	2015-05-29

Radiated Disturbance(30MHz-300MHz)					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEL0303	2015-08-01
2	EMI Test Receiver	Rohde & Schwarz	ESR	SEL0295	2015-06-18
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	Coaxial cable	SGS	N/A	SEL0288	2015-06-10
5	Coaxial cable	SGS	N/A	SEL0275	2015-06-10
6	Coaxial cable	SGS	N/A	SEL0274	2015-06-10
7	BiConiLog Antenna (30M-1GHz)	Schwarzbeck	VULB9160	SEL0308	2015-07-14
8	BiConiLog Antenna (30M-1GHz)	Schwarzbeck	VULB9160	SEL0309	2015-07-14
9	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEL0310	2015-07-16
10	Pre-amplifier	Sonoma Instrument Co	310N	SEL0298	2015-07-28
11	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2015-10-24

Radiated Disturbance (Magnetic field Induced Current)(9kHz-30MHz)					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2015-06-4
2	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2015-05-16



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Harmonic Current Emission					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	AC Power Source	California Instruments	5001ix	SEL0052	2015-05-16
2	Power Analyzer	California Instruments	PACS-1	SEL0051	2015-05-16
3	CTS 3.0 Software	California Instruments	N/A	SEL0087	N/A

Voltage Fluctuations and Flicker					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	AC Power Source	California Instruments	5001ix	SEL0052	2015-05-16
2	Power Analyzer	California Instruments	PACS-1	SEL0051	2015-05-16
3	CTS 3.0 Software	California Instruments	N/A	SEL0087	N/A

Electrostatic Discharge					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	ESD Simulator	SCHAFFNER	NSG 438	SEL0035	2015-03-16
2	ESD Ground Plane	SGS(3m*3m)	N/A	SEL0004	N/A



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Radiated Immunity(80MHz-1GHz)					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2015-06-10
2	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2015-05-16
3	RF Amplifier 0.8-3.0GHz	Amplifier Research	60S1G3	SEL0065	2015-10-24
4	Power Meter	Rohde & Schwarz	NRVD	SEL0069	2015-05-16
5	Power Sensor	Rohde & Schwarz	URV5-Z2	SEL0071	2015-05-16
6	Power Sensor	Rohde & Schwarz	URV5-Z2	SEL0072	2015-05-16
7	Software EMC32	Rohde & Schwarz	EMC32-S	SEL0082	N/A
8	Log-periodic Antenna	Amplifier Research	AT1080	SEL0073	N/A
9	Antenna Tripod	Amplifier Research	TP1000A	SEL0074	N/A

Electrical Fast Transients/Burst at Power Port					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	EMC Immunity Test System	Thermo ELECTRON	EMCPro Plus	SEL0007	2015-10-24



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Surge at Power Port					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	EMC Immunity Test System	Thermo ELECTRON	EMCPro Plus	SEL0007	2015-10-24

Conducted Immunity at Power Port(150kHz-80MHz)					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	RF-Generator	SCHAFFNER	NSG 2070	SEL0039	2015-10-24
2	Coupling/Decoupling Network	SCHAFFNER	CDN M016	SEL0040	2015-10-24

Voltage Dips and Interruptions					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	EMC Immunity Test System	Thermo ELECTRON	EMCPro Plus	SEL0007	2015-10-24

General used equipment					
Item	Equipment	Manufacturer	Model No	Inventory No	Cal Due Date
1	Humidity/Temperature Indicator	Shanghai	ZJ1-2B	SEL0102 to SEL0103	2015-10-24
2	Humidity/Temperature Indicator	Shanghai	ZJ1-2B	SEL0101	2015-10-24
3	Barometer	ChangChun	DYM3	SEL0088	2015-05-16

6 Emission Test Results

6.1 Conducted Disturbance at Mains Terminals(9kHz-30MHz)

Test Requirement:	EN 55015:2013+A1:2015
Test Method:	EN 55015:2013+A1:2015
Frequency Range:	9kHz to 30MHz
Limit:	
0.009MHz – 0.05MHz	110dB(μV) quasi-peak
0.05MHz – 0.15MHz	90dB(μV)-80dB(μV) quasi-peak
0.15MHz – 0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5MHz – 5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5MHz – 30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

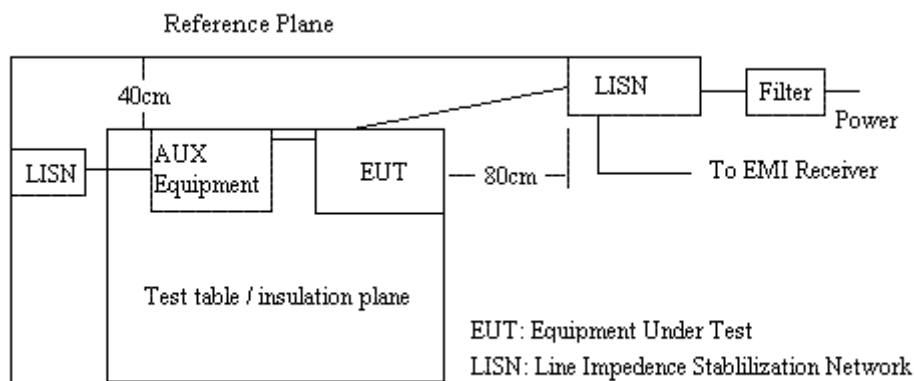
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C Humidity: 50 % RH Atmospheric Pressure: 1015 mbar

Test mode: a: On mode, keep EUT lighting.

6.1.2 Test Setup



6.1.3 Measurement Data

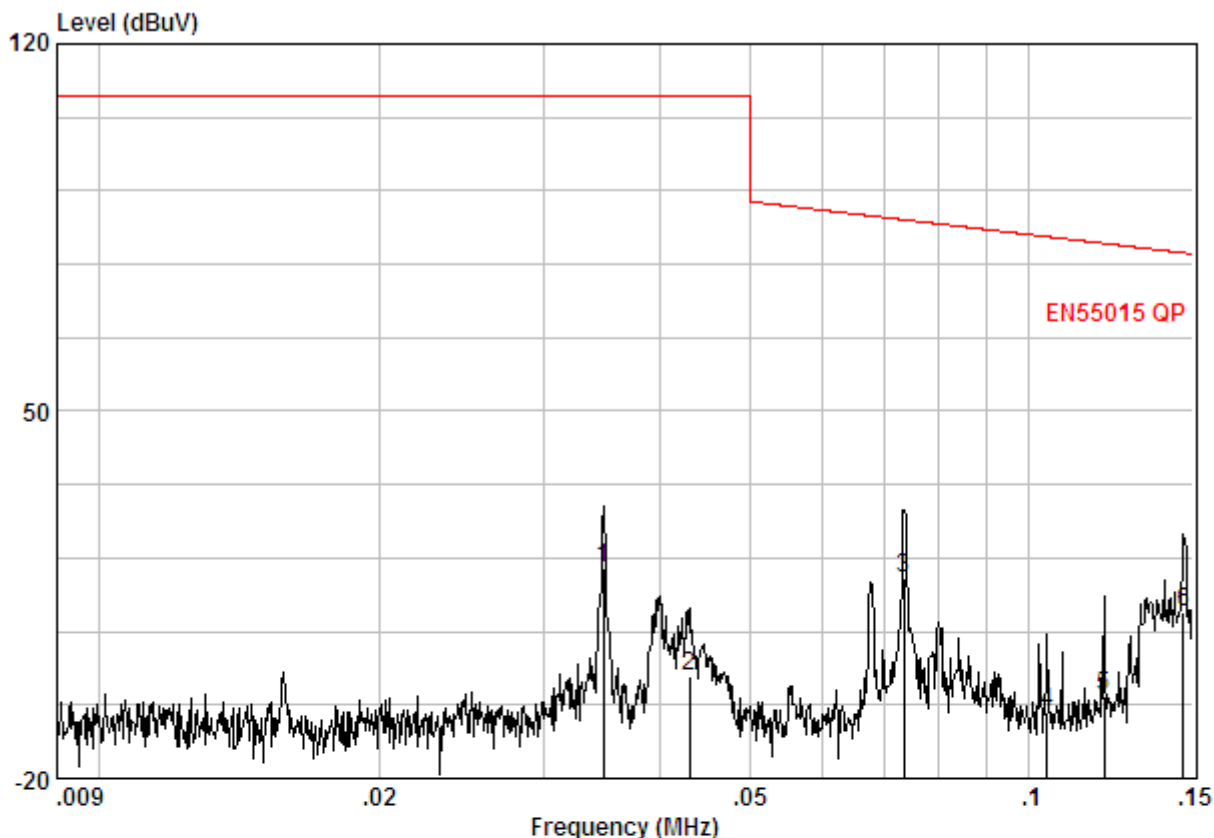
An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.



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C-FR-F15B
Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job No. : 5768TX
Mode : On mode
: C-FR-F15B

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.75	10.11	19.87	110.00	-90.13	QP
2	0.04313	0.01	9.70	-10.21	-0.50	110.00	-110.50	QP
3	0.07341	0.02	9.70	8.36	18.07	86.50	-68.43	QP
4	0.10464	0.02	9.70	-17.29	-7.57	83.28	-90.85	QP
5	0.12044	0.02	9.70	-14.09	-4.37	82.00	-86.37	QP
6	0.14666	0.02	9.70	1.93	11.65	80.20	-68.56	QP

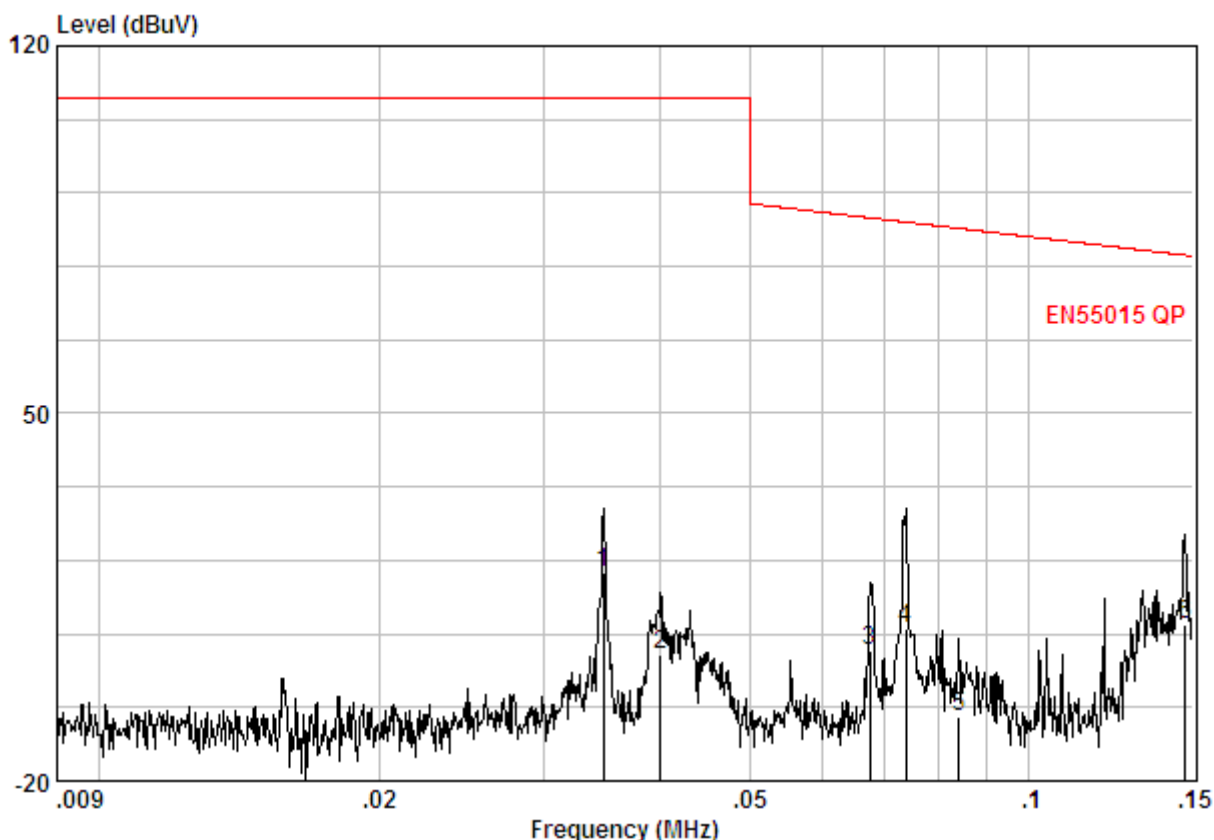


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Shenzhen Branch

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Mode:a;Line:Neutral Line



Site : Shielding Room
Condition : EN55015 QP CE NEUTRAL
Job No. : 5768TX
Mode : On mode
: C-FR-F15B

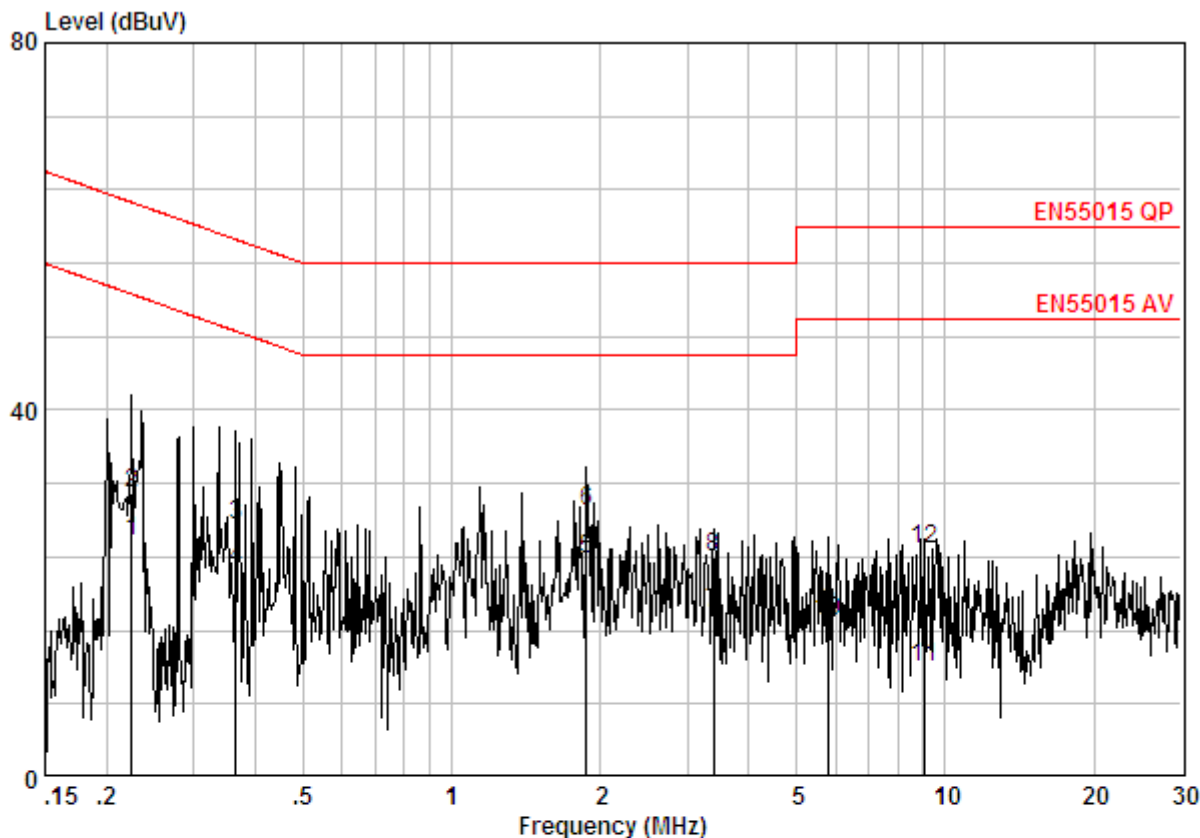
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.95	9.85	19.81	110.00	-90.19	QP
2	0.04009	0.01	9.90	-5.95	3.96	110.00	-106.04	QP
3	0.06747	0.02	9.70	-4.84	4.87	87.27	-82.40	QP
4	0.07361	0.02	9.70	-0.83	8.89	86.48	-77.59	QP
5	0.08402	0.02	9.70	-17.65	-7.93	85.28	-93.21	QP
6	0.14707	0.02	9.70	0.15	9.87	80.18	-70.31	QP



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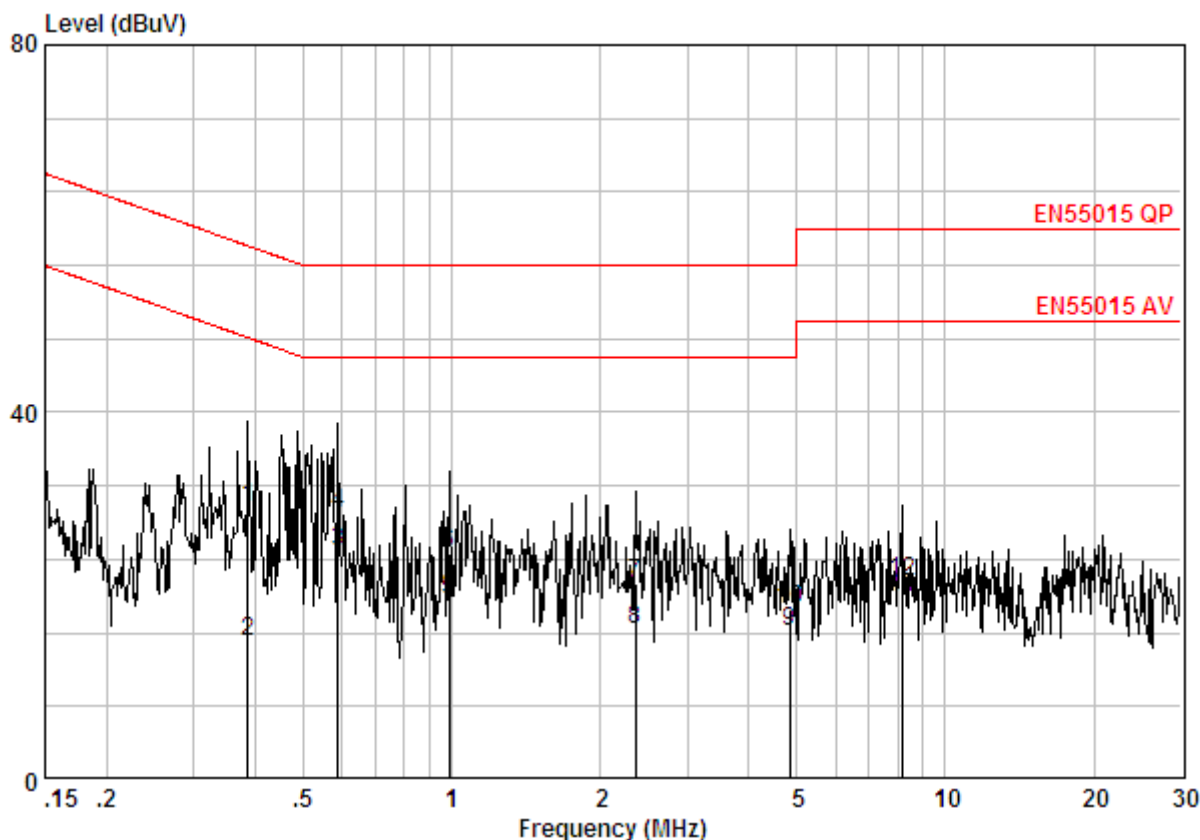
Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job.No : 5768TX
Mode : On mode
: C-FR-F15B

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.22437	0.02	9.70	15.95	25.66	52.66	-26.99	Average
2 @	0.22437	0.02	9.70	21.27	30.99	62.66	-31.67	QP
3 @	0.36531	0.01	9.77	17.71	27.49	58.61	-31.12	QP
4 @	0.36531	0.01	9.77	12.96	22.74	48.61	-25.87	Average
5 @	1.878	0.02	9.80	13.91	23.73	46.00	-22.27	Average
6 @	1.878	0.02	9.80	19.27	29.09	56.00	-26.91	QP
7 @	3.399	0.02	9.86	7.99	17.87	56.00	-38.13	QP
8 @	3.399	0.02	9.86	14.05	23.93	46.00	-22.07	Average
9 @	5.805	0.01	9.90	8.00	17.91	60.00	-42.09	QP
10 @	5.805	0.01	9.90	7.20	17.11	50.00	-32.89	Average
11 @	9.059	0.01	9.90	2.06	11.97	50.00	-38.03	Average
12 @	9.059	0.01	9.90	14.98	24.89	60.00	-35.11	QP

Mode:a;Line:Neutral Line

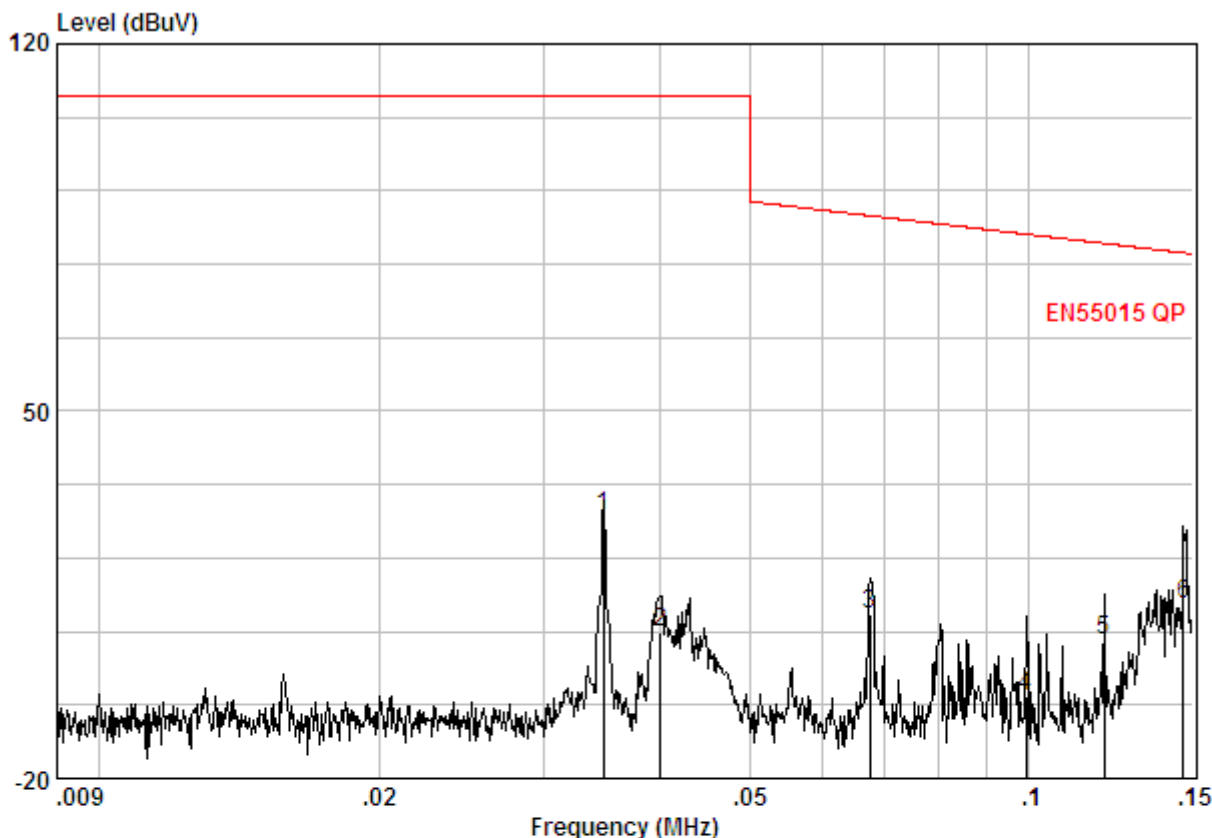


Site : Shielding Room
Condition : EN55015 QP CENEUTRAL
Job.No : 5768TX
Mode : On mode
: C-FR-F15B

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.38724	0.01	9.79	19.93	29.73	58.12	-28.39	QP
2 @	0.38724	0.01	9.79	5.16	14.96	48.12	-33.17	Average
3 @	0.58851	0.01	9.80	15.06	24.88	46.00	-21.12	Average
4 @	0.58851	0.01	9.80	19.08	28.89	56.00	-27.11	QP
5 @	0.98914	0.02	9.80	9.70	19.52	46.00	-26.48	Average
6 @	0.98914	0.02	9.80	14.81	24.63	56.00	-31.37	QP
7 @	2.358	0.02	9.82	11.49	21.33	56.00	-34.67	QP
8 @	2.358	0.02	9.82	6.49	16.33	46.00	-29.67	Average
9 @	4.848	0.01	9.90	6.27	16.18	46.00	-29.82	Average
10 @	4.848	0.01	9.90	8.73	18.64	56.00	-37.36	QP
11 @	8.148	0.01	9.90	9.89	19.80	50.00	-30.20	Average
12 @	8.148	0.01	9.90	11.63	21.54	60.00	-38.46	QP

C-FR- F16S

Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job No. : 5768TX
Mode : On mode
: C-FR-F16S

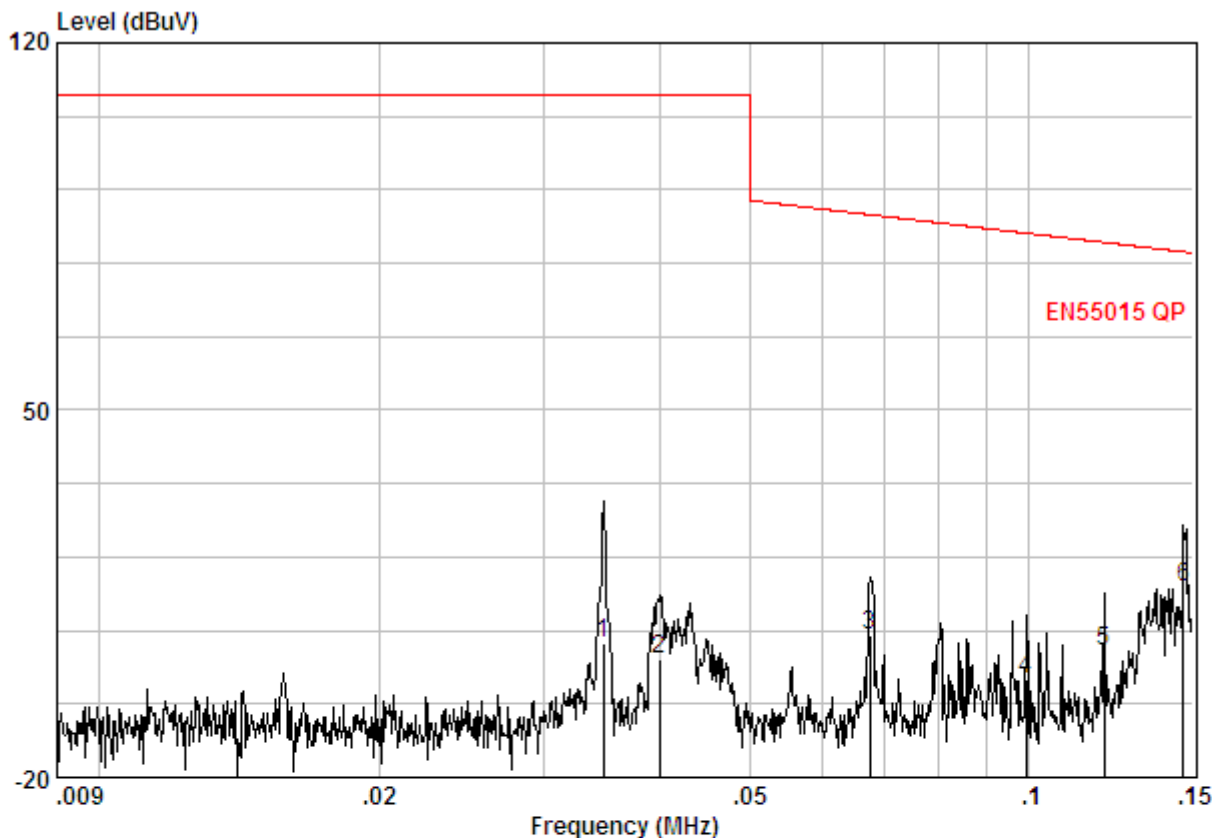
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.75	20.18	29.93	110.00	-80.07	QP
2	0.04009	0.01	9.70	-2.00	7.71	110.00	-102.29	QP
3	0.06747	0.02	9.70	1.48	11.19	87.27	-76.08	QP
4	0.09919	0.02	9.70	-13.90	-4.18	83.76	-87.95	QP
5	0.12044	0.02	9.70	-3.58	6.14	82.00	-75.86	QP
6	0.14666	0.02	9.70	3.48	13.20	80.20	-67.01	QP



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Mode:a;Line:Neutral Line



Site : Shielding Room
Condition : EN55015 QP CE NEUTRAL
Job No. : 5768TX
Mode : On mode
: C-FR-F16S

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.95	-4.23	5.73	110.00	-104.27	QP
2	0.03998	0.01	9.90	-7.37	2.54	110.00	-107.46	QP
3	0.06747	0.02	9.70	-2.52	7.19	87.27	-80.08	QP
4	0.09919	0.02	9.70	-10.90	-1.18	83.76	-84.95	QP
5	0.12044	0.02	9.70	-5.58	4.14	82.00	-77.86	QP
6	0.14666	0.02	9.70	6.48	16.20	80.20	-64.01	QP

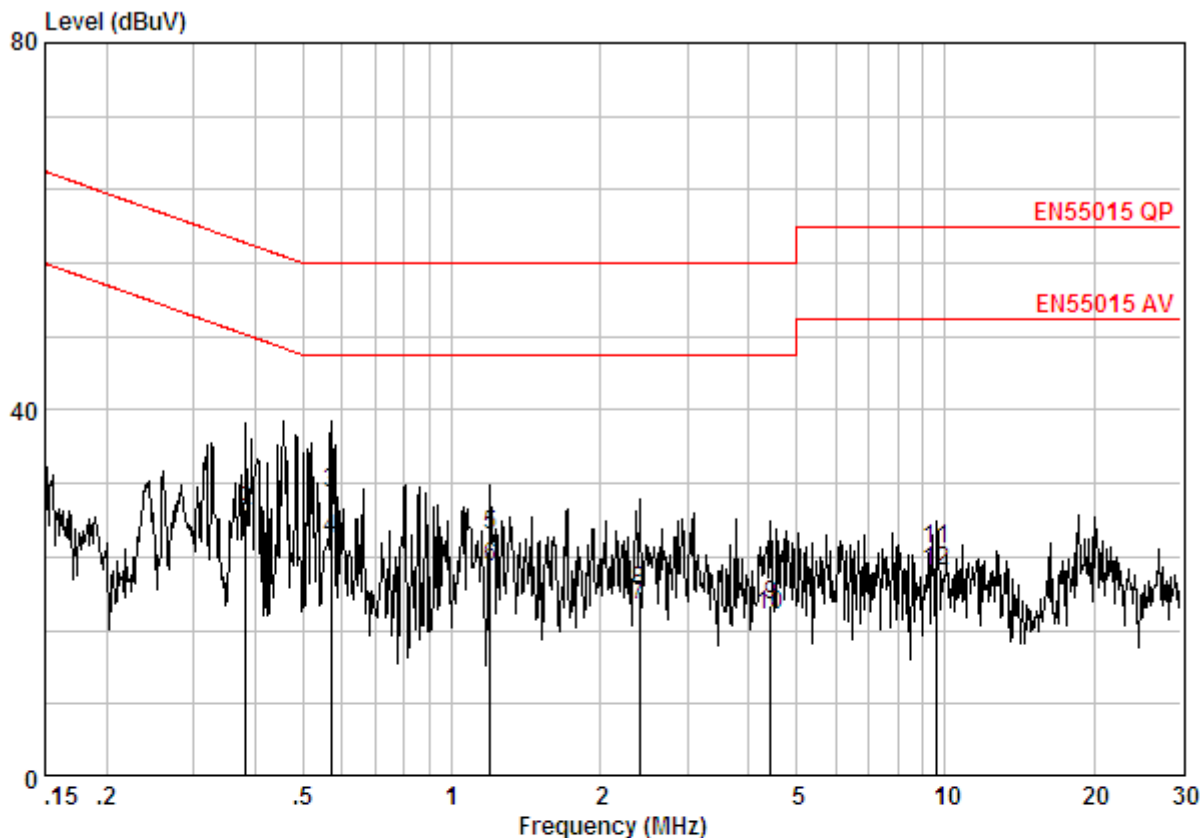


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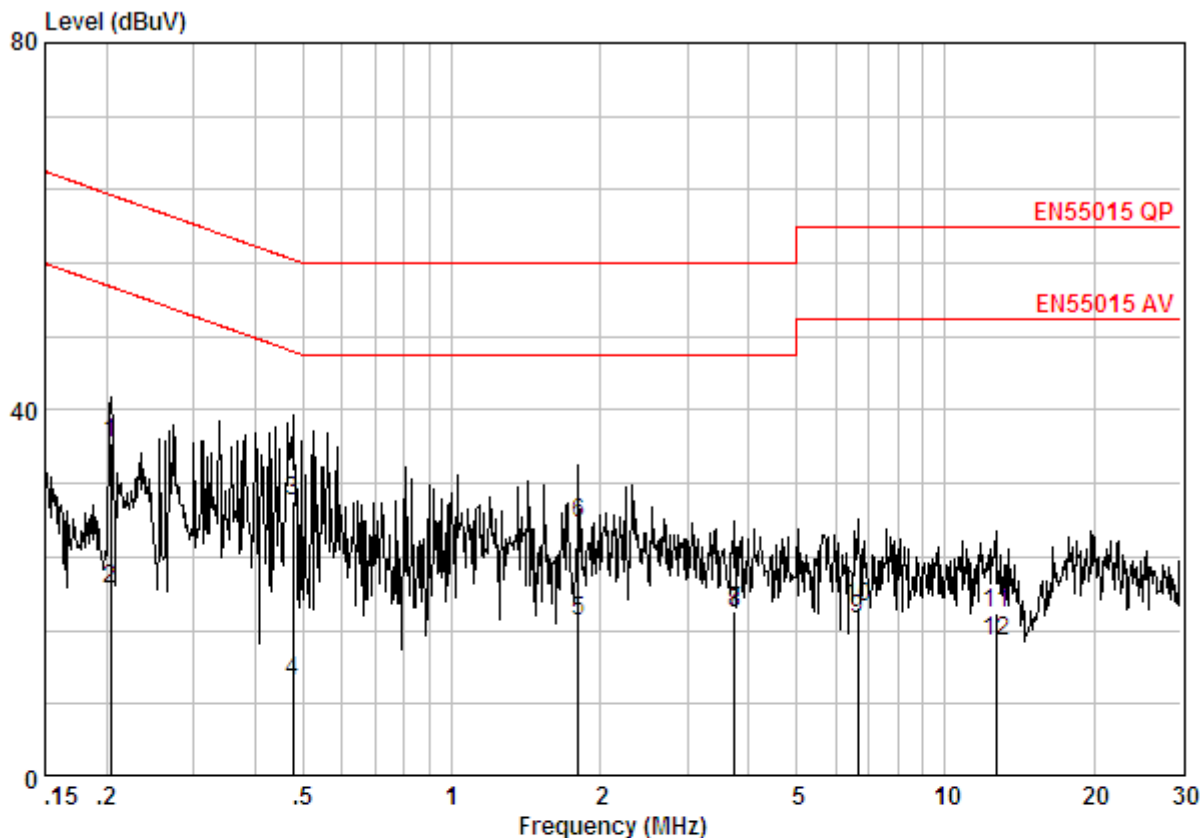
Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job.No : 5768TX
Mode : On mode
: C-FR-F16S

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.38315	0.01	9.78	16.83	26.63	48.21	-21.59	Average
2 @	0.38315	0.01	9.78	19.21	29.00	58.21	-29.21	QP
3 @	0.57010	0.01	9.80	21.14	30.95	56.00	-25.05	QP
4 @	0.57010	0.01	9.80	16.08	25.90	46.00	-20.10	Average
5 @	1.197	0.02	9.80	16.66	26.48	56.00	-29.52	QP
6 @	1.197	0.02	9.80	13.06	22.88	46.00	-23.12	Average
7 @	2.396	0.02	9.82	8.85	18.69	56.00	-37.31	QP
8 @	2.396	0.02	9.82	10.40	20.24	46.00	-25.76	Average
9 @	4.430	0.01	9.89	8.90	18.80	46.00	-27.20	Average
10 @	4.430	0.01	9.89	7.72	17.62	56.00	-38.38	QP
11 @	9.552	0.01	9.90	14.98	24.89	50.00	-25.11	Average
12 @	9.552	0.01	9.90	12.47	22.38	60.00	-37.62	QP

Mode:a;Line:Neutral Line

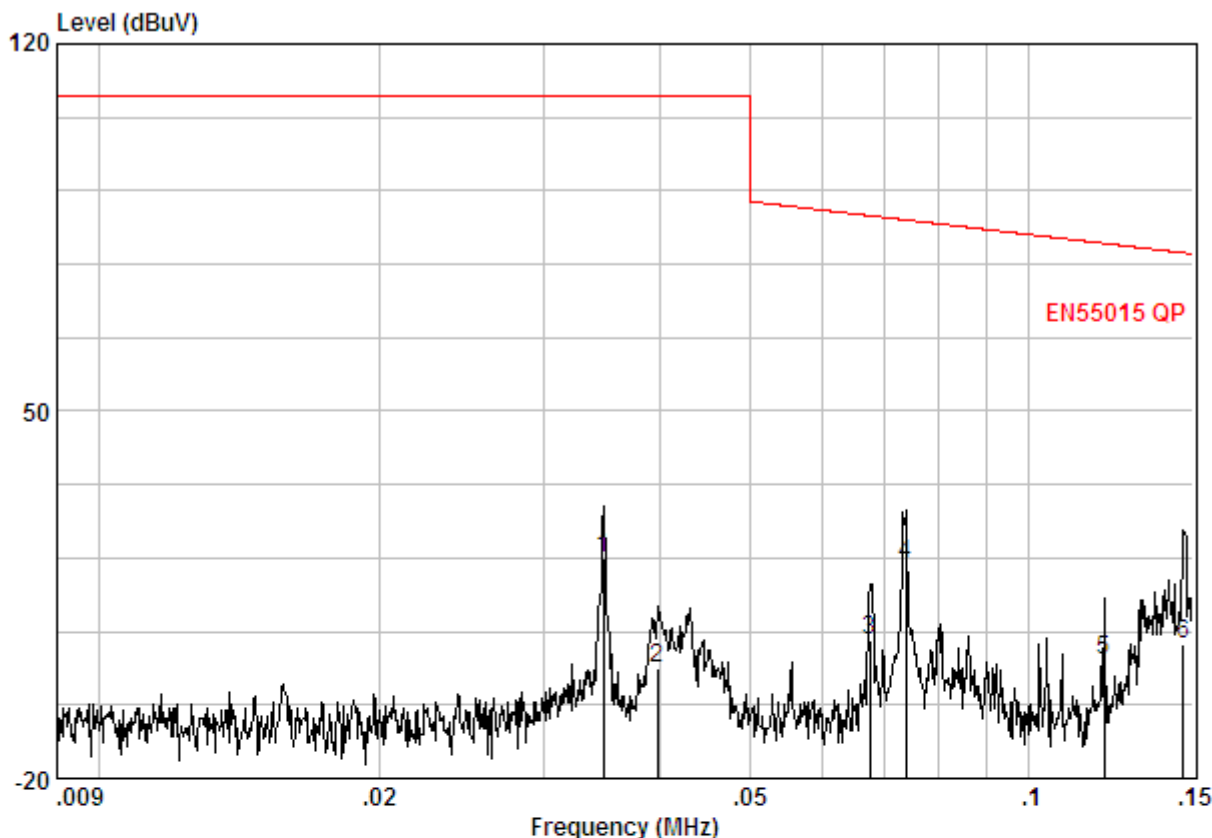


Site : Shielding Room
Condition : EN55015 QP CE NEUTRAL
Job.No : 5768TX
Mode : On mode
: C-FR-F16S

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.20396	0.02	9.70	26.74	36.46	63.45	-26.99	QP
2 @	0.20396	0.02	9.70	10.70	20.41	53.45	-33.03	Average
3 @	0.47612	0.01	9.80	20.23	30.04	56.41	-26.37	QP
4 @	0.47612	0.01	9.80	0.56	10.37	46.41	-36.04	Average
5 @	1.810	0.02	9.80	7.17	16.99	46.00	-29.01	Average
6 @	1.810	0.02	9.80	17.83	27.65	56.00	-28.35	QP
7 @	3.740	0.02	9.87	8.28	18.16	56.00	-37.84	QP
8 @	3.740	0.02	9.87	8.10	17.98	46.00	-28.02	Average
9 @	6.662	0.01	9.99	7.20	17.19	50.00	-32.81	Average
10 @	6.662	0.01	9.99	8.56	18.56	60.00	-41.44	QP
11 @	12.649	0.01	10.00	7.82	17.83	50.00	-32.17	Average
12 @	12.649	0.01	10.00	4.80	14.81	60.00	-45.19	QP

C-FR-F17D

Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job No. : 5768TX
Mode : On mode
: C-FR-F17D

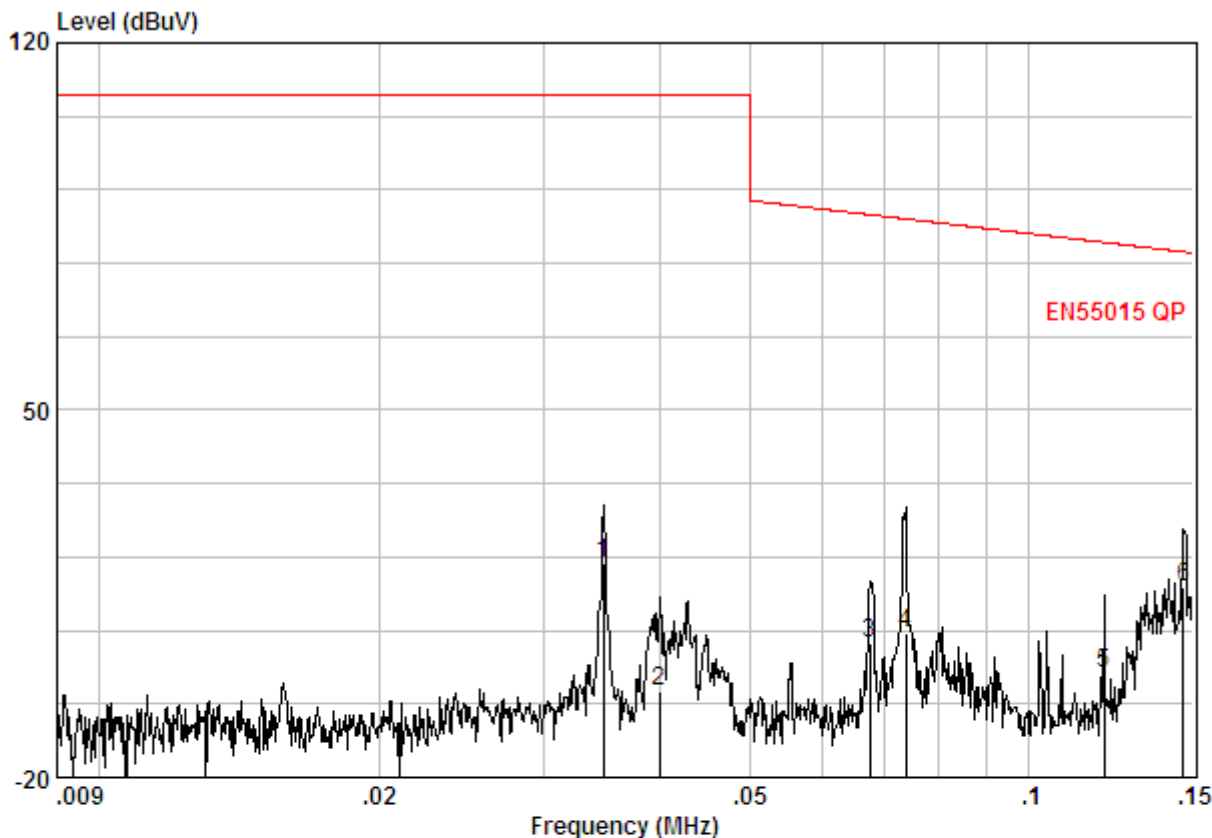
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.75	12.11	21.87	110.00	-88.13	QP
2	0.03987	0.01	9.70	-8.86	0.85	110.00	-109.15	QP
3	0.06747	0.02	9.70	-3.54	6.17	87.27	-81.10	QP
4	0.07361	0.02	9.70	11.26	20.97	86.48	-65.51	QP
5	0.12044	0.02	9.70	-7.29	2.43	82.00	-79.57	QP
6	0.14666	0.02	9.70	-4.32	5.40	80.20	-74.81	QP



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Mode:a;Line:Neutral Line



Site : Shielding Room
Condition : EN55015 QP CE NEUTRAL
Job No. : 5768TX
Mode : On mode
: C-FR-F17D

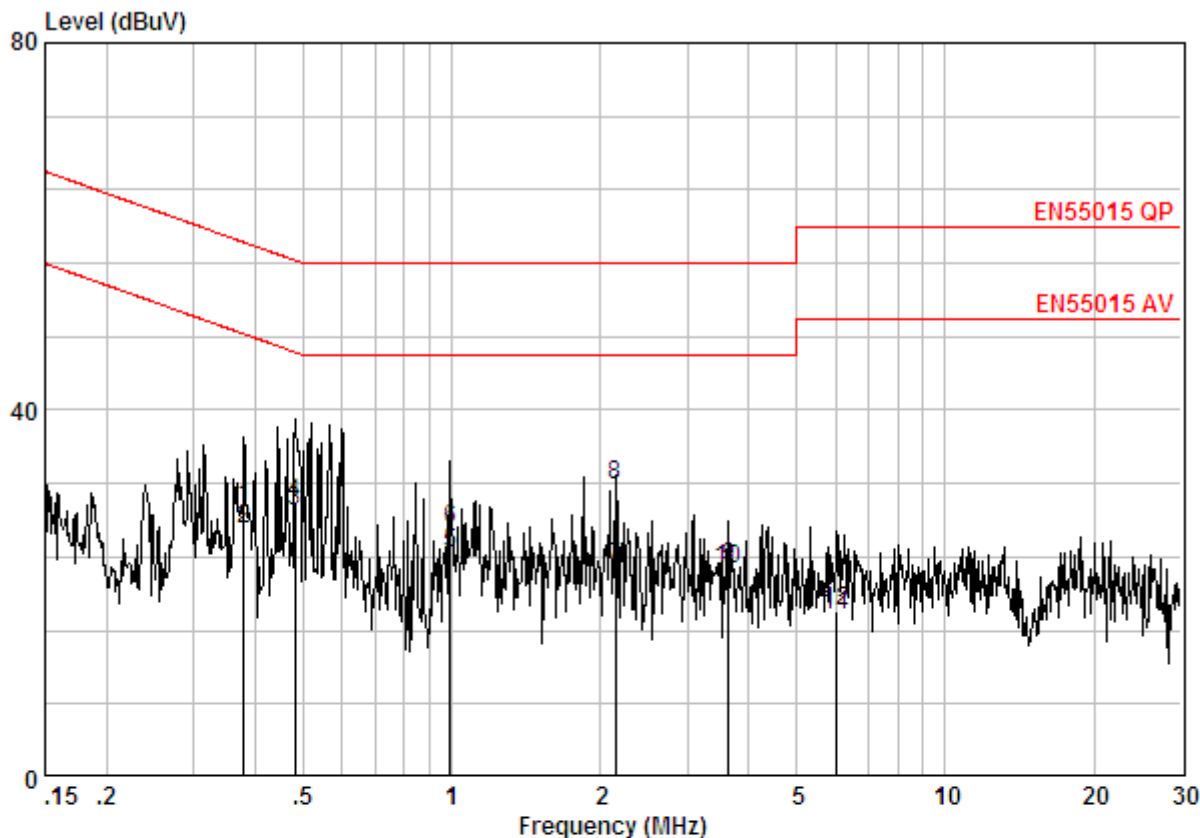
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.95	11.00	20.95	110.00	-89.05	QP
2	0.03998	0.01	9.90	-13.66	-3.75	110.00	-113.75	QP
3	0.06747	0.02	9.70	-4.21	5.51	87.27	-81.77	QP
4	0.07361	0.02	9.70	-2.16	7.56	86.48	-78.92	QP
5	0.12044	0.02	9.70	-9.99	-0.27	82.00	-82.27	QP
6 @	0.14666	0.02	9.70	6.68	16.40	80.20	-63.81	QP



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Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job.No : 5768TX
Mode : On mode
: C-FR-F17D

		Cable	LISN	Read	Limit	Over	
	Freq	Loss	Factor	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB
1 @	0.37912	0.01	9.78	19.67	29.46	58.30	-28.84 QP
2 @	0.37912	0.01	9.78	17.32	27.11	48.30	-21.19 Average
3 @	0.48119	0.01	9.80	19.20	29.01	56.32	-27.31 QP
4 @	0.48119	0.01	9.80	20.14	29.95	46.32	-16.37 Average
5 @	0.99440	0.02	9.80	14.57	24.39	46.00	-21.61 Average
6 @	0.99440	0.02	9.80	17.18	27.00	56.00	-29.00 QP
7 @	2.144	0.02	9.81	13.02	22.85	46.00	-23.15 Average
8 @	2.144	0.02	9.81	21.94	31.77	56.00	-24.23 QP
9 @	3.642	0.02	9.87	13.11	22.99	46.00	-23.01 Average
10 @	3.642	0.02	9.87	12.84	22.72	56.00	-33.28 QP
11 @	6.024	0.01	9.90	7.84	17.75	50.00	-32.25 Average
12 @	6.024	0.01	9.90	8.20	18.11	60.00	-41.89 QP

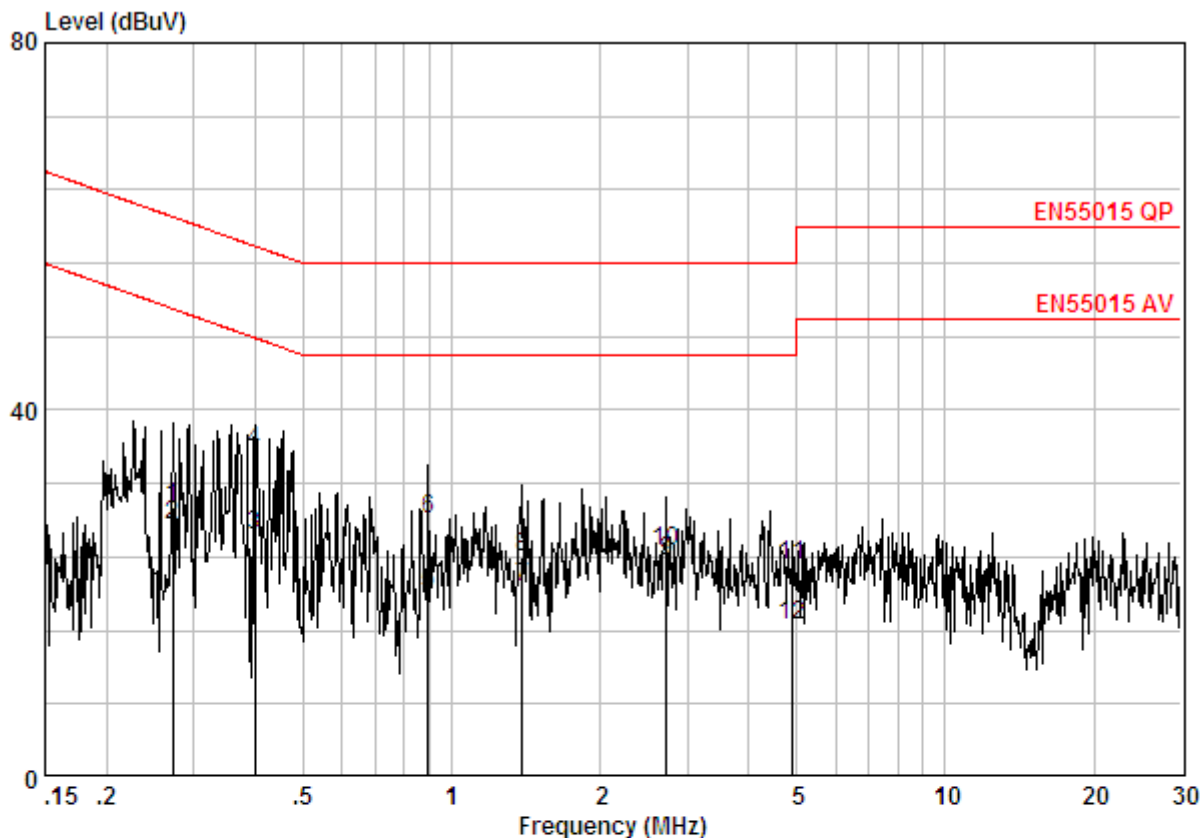


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Mode:a;Line:Neutral Line

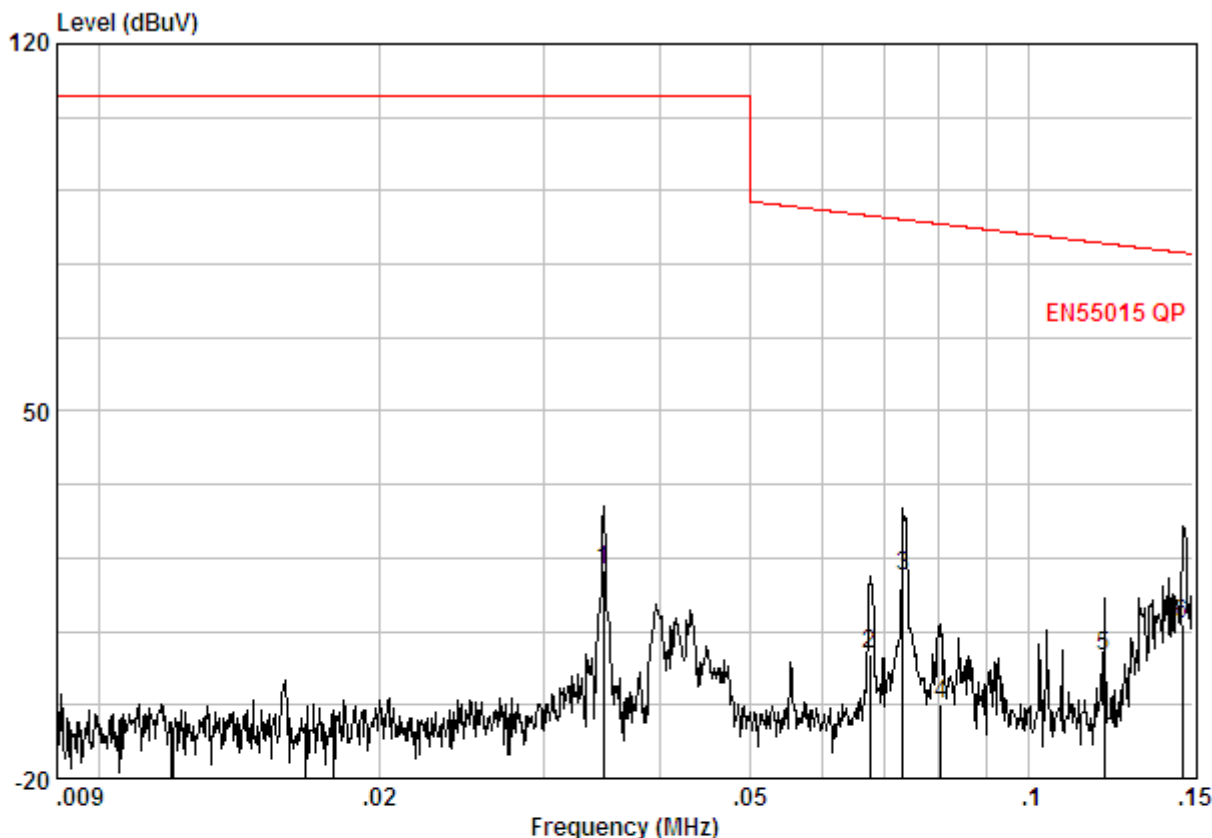


Site : Shielding Room
Condition : EN55015 QP CE NEUTRAL
Job.No : 5768TX
Mode : On mode
: C-FR-F17D

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.27152	0.01	9.70	19.81	29.52	61.07	-31.55	QP
2 @	0.27152	0.01	9.70	17.83	27.54	51.07	-23.53	Average
3 @	0.39974	0.01	9.80	16.66	26.47	47.86	-21.39	Average
4 @	0.39974	0.01	9.80	25.73	35.54	57.86	-22.32	QP
5 @	0.89441	0.02	9.80	10.27	20.09	46.00	-25.91	Average
6 @	0.89441	0.02	9.80	18.20	28.02	56.00	-27.98	QP
7 @	1.388	0.02	9.80	10.93	20.75	46.00	-25.25	Average
8 @	1.388	0.02	9.80	14.05	23.87	56.00	-32.13	QP
9 @	2.721	0.02	9.83	13.63	23.48	46.00	-22.52	Average
10 @	2.721	0.02	9.83	14.80	24.65	56.00	-31.35	QP
11 @	4.900	0.01	9.90	13.09	23.00	56.00	-33.00	QP
12 @	4.900	0.01	9.90	6.74	16.65	46.00	-29.35	Average

C-FR-F21A

Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job No. : 5768TX
Mode : On mode
: C-FR-F21A

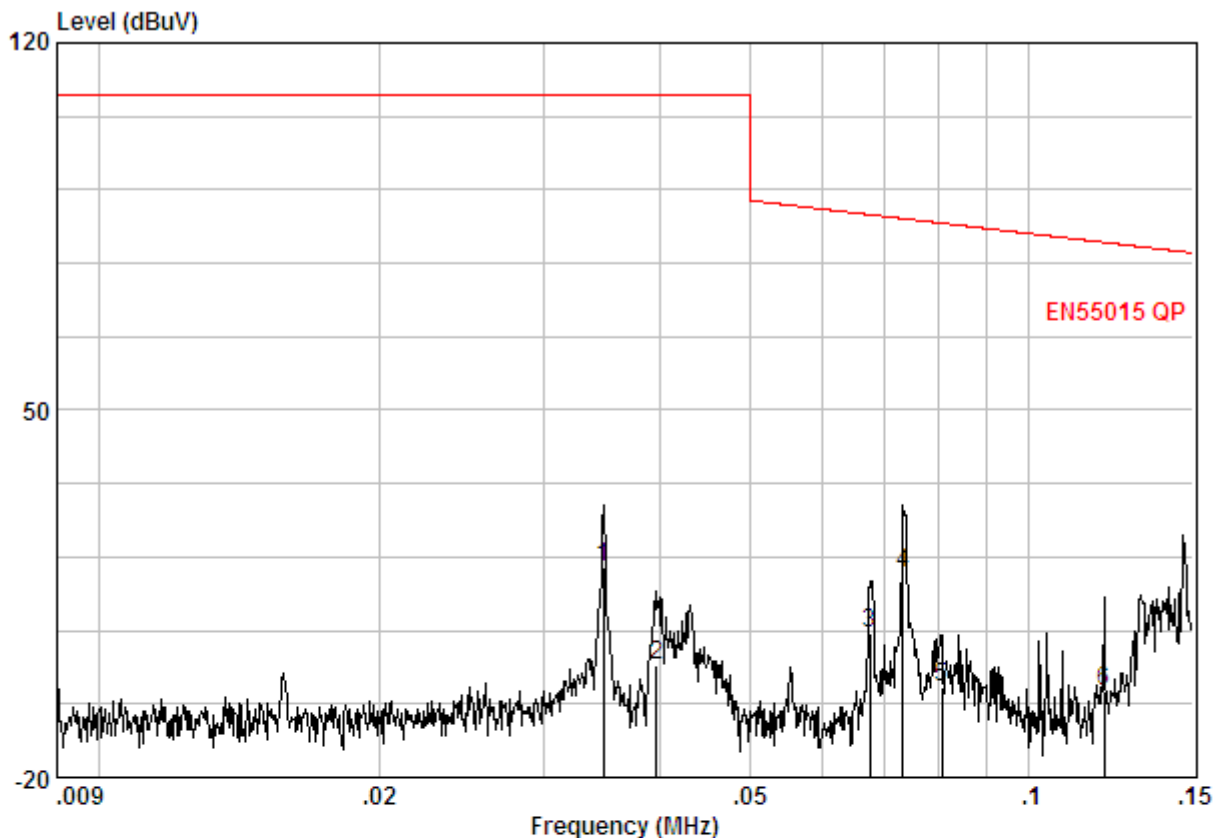
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.75	10.03	19.78	110.00	-90.22	QP
2	0.06747	0.02	9.70	-6.17	3.54	87.27	-83.73	QP
3	0.07320	0.02	9.70	8.81	18.53	86.53	-68.00	QP
4	0.08032	0.02	9.70	-15.42	-5.70	85.69	-91.39	QP
5	0.12044	0.02	9.70	-6.43	3.29	82.00	-78.71	QP
6	0.14625	0.02	9.70	-0.36	9.36	80.23	-70.87	QP



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Mode:a;Line:Neutral Line



Site : Shielding Room
Condition : EN55015 QP CE NEUTRAL
Job No. : 5768TX
Mode : On mode
: C-FR-F21A

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.03483	0.01	9.95	9.95	19.90	110.00	-90.10	QP
2	0.03975	0.01	9.90	-8.43	1.48	110.00	-108.52	QP
3	0.06747	0.02	9.70	-2.29	7.43	87.27	-79.84	QP
4	0.07320	0.02	9.70	9.22	18.94	86.53	-67.59	QP
5	0.08055	0.02	9.70	-12.58	-2.86	85.66	-88.52	QP
6	0.12044	0.02	9.70	-13.21	-3.49	82.00	-85.49	QP

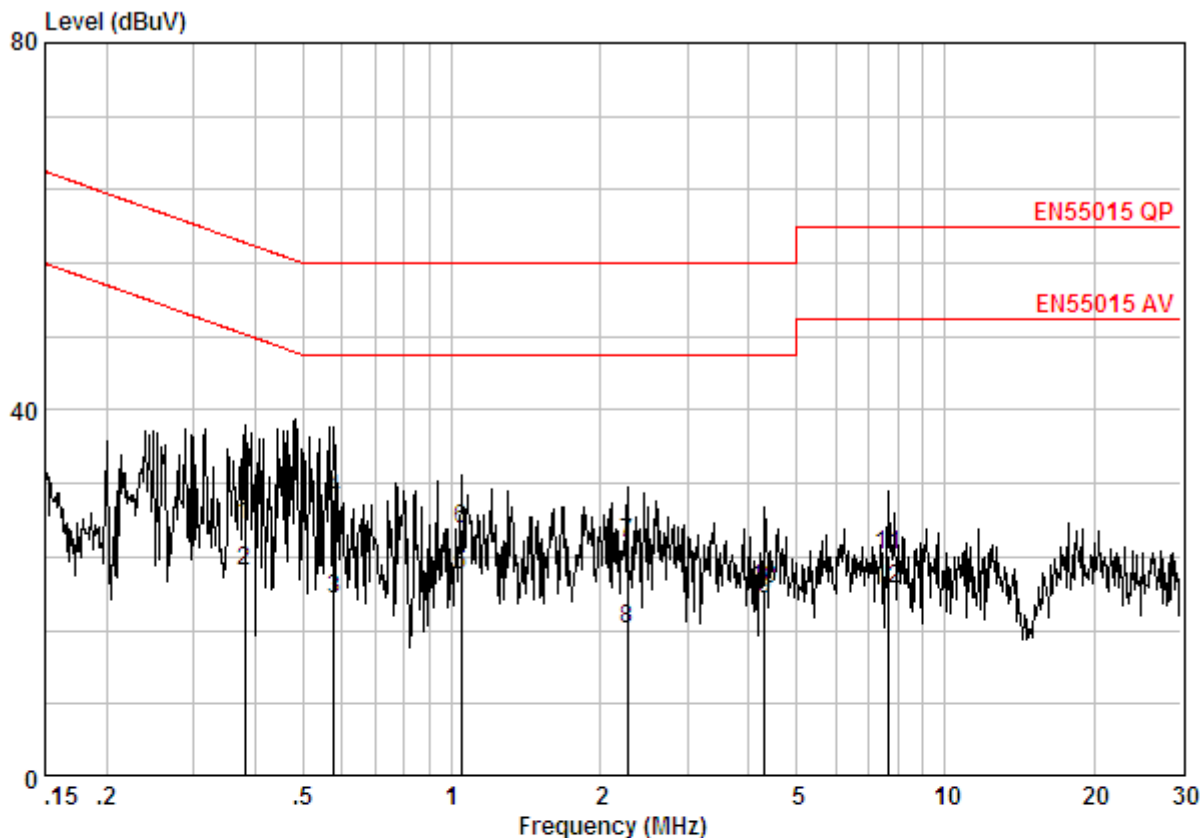


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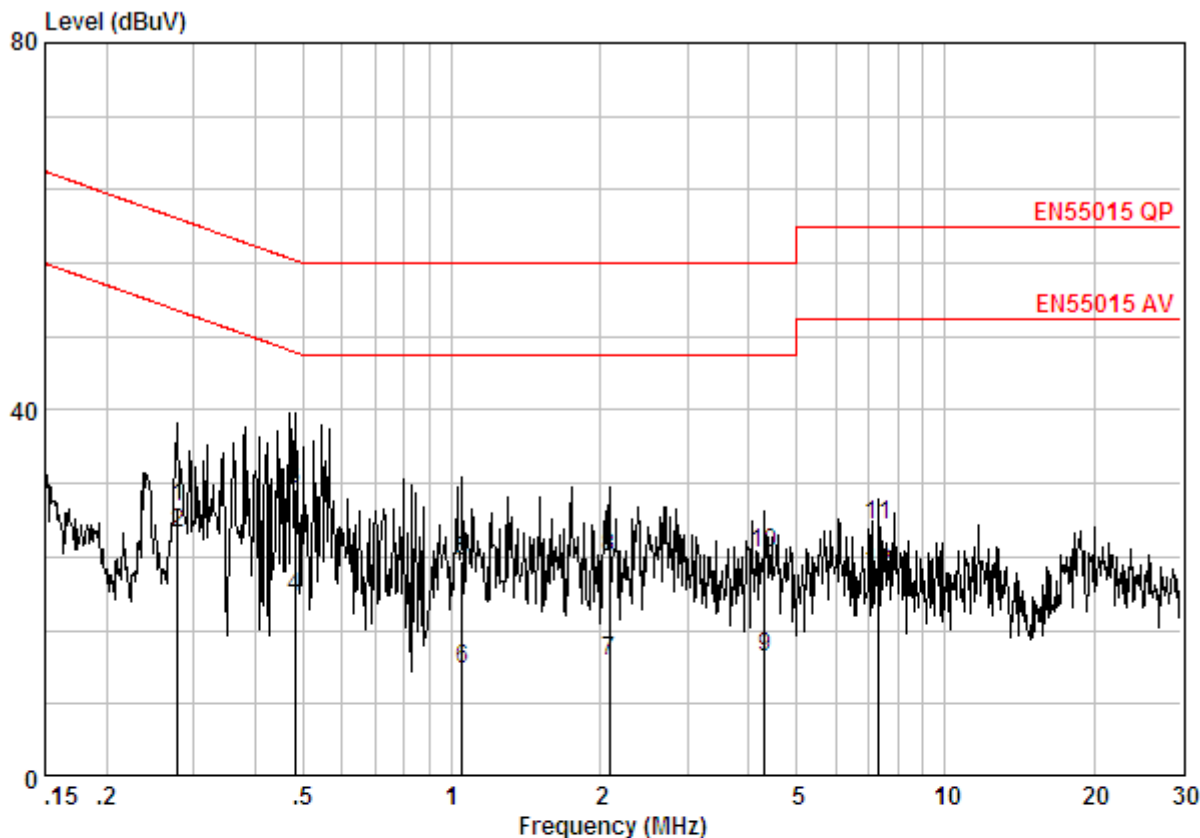
Mode:a;Line:Live Line



Site : Shielding Room
Condition : EN55015 QP CE LINE
Job.No : 5768TX
Mode : On mode
: C-FR-F21A

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.38113	0.01	9.78	17.59	27.38	58.25	-30.87	QP
2 @	0.38113	0.01	9.78	12.67	22.46	48.25	-25.80	Average
3 @	0.57617	0.01	9.80	9.53	19.34	56.00	-36.66	QP
4 @	0.57617	0.01	9.80	20.44	30.25	46.00	-15.75	Average
5 @	1.043	0.02	9.80	12.14	21.96	56.00	-34.04	QP
6 @	1.043	0.02	9.80	17.11	26.93	46.00	-19.07	Average
7 @	2.273	0.02	9.81	15.72	25.56	46.00	-20.44	Average
8 @	2.273	0.02	9.81	6.39	16.23	56.00	-39.77	QP
9 @	4.315	0.01	9.88	9.47	19.37	46.00	-26.63	Average
10 @	4.315	0.01	9.88	10.65	20.55	56.00	-35.45	QP
11 @	7.646	0.01	9.90	14.24	24.15	50.00	-25.85	Average
12 @	7.646	0.01	9.90	10.67	20.58	60.00	-39.42	QP

Mode:a;Line:Neutral Line



Site : Shielding Room
Condition : EN55015 QP CE NEUTRAL
Job.No : 5768TX
Mode : On mode
: C-FR-F21A

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.27881	0.01	9.70	19.65	29.36	60.85	-31.49	QP
2 @	0.27881	0.01	9.70	16.96	26.67	50.85	-24.18	Average
3 @	0.48119	0.01	9.80	21.65	31.46	56.32	-24.86	QP
4 @	0.48119	0.01	9.80	9.82	19.63	46.32	-26.69	Average
5 @	1.049	0.02	9.80	13.73	23.55	56.00	-32.45	QP
6 @	1.049	0.02	9.80	1.89	11.71	46.00	-34.29	Average
7 @	2.088	0.02	9.80	2.78	12.61	46.00	-33.39	Average
8 @	2.088	0.02	9.80	14.17	24.00	56.00	-32.00	QP
9 @	4.315	0.01	9.88	3.18	13.07	46.00	-32.93	Average
10 @	4.315	0.01	9.88	14.50	24.40	56.00	-31.60	QP
11 @	7.329	0.01	10.00	17.44	27.45	60.00	-32.55	QP
12 @	7.329	0.01	10.00	12.30	22.31	50.00	-27.69	Average



6.2 Radiated Disturbance(30MHz-300MHz)

Test Requirement: EN 55015:2013+A1:2015
Test Method: CISPR 22:2008
Frequency Range: 30MHz to 300MHz
Measurement Distance: 10m
Limit:
30MHz-230MHz 30dB(μV/m) quasi-peak
230MHz-300MHz 37dB(μV/m) quasi-peak
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 300MHz

6.2.1 E.U.T. Operation

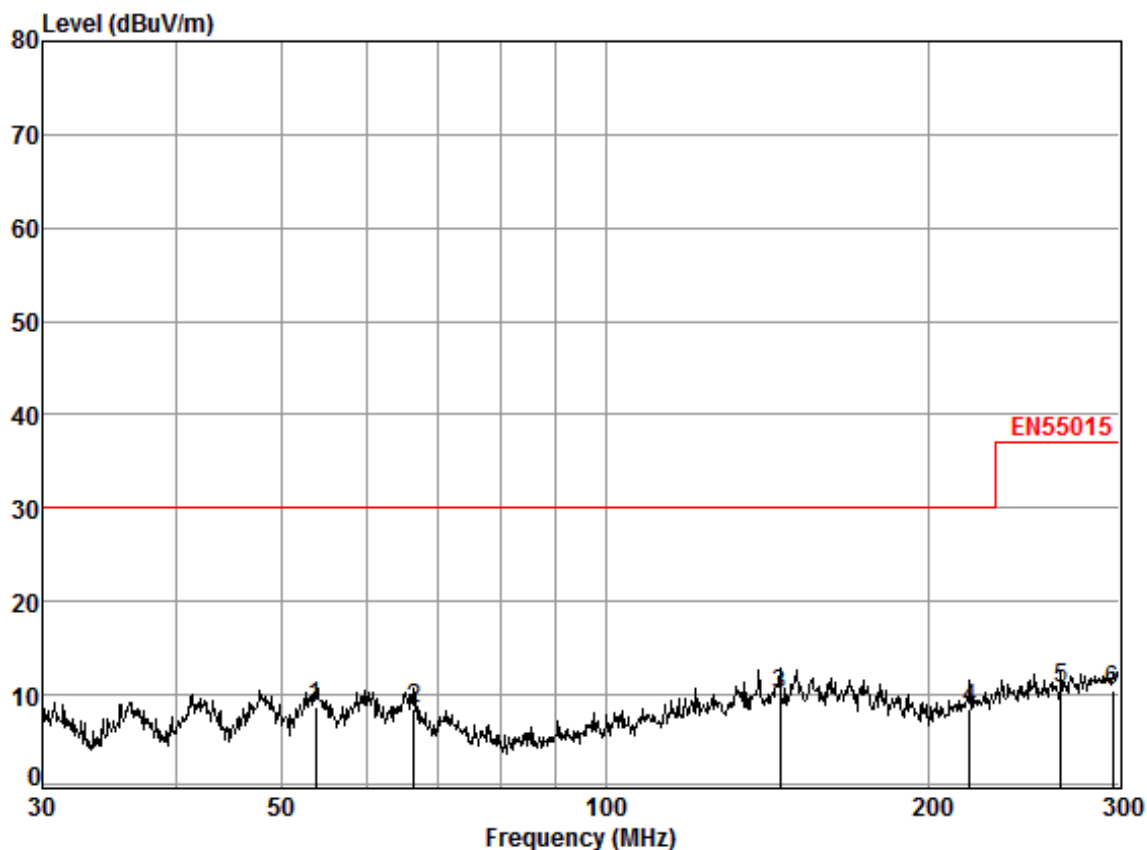
Operating Environment:
Temperature: 20.0 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar
Test mode: a: On mode, keep EUT lighting.

6.2.2 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

C-FR-F15B

Mode:a;Polarization:Horizontal



Condition: EN55015 10m VULB 9160 10M Horizontal

Job No. : 5768TX

Test mode: On mode

: C-FR-F15B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	53.84	1.84	11.71	32.66	27.88	8.77	30.00	-21.23
2	66.39	1.32	11.22	32.65	28.69	8.58	30.00	-21.42
3	145.25	1.47	12.92	32.62	28.15	9.92	30.00	-20.08
4	217.83	1.87	10.24	32.58	28.98	8.51	30.00	-21.49
5	264.92	2.06	12.06	32.56	29.11	10.67	37.00	-26.33
6	295.88	2.18	12.98	32.55	27.91	10.52	37.00	-26.48

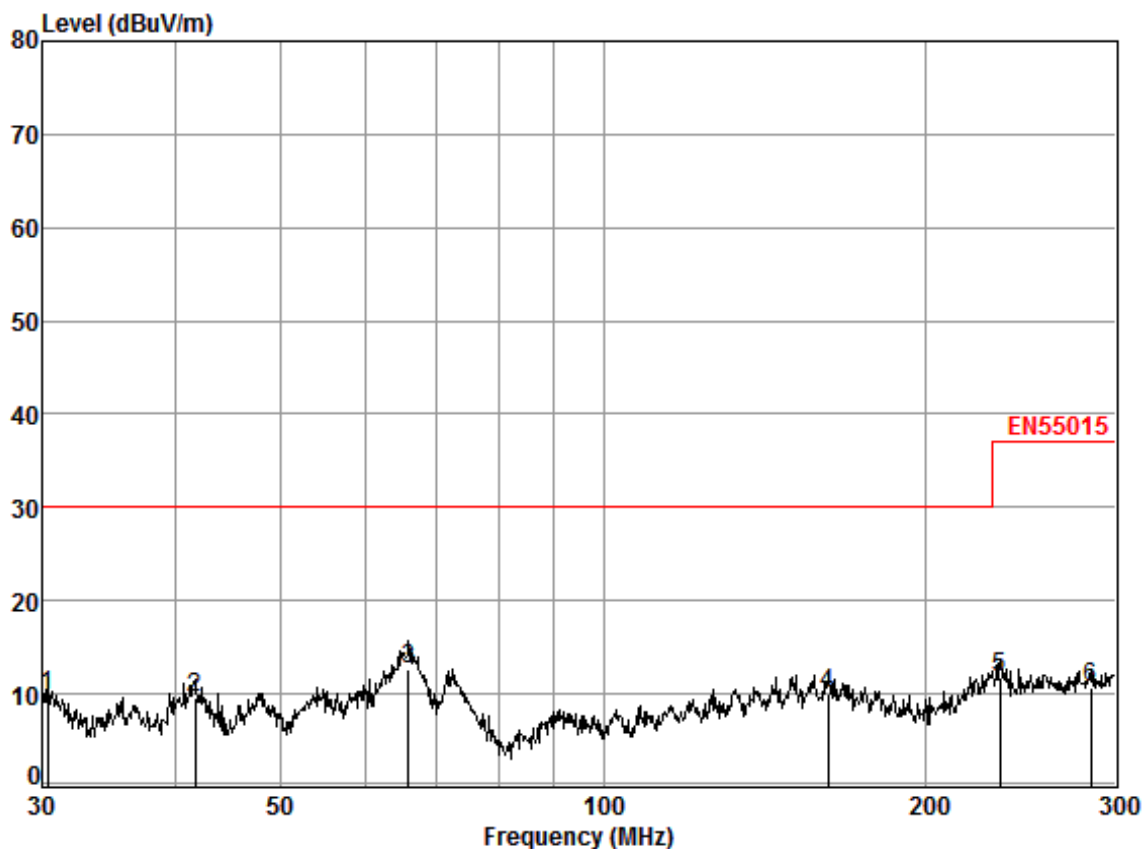


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Shenzhen Branch

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Mode:a;Polarization:Vertical



Condition: EN55015 10m VULB 9160 10M Vertical

Job No. : 5768TX

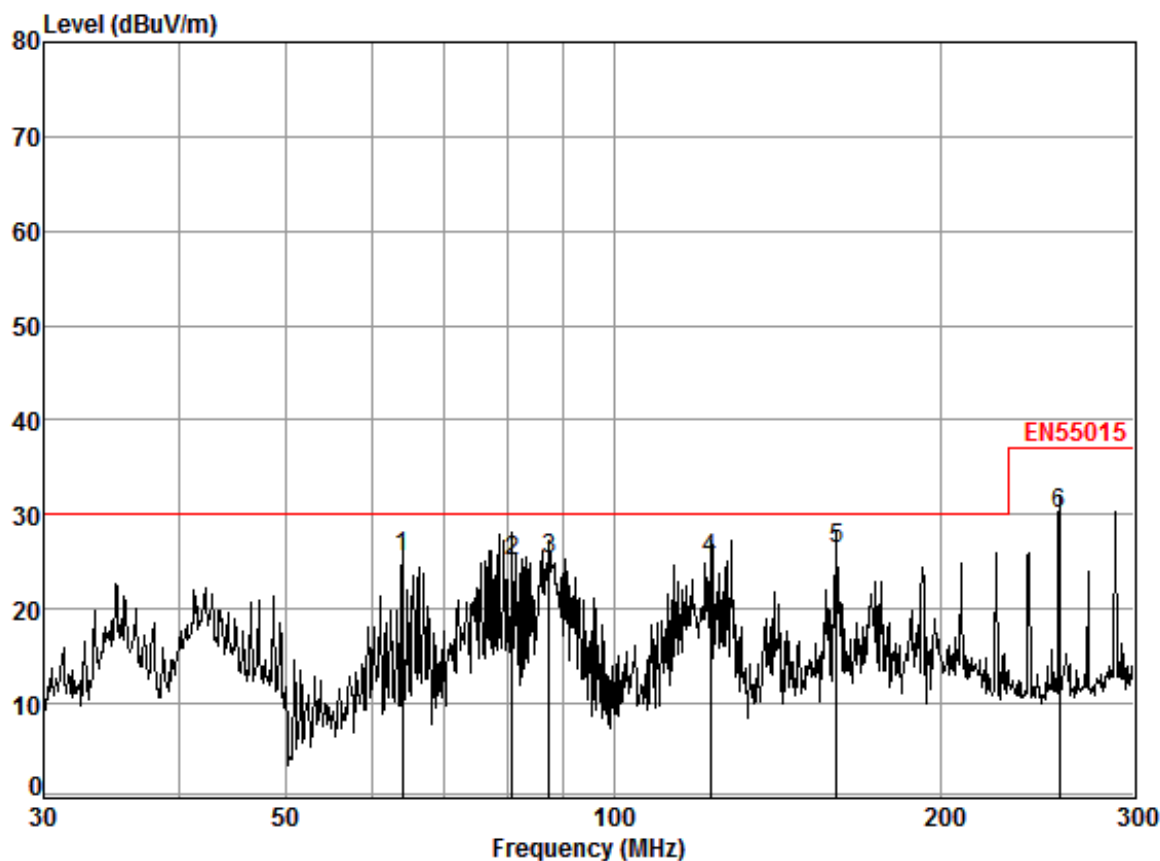
Test mode: On mode

: C-FR-F15B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	30.35	0.56	11.51	32.67	30.35	9.75	30.00	-20.25
2	41.70	0.89	11.99	32.64	29.39	9.63	30.00	-20.37
3	65.78	1.38	11.39	32.65	32.51	12.63	30.00	-17.37
4	161.85	1.57	13.05	32.61	28.11	10.12	30.00	-19.88
5	233.95	1.94	11.04	32.57	31.37	11.78	37.00	-25.22
6	284.53	2.14	12.73	32.56	28.35	10.66	37.00	-26.34

C-FR- F16S

Mode:a;Polarization:Horizontal



Condition: EN55015 10m VULB 9160 10M Horizontal

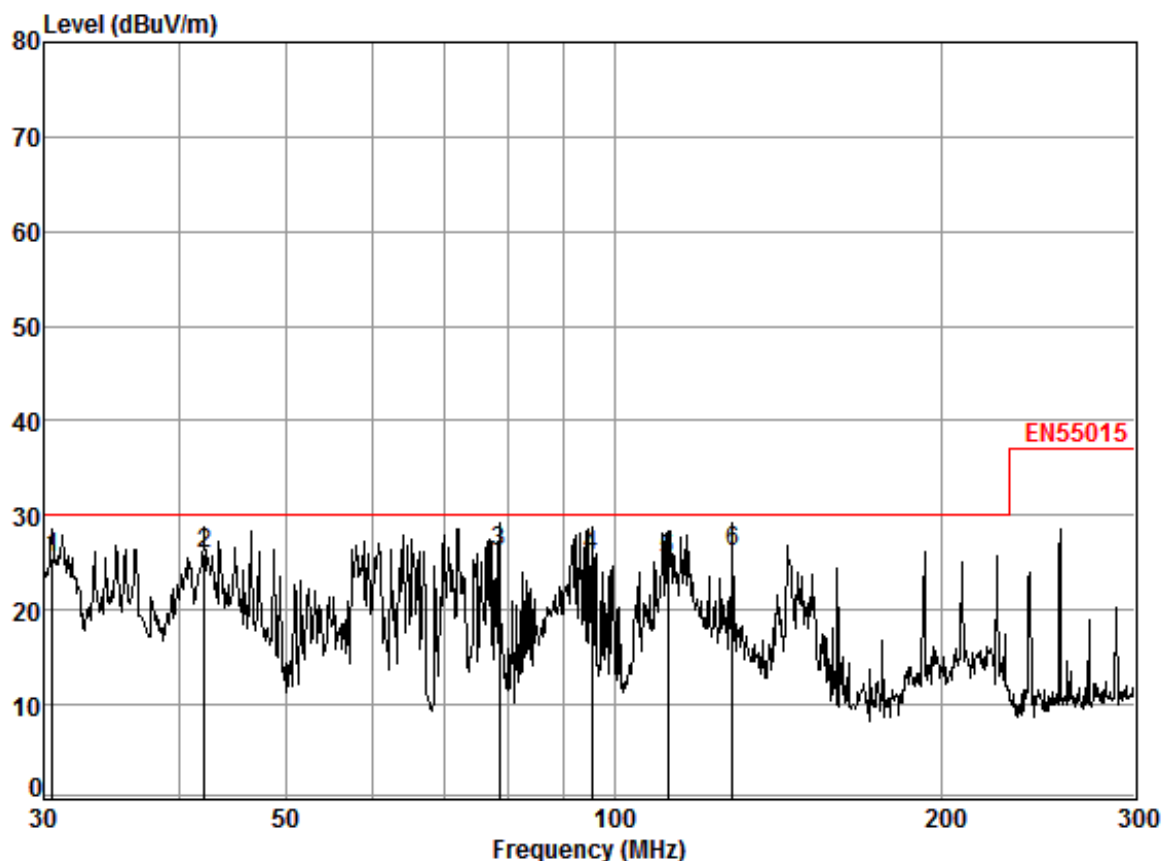
Job No. : 5768TX

Test mode: On mode

: C-FR-F16S

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	63.99	1.54	11.68	32.65	44.91	25.48	30.00	-4.52
2	80.75	1.11	8.03	32.64	48.52	25.02	30.00	-4.98
3	87.32	1.17	8.24	32.65	48.49	25.25	30.00	-4.75
4	122.78	1.34	11.47	32.63	45.07	25.25	30.00	-4.75
5	160.00	1.56	13.15	32.61	44.25	26.35	30.00	-3.65
6	256.52	2.03	11.78	32.57	48.75	29.99	37.00	-7.01

Mode:a;Polarization:Vertical



Condition: EN55015 10m VULB 9160 10M Vertical

Job No. : 5768TX

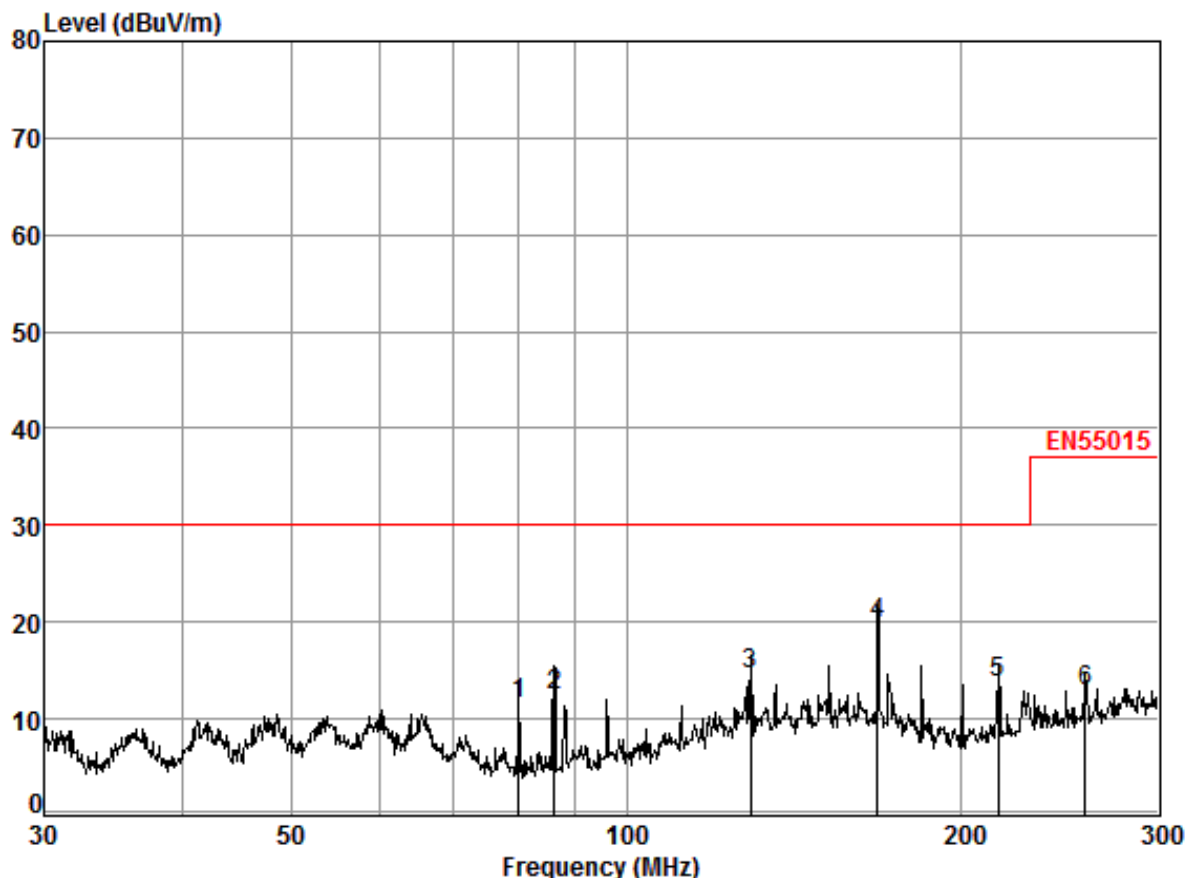
Test mode: On mode

: C-FR-F16S

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	30.56	0.56	11.51	32.67	46.15	25.55	30.00	-4.45
2	42.08	0.93	12.00	32.64	45.55	25.84	30.00	-4.16
3	78.55	1.09	8.35	32.64	49.36	26.16	30.00	-3.84
4	95.31	1.20	9.04	32.65	48.15	25.74	30.00	-4.26
5	111.98	1.27	10.54	32.64	46.22	25.39	30.00	-4.61
6	128.27	1.37	11.80	32.63	45.72	26.26	30.00	-3.74

C-FR-F17D

Mode:a;Polarization:Horizontal



Condition: EN55015 10m VULB 9160 10M Horizontal

Job No. : 5768TX

Test mode: On mode

: C-FR-F17D

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	80.01	1.10	8.04	32.64	35.14	11.64	30.00	-18.36
2	86.12	1.16	8.09	32.65	35.92	12.52	30.00	-17.48
3	129.16	1.37	11.85	32.63	34.05	14.64	30.00	-15.36
4	167.93	1.61	12.71	32.61	38.18	19.89	30.00	-10.11
5	215.34	1.86	10.18	32.58	34.19	13.65	30.00	-16.35
6	258.30	2.03	11.83	32.56	31.60	12.90	37.00	-24.10

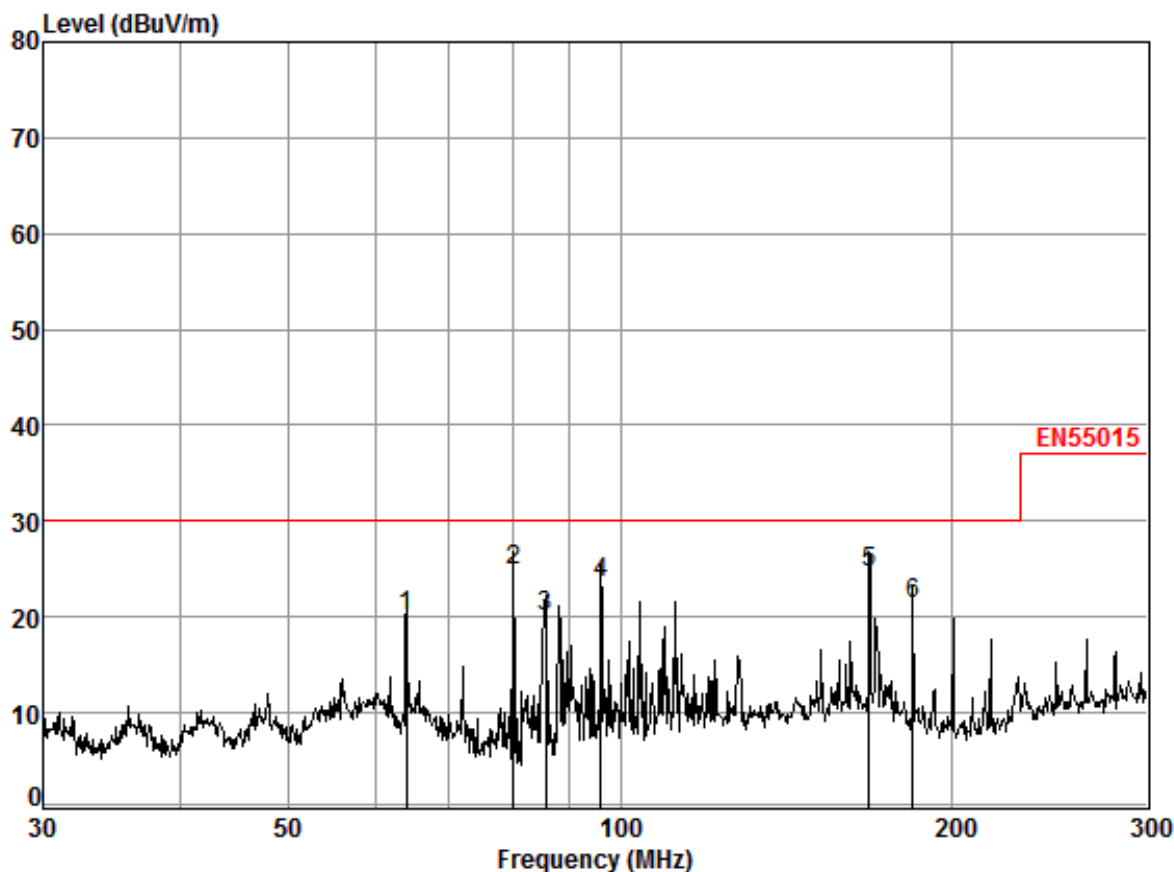


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Mode:a;Polarization:Vertical



Condition: EN55015 10m VULB 9160 10M Vertical

Job No. : 5768TX

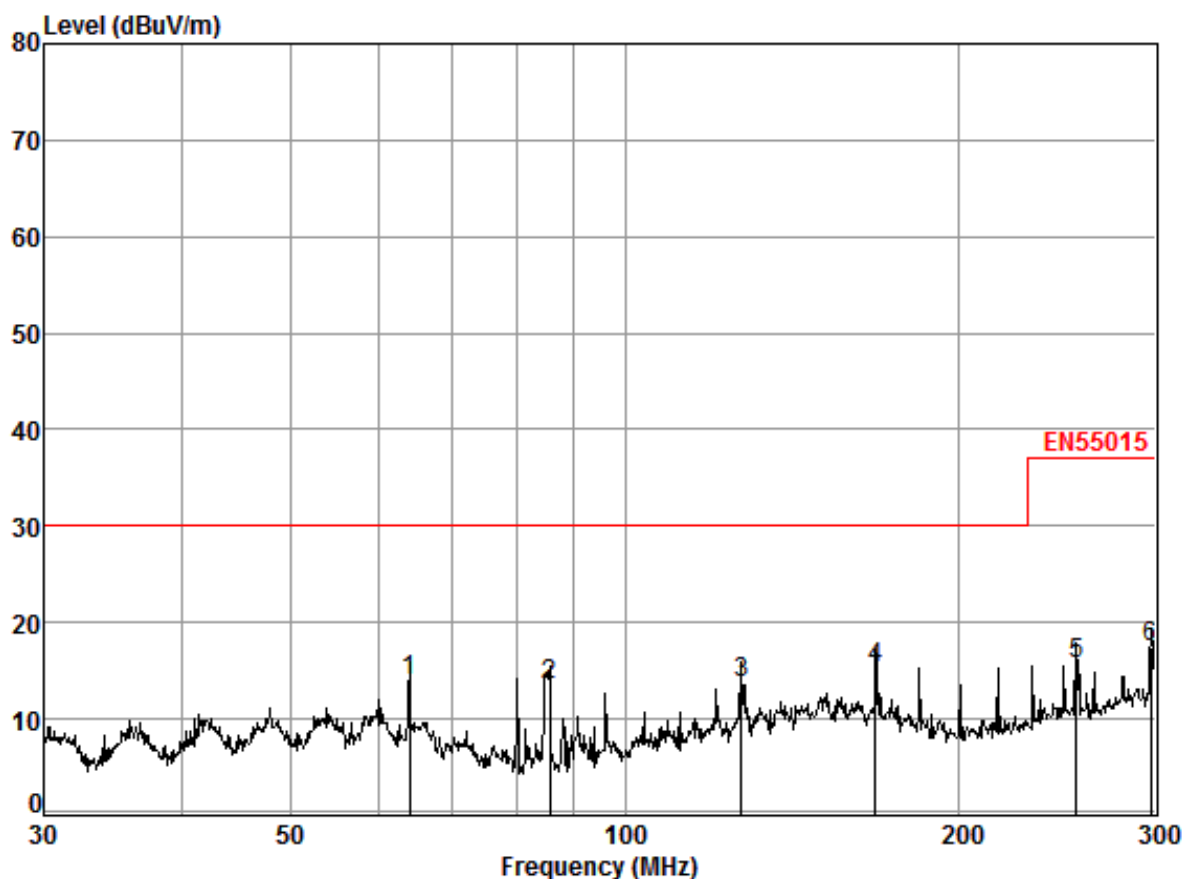
Test mode: On mode

: C-FR-F17D

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	63.99	1.54	11.68	32.65	39.48	20.05	30.00	-9.95
2	80.01	1.10	8.04	32.64	48.39	24.89	30.00	-5.11
3	85.53	1.16	8.02	32.65	43.62	20.15	30.00	-9.85
4	95.97	1.20	9.11	32.65	45.84	23.50	30.00	-6.50
5	167.93	1.61	12.71	32.61	43.01	24.72	30.00	-5.28
6	184.13	1.70	11.18	32.60	40.99	21.27	30.00	-8.73

C-FR-F21A

Mode:a;Polarization:Horizontal



Condition: EN55015 10m VULB 9160 10M Horizontal

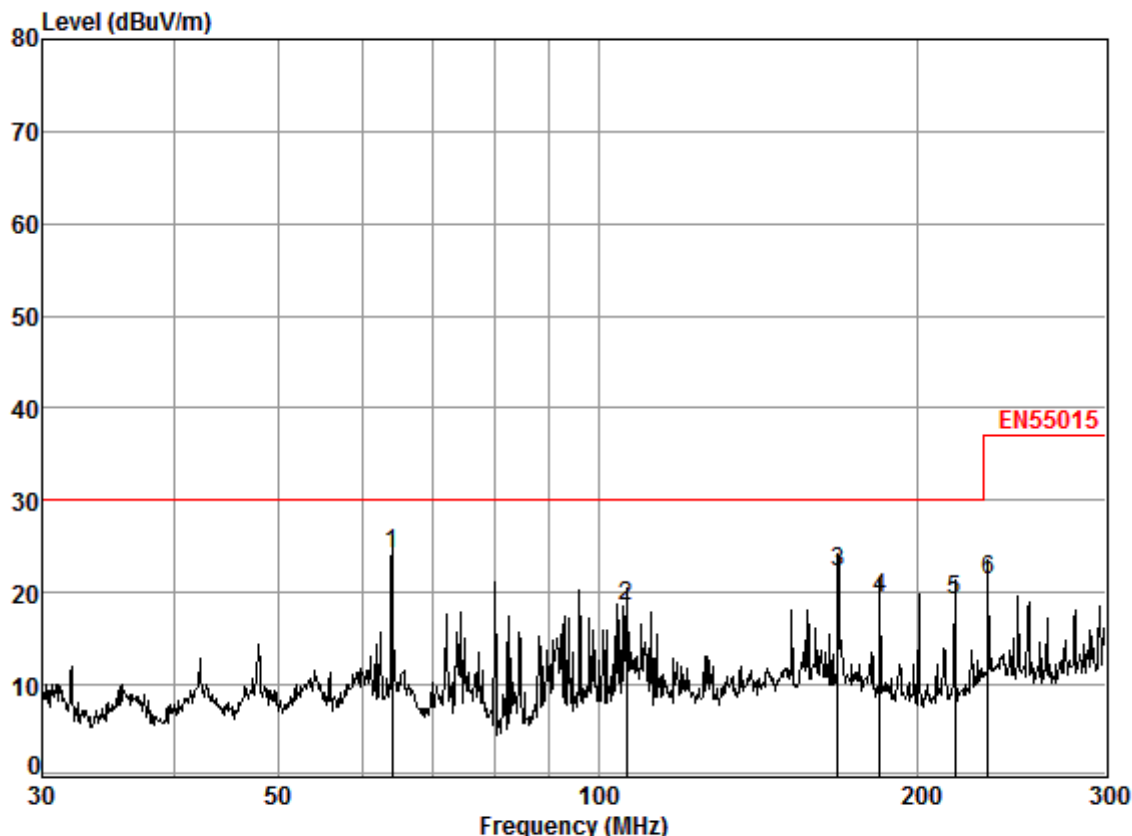
Job No. : 5768TX

Test mode: On mode

: C-FR-F21A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	63.99	1.54	11.68	32.65	33.37	13.94	30.00	-16.06
2	85.53	1.16	8.02	32.65	36.96	13.49	30.00	-16.51
3	127.39	1.36	11.75	32.63	33.36	13.84	30.00	-16.16
4	167.93	1.61	12.71	32.61	33.50	15.21	30.00	-14.79
5	254.75	2.02	11.74	32.57	34.59	15.78	37.00	-21.22
6	297.25	2.19	13.01	32.55	34.74	17.39	37.00	-19.61

Mode:a;Polarization:Vertical



Condition: EN55015 10m VULB 9160 10M Vertical

Job No. : 5768TX

Test mode: On mode

: C-FR-F21A

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	63.99	1.54	11.68	32.65	43.59	24.16	30.00	-5.84
2	106.20	1.24	10.03	32.64	39.94	18.57	30.00	-11.43
3	167.93	1.61	12.71	32.61	40.42	22.13	30.00	-7.87
4	184.13	1.70	11.18	32.60	39.22	19.50	30.00	-10.50
5	216.33	1.87	10.20	32.58	39.78	19.27	30.00	-10.73
6	232.34	1.93	10.95	32.58	41.14	21.44	37.00	-15.56



6.3 Radiated Disturbance (Magnetic field Induced Current)(9kHz-30MHz)

Test Requirement:	EN 55015:2013+A1:2015
Test Method:	EN 55015:2013+A1:2015
Frequency Range:	9kHz to 30MHz
Limit:	
0.009MHz-0.07MHz	88dB(μA) quasi-peak
0.07MHz-0.15MHz	88dB(μA)-58dB(μA) quasi-peak
0.15MHz-3MHz	58dB(μA)-22dB(μA) quasi-peak
3MHz-30MHz	22dB(μA) quasi-peak
Detector:	Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz
	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.3.1 E.U.T. Operation

Operating Environment:			
Temperature:	22.0 °C	Humidity:	52 % RH
		Atmospheric Pressure:	1010 mbar
Test mode:	a: On mode, keep EUT lighting.		

6.3.2 Measurement Data

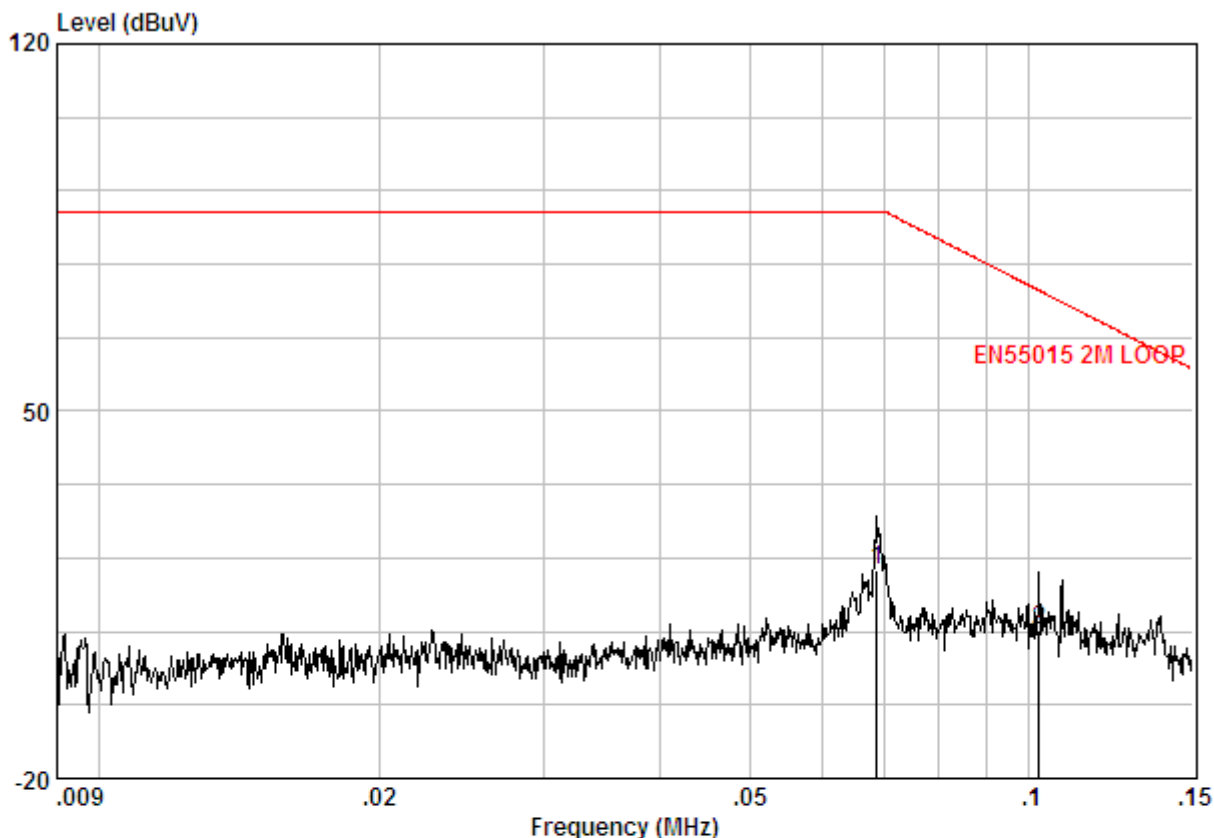
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



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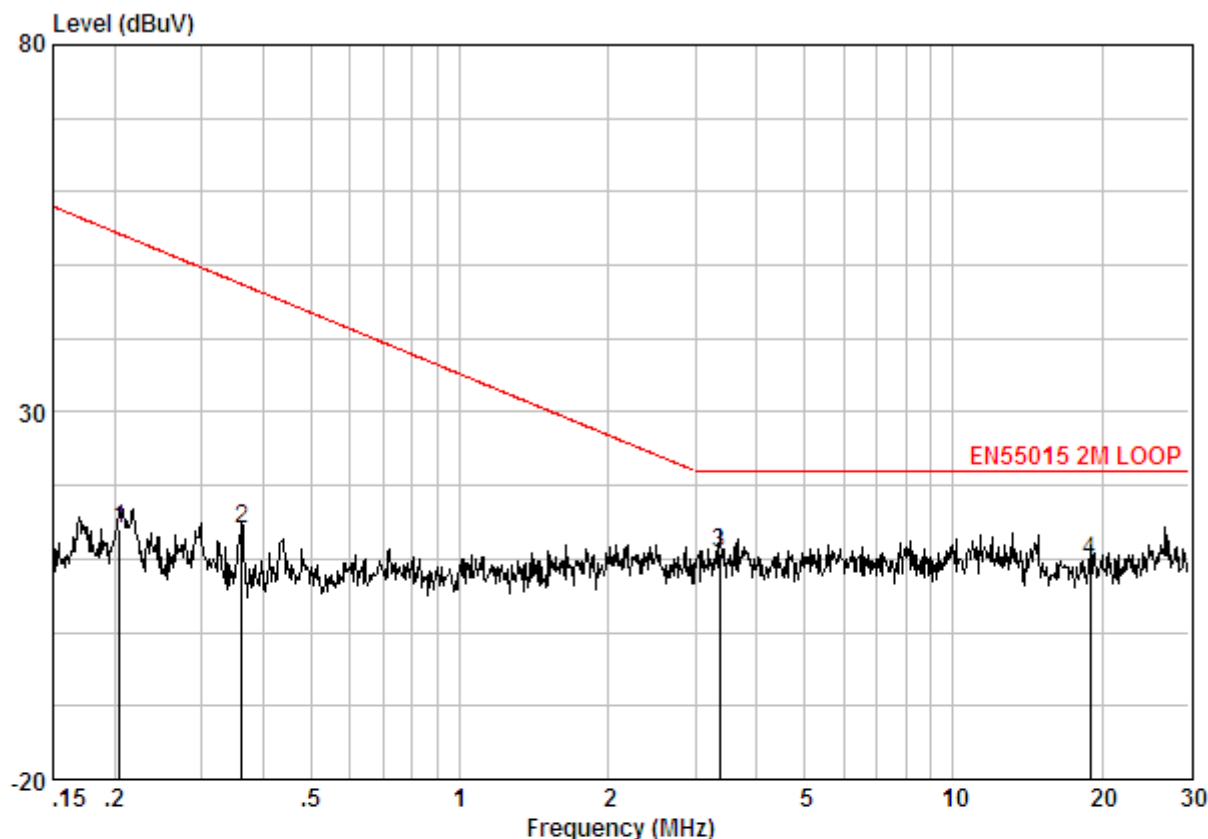
Report No.: SZEM170100063101
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C-FR-F15B
Mode:a;Axial:X



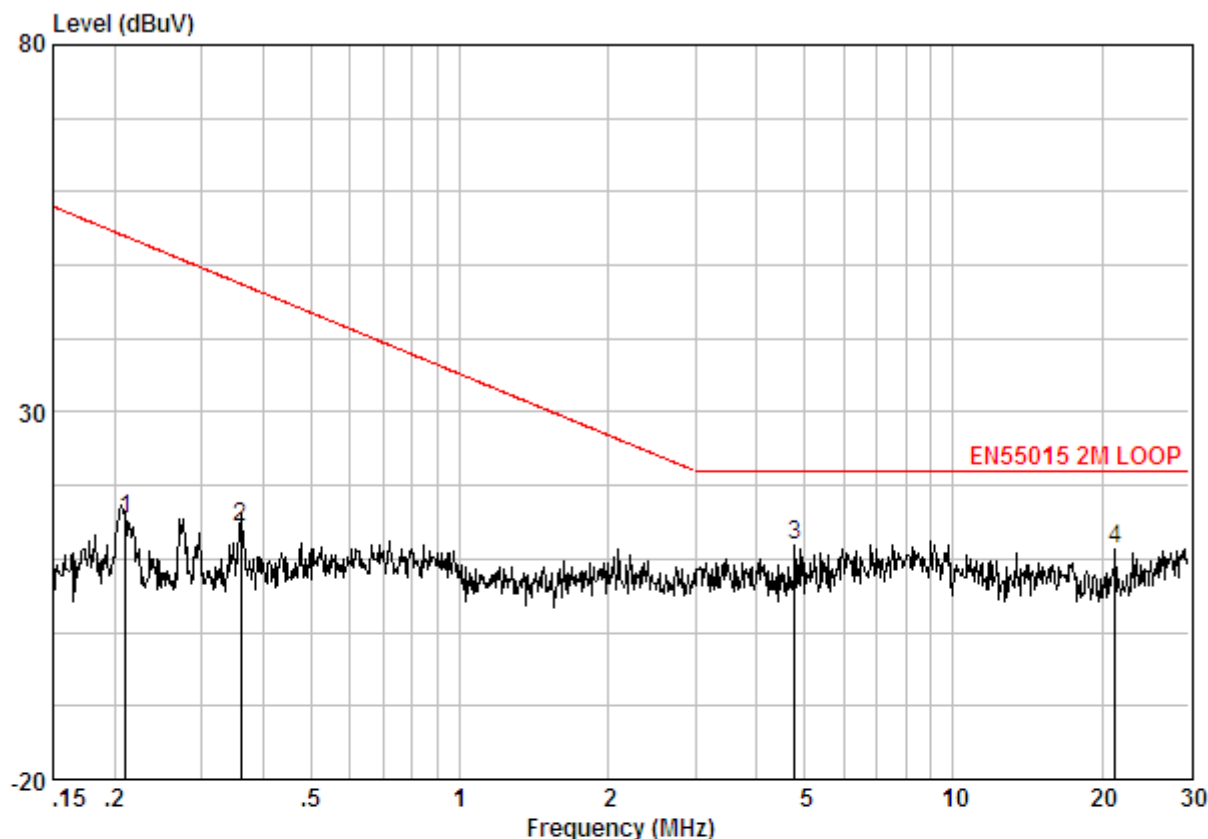
Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

	Freq	CableAntenna	Read	Limit	Over	
		Loss	Factor	Level	Line	Limit
	MHz	dB	dB	dBuV	dBuV	dB
1	0.06861	0.12	0.00	19.74	19.86	88.00 -68.14 QP
2 @	0.10260	0.13	0.00	8.20	8.33	72.95 -64.62 QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.20505	0.13	0.00	13.96	14.09	54.24 -40.16 QP
2	0.36146	0.16	0.00	13.98	14.14	47.43 -33.29 QP
3 @	3.364	0.28	0.00	10.40	10.69	22.00 -11.31 QP
4	18.920	0.55	0.00	9.24	9.80	22.00 -12.20 QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Y

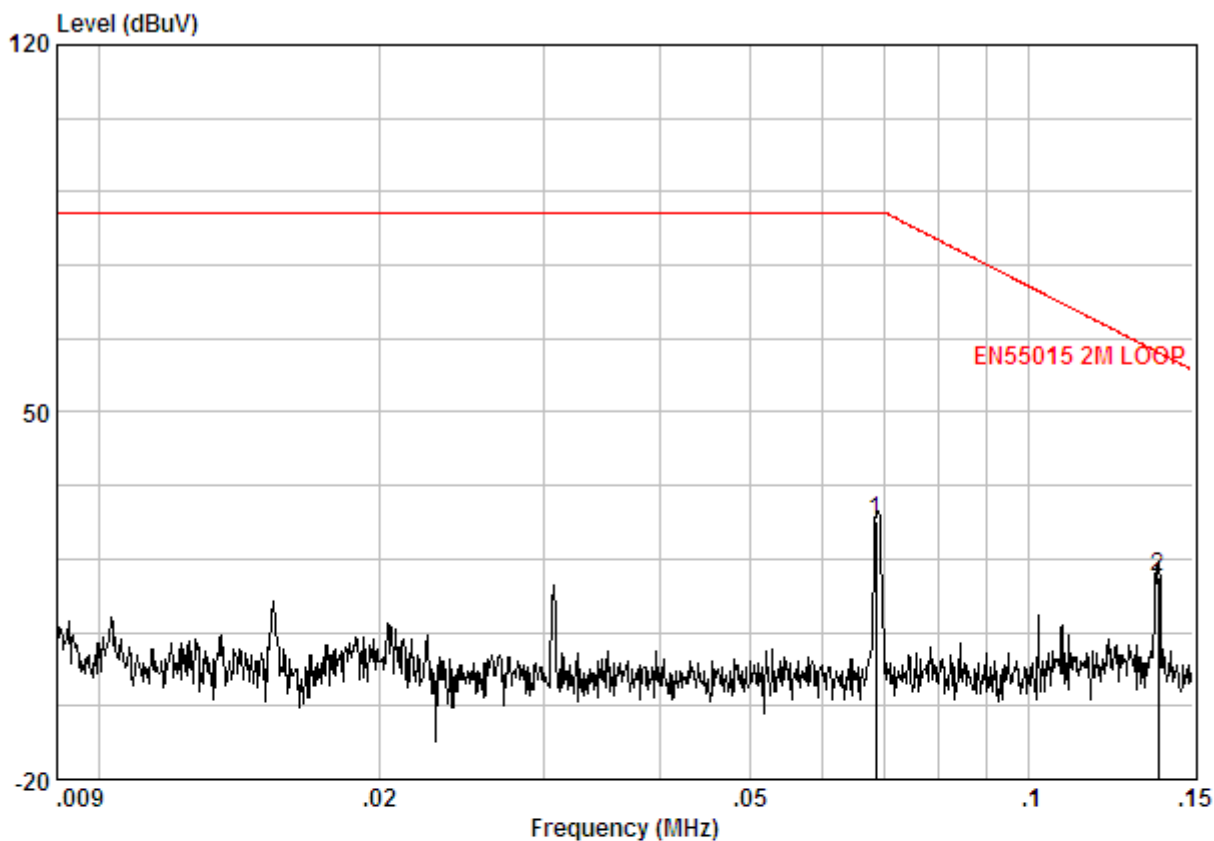
	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.21055	0.13	0.00	15.41	15.53	53.93 -38.39 QP
2	0.35955	0.16	0.00	14.06	14.22	47.49 -33.27 QP
3 @	4.772	0.32	0.00	11.61	11.93	22.00 -10.07 QP
4 @	21.260	0.59	0.00	10.66	11.25	22.00 -10.75 QP



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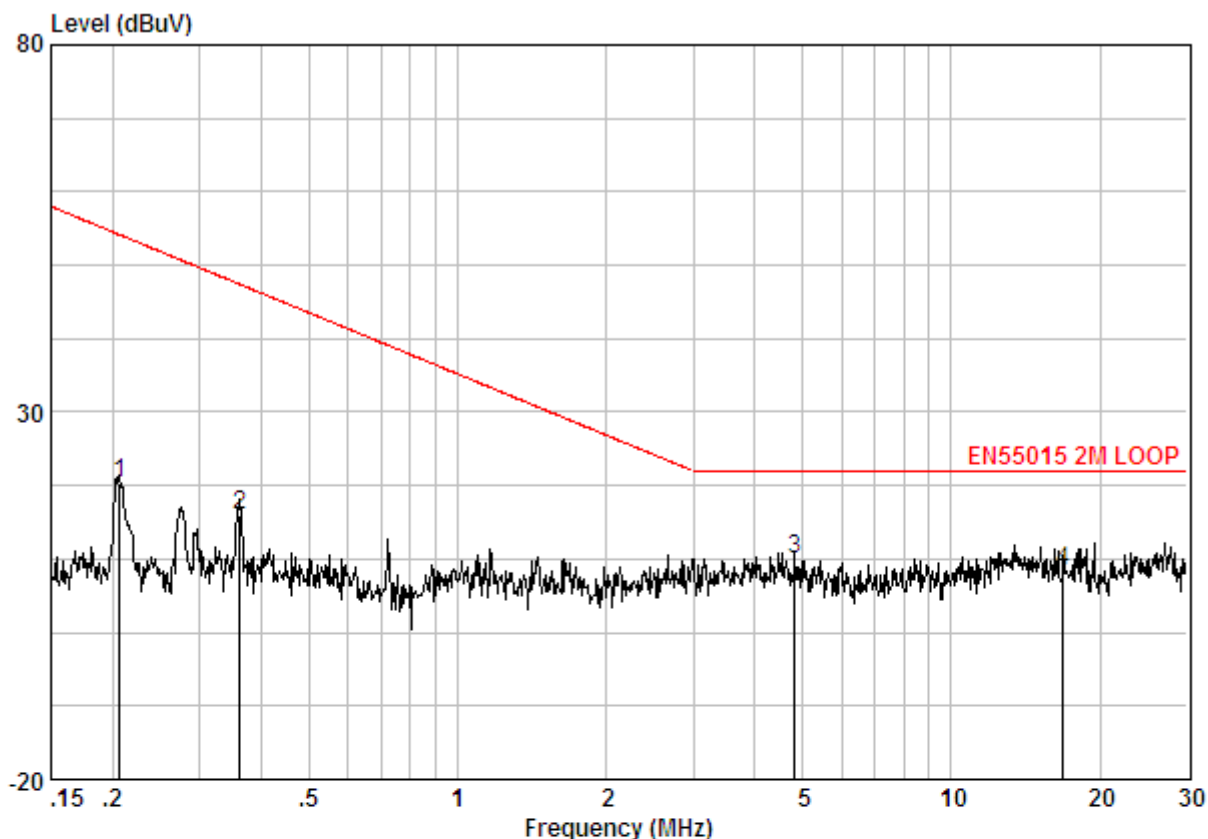
Report No.: SZEM170100063101
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Mode:a;Axial:Z



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1 @	0.06842	0.12	0.00	28.97	29.09	88.00 -58.91 QP
2 @	0.13786	0.12	0.00	18.32	18.44	61.32 -42.88 QP

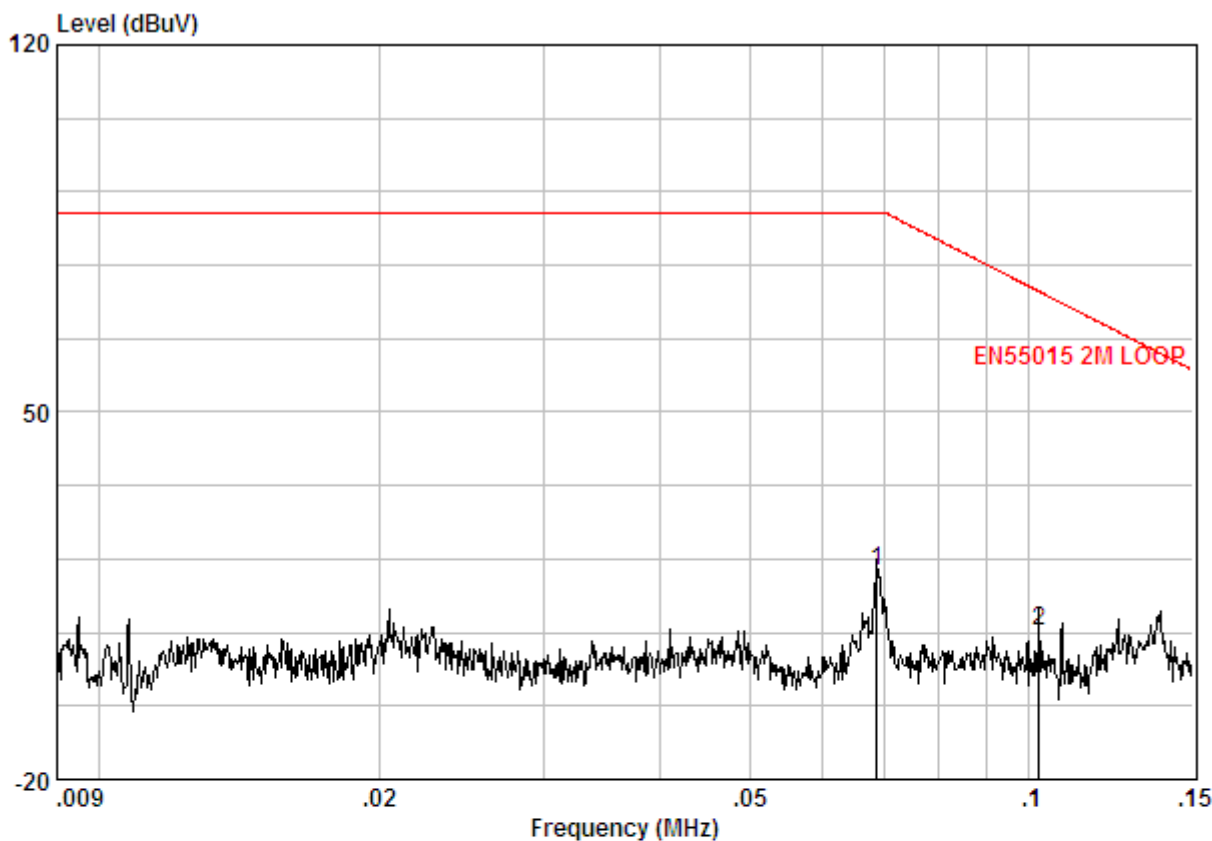


Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

	Freq	CableAntenna	Read	Limit	Over	
		Loss	Level	Line	Limit	Remark
	MHz	Factor	dB	dBuV	dBuV	dB
1	0.20614	0.13	0.00	20.30	20.42	54.18 -33.76 QP
2	0.36146	0.16	0.00	15.86	16.02	47.43 -31.41 QP
3	4.822	0.32	0.00	9.56	9.88	22.00 -12.12 QP
4	16.839	0.52	0.00	7.92	8.43	22.00 -13.57 QP

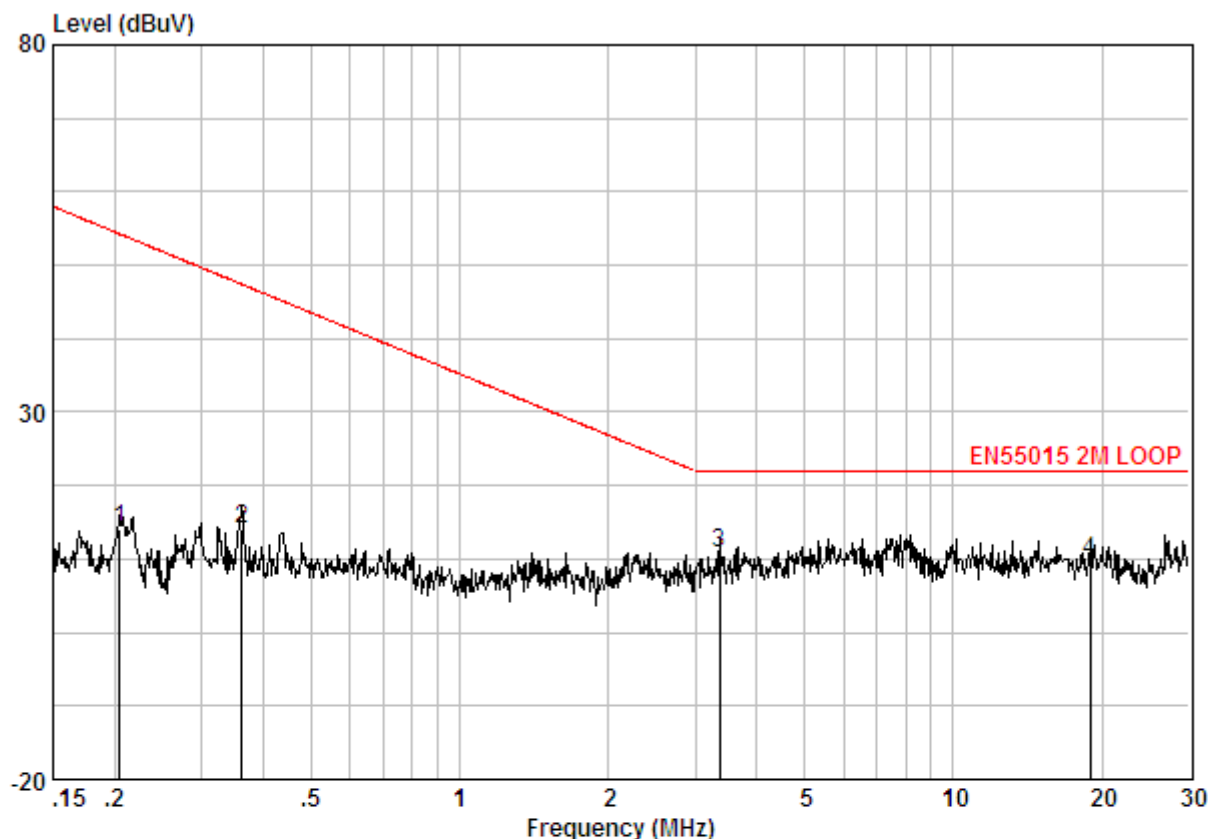
C-FR- F16S

Mode:a;Axial:X



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.06861	0.12	0.00	19.74	19.86	88.00 -68.14 QP
2 @	0.10260	0.13	0.00	8.20	8.33	72.95 -64.62 QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

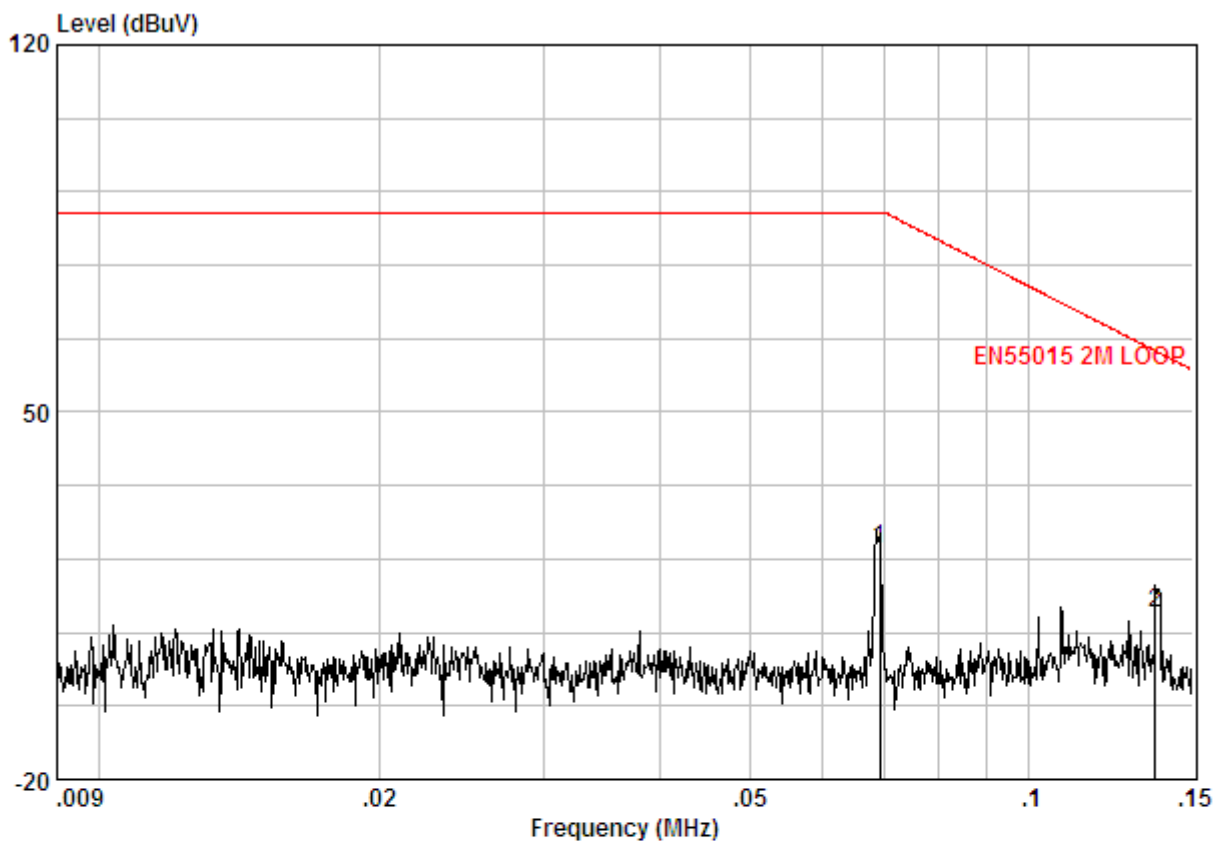
	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.20505	0.13	0.00	13.96	14.09	54.24 -40.16 QP
2	0.36146	0.16	0.00	13.98	14.14	47.43 -33.29 QP
3 @	3.364	0.28	0.00	10.40	10.69	22.00 -11.31 QP
4	18.920	0.55	0.00	9.24	9.80	22.00 -12.20 QP



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Mode:a;Axial:Y



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Y

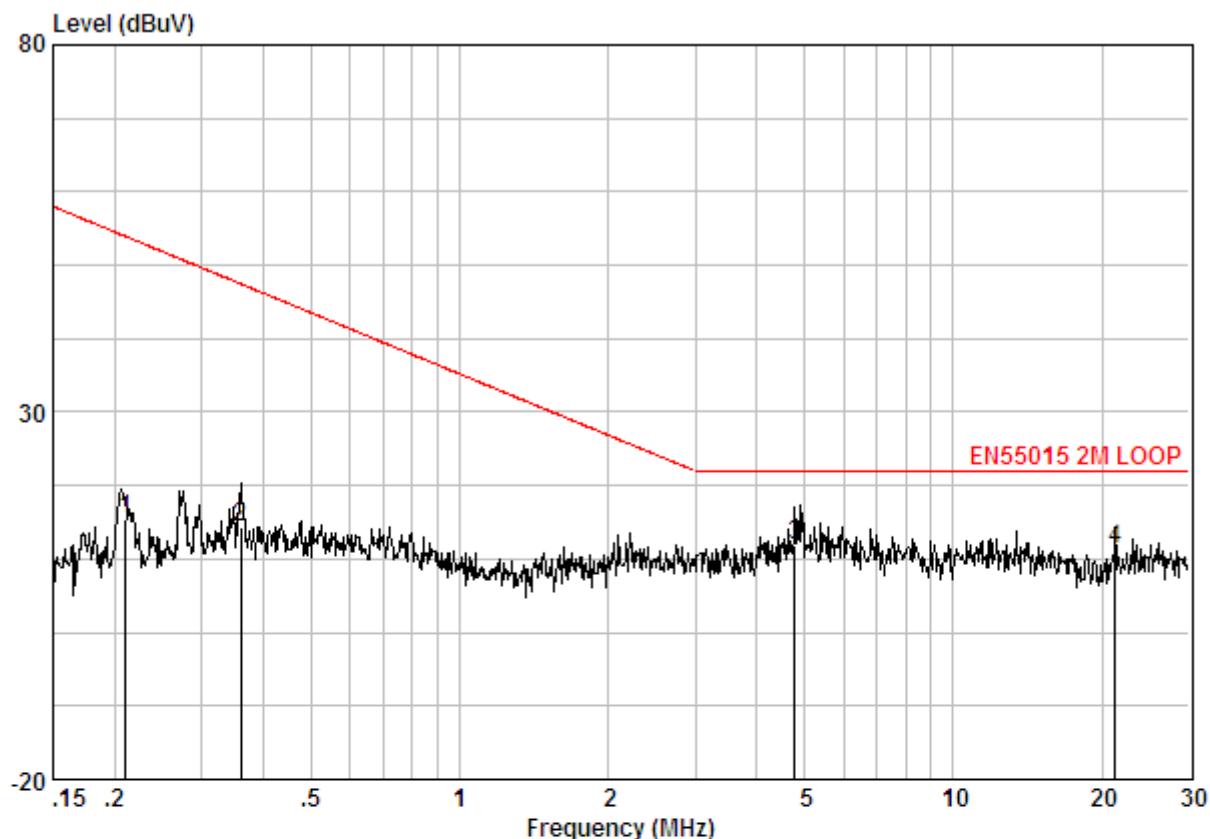
	Freq	CableAntenna	Read	Limit	Over	
		Loss	Factor	Level	Level	Remark
	MHz	dB	dB	dBuV	dBuV	dB
1 @	0.06900	0.12	0.00	23.72	23.84	88.00 -64.16 QP
2 @	0.13670	0.12	0.00	11.70	11.83	61.65 -49.83 QP



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Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Y

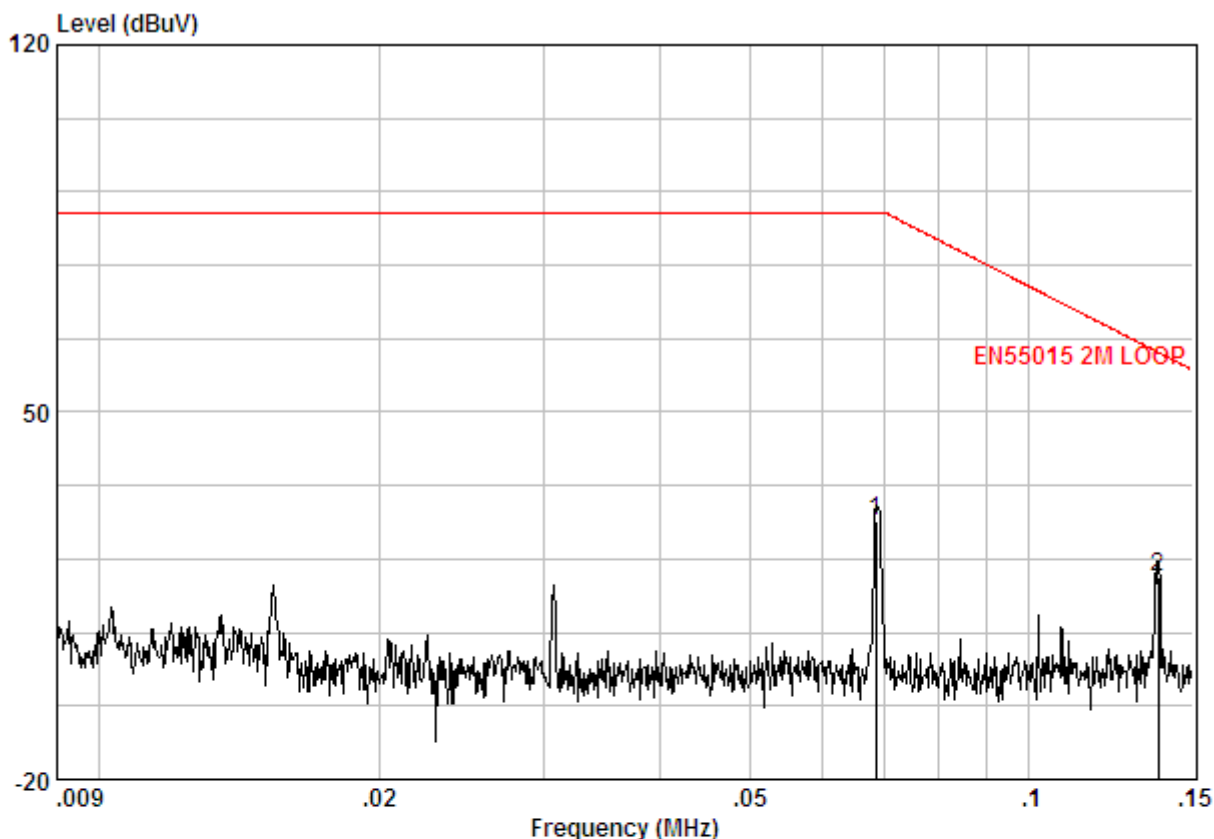
	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.21055	0.13	0.00	15.41	15.53	53.93 -38.39 QP
2	0.35955	0.16	0.00	14.06	14.22	47.49 -33.27 QP
3 @	4.772	0.32	0.00	11.61	11.93	22.00 -10.07 QP
4 @	21.260	0.59	0.00	10.66	11.25	22.00 -10.75 QP



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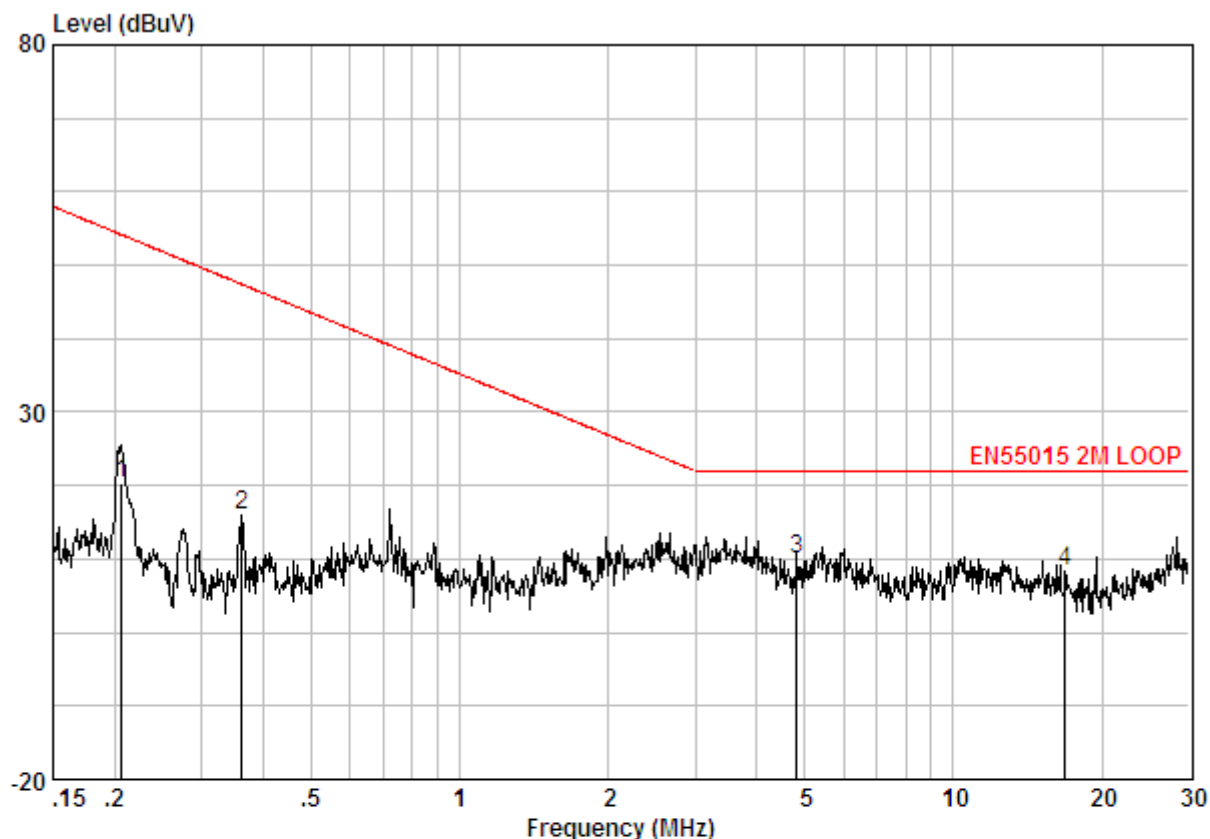
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Mode:a;Axial:Z



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1 @	0.06842	0.12	0.00	28.97	29.09	88.00 -58.91 QP
2 @	0.13786	0.12	0.00	18.32	18.44	61.32 -42.88 QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

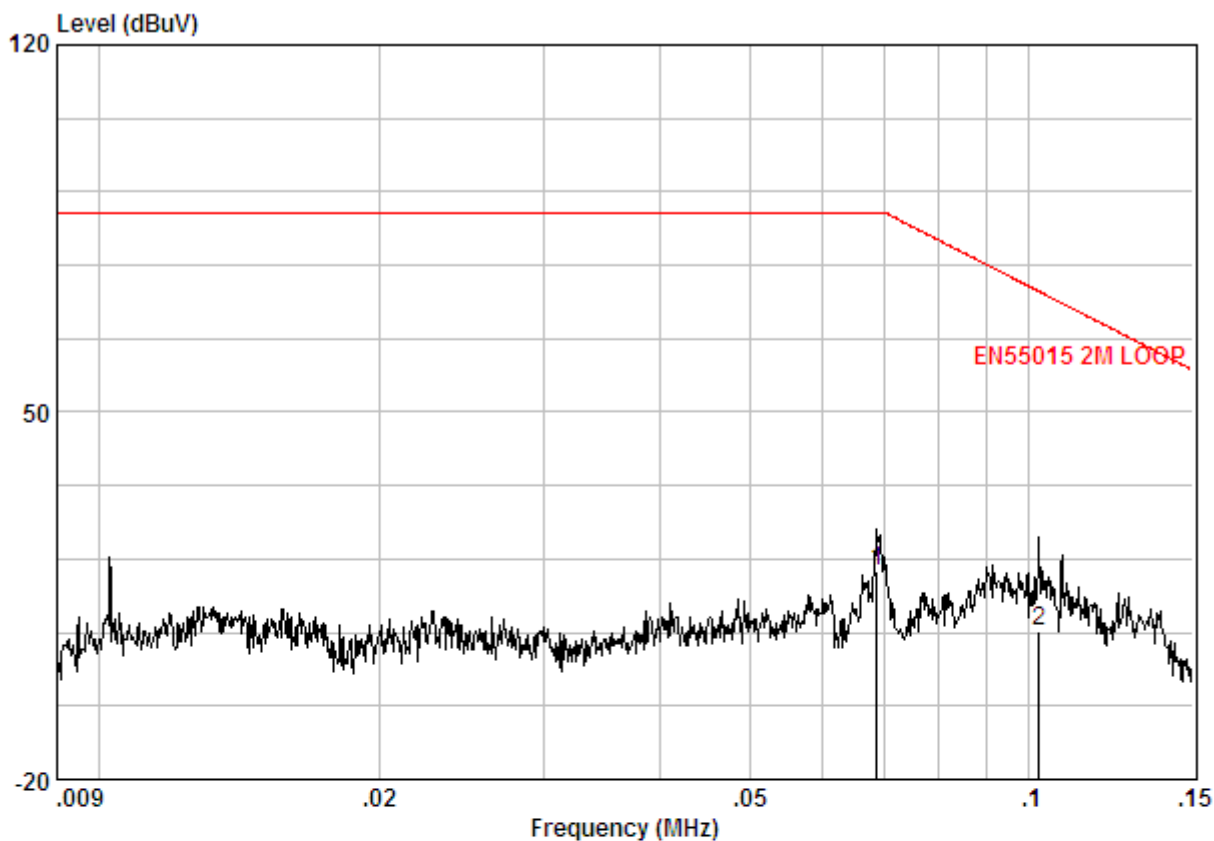
	Freq	CableAntenna Loss Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.20614	0.13	0.00	20.30	20.42	54.18	-33.76 QP
2	0.36146	0.16	0.00	15.86	16.02	47.43	-31.41 QP
3	4.822	0.32	0.00	9.56	9.88	22.00	-12.12 QP
4	16.839	0.52	0.00	7.92	8.43	22.00	-13.57 QP



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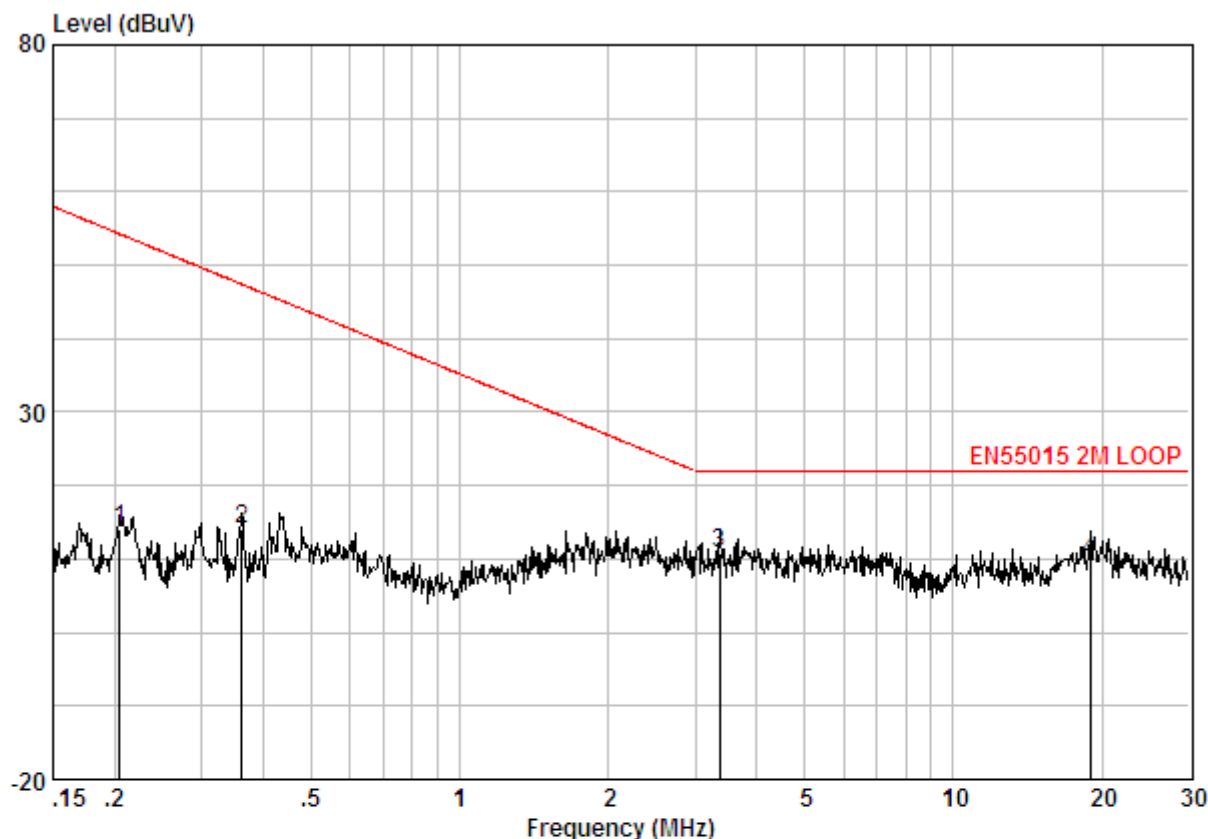
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C-FR-F17D
Mode:a;Axial:X



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

	Freq	CableAntenna	Read	Limit	Over	
		Loss	Factor	Level	Level	Line
	MHz	dB	dB	dBuV	dBuV	dBuV
1	0.06861	0.12	0.00	19.74	19.86	88.00
2 @	0.10260	0.13	0.00	8.20	8.33	72.95



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

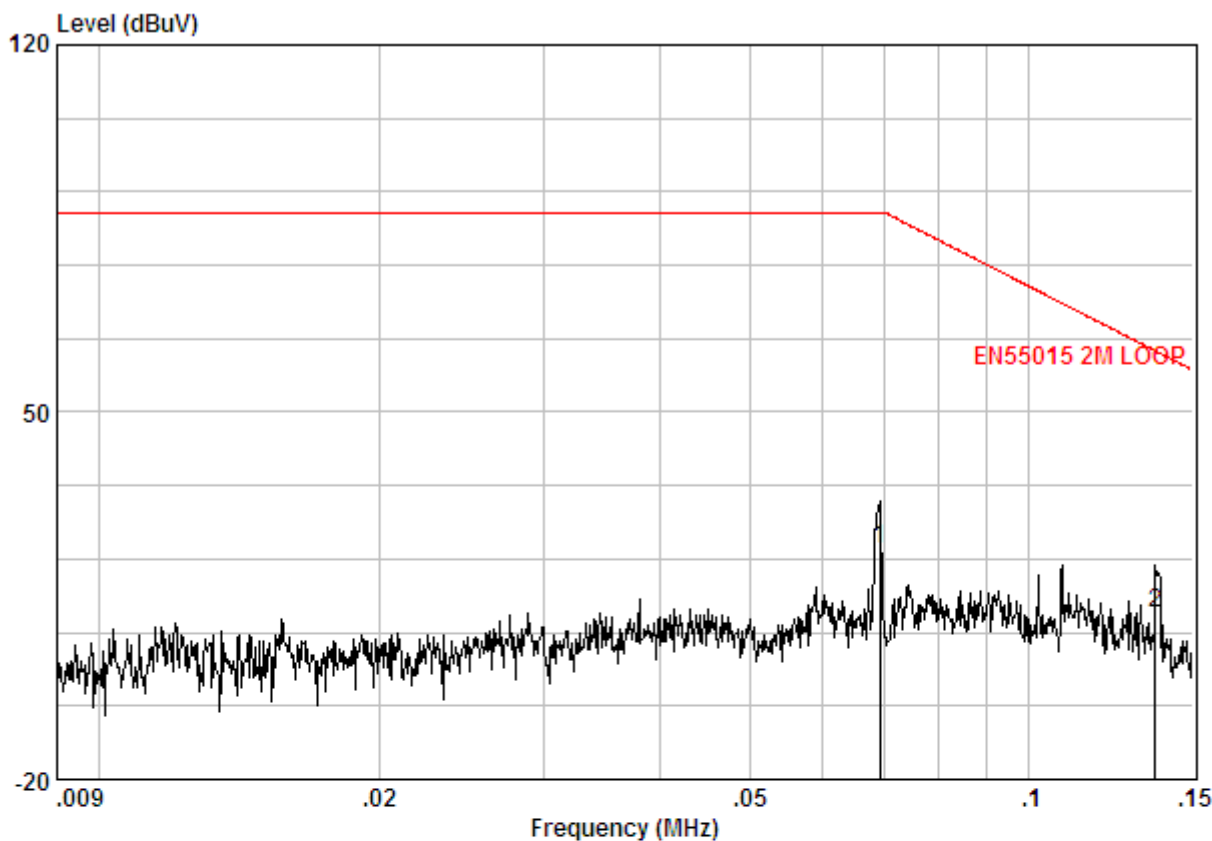
	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.20505	0.13	0.00	13.96	14.09	54.24 -40.16 QP
2	0.36146	0.16	0.00	13.98	14.14	47.43 -33.29 QP
3 @	3.364	0.28	0.00	10.40	10.69	22.00 -11.31 QP
4	18.920	0.55	0.00	9.24	9.80	22.00 -12.20 QP



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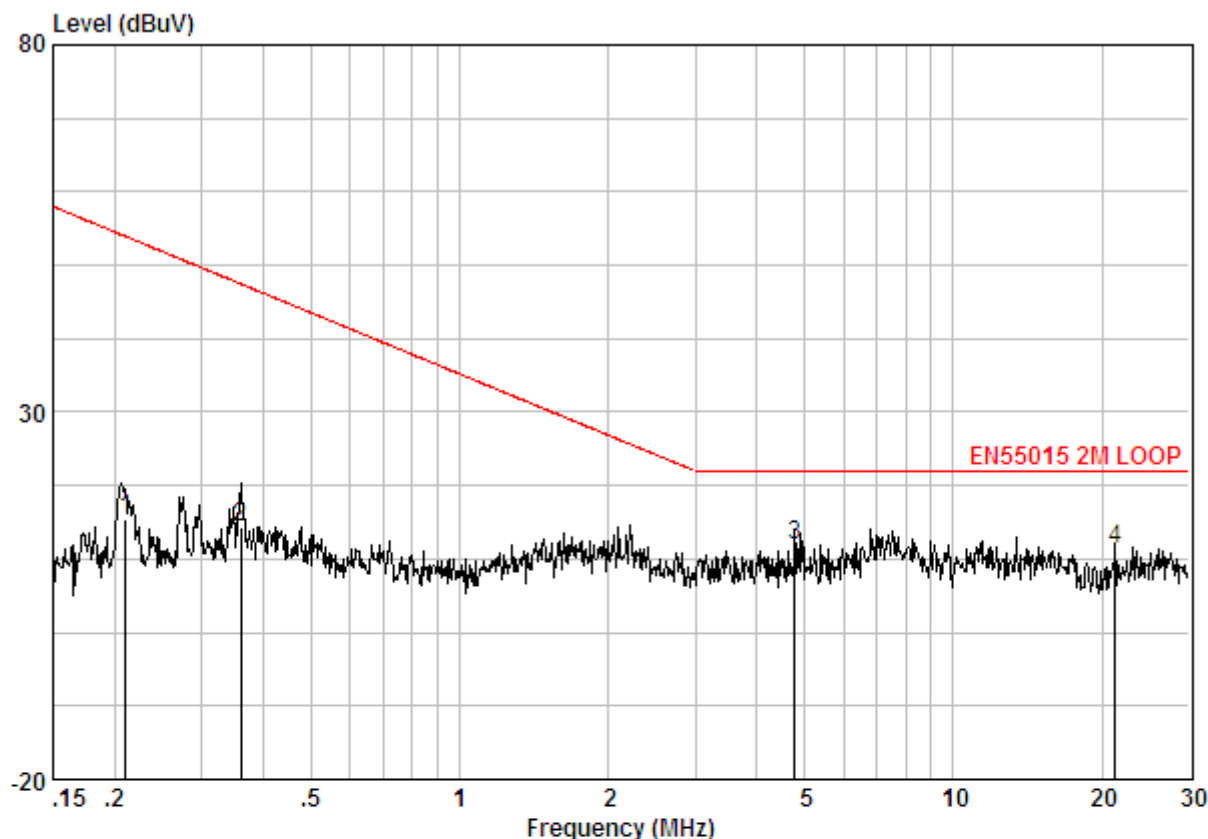
Report No.: SZEM170100063101
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Mode:a;Axial:Y



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Y

	Freq	CableAntenna	Read	Limit	Over	
		Loss	Factor	Level	Level	Line
	MHz	dB	dB	dBuV	dBuV	dBuV
						dB
1 @	0.06900	0.12	0.00	23.72	23.84	88.00 -64.16 QP
2 @	0.13670	0.12	0.00	11.70	11.83	61.65 -49.83 QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Y

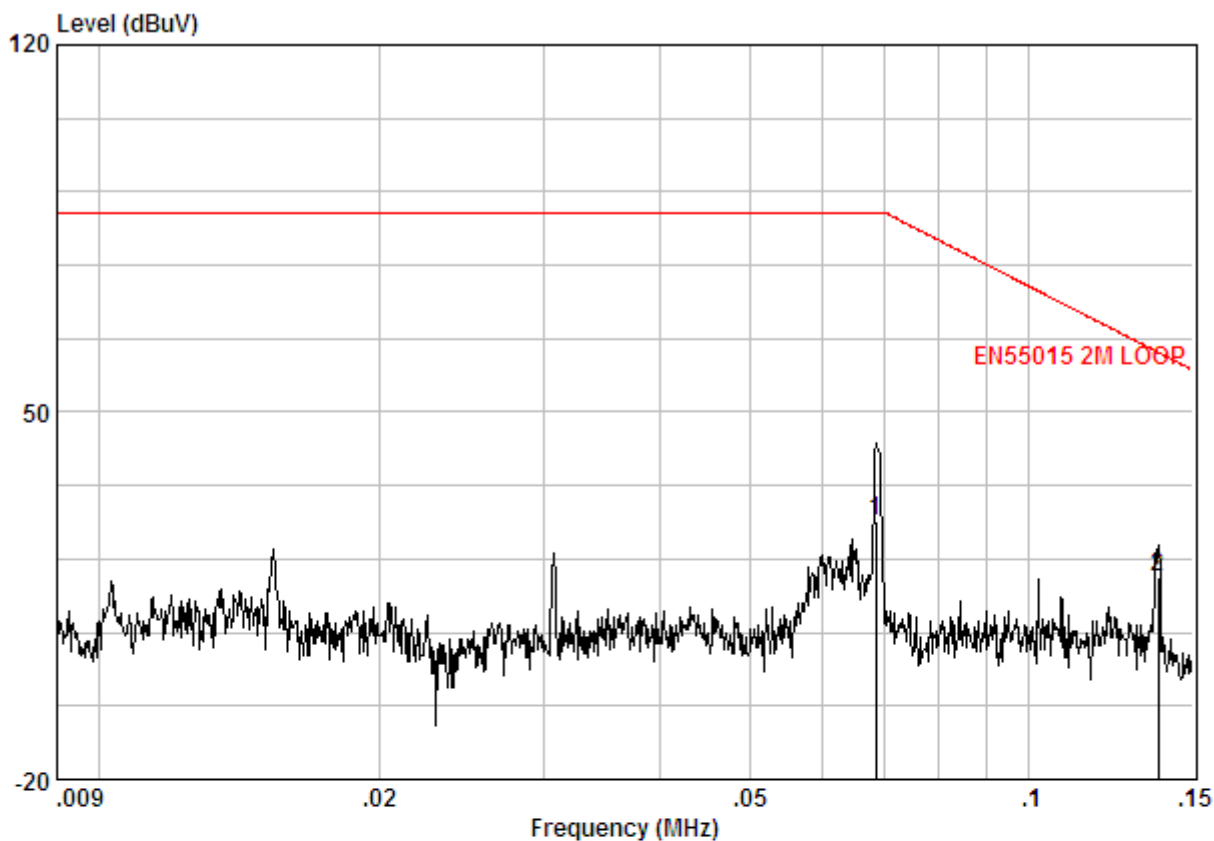
	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Factor	Level	Level	Line
		dB	dB	dBuV	dBuV	dBuV
						dB
1	0.21055	0.13	0.00	15.41	15.53	53.93
2	0.35955	0.16	0.00	14.06	14.22	47.49
3 @	4.772	0.32	0.00	11.61	11.93	22.00
4 @	21.260	0.59	0.00	10.66	11.25	22.00



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Mode:a;Axial:Z



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

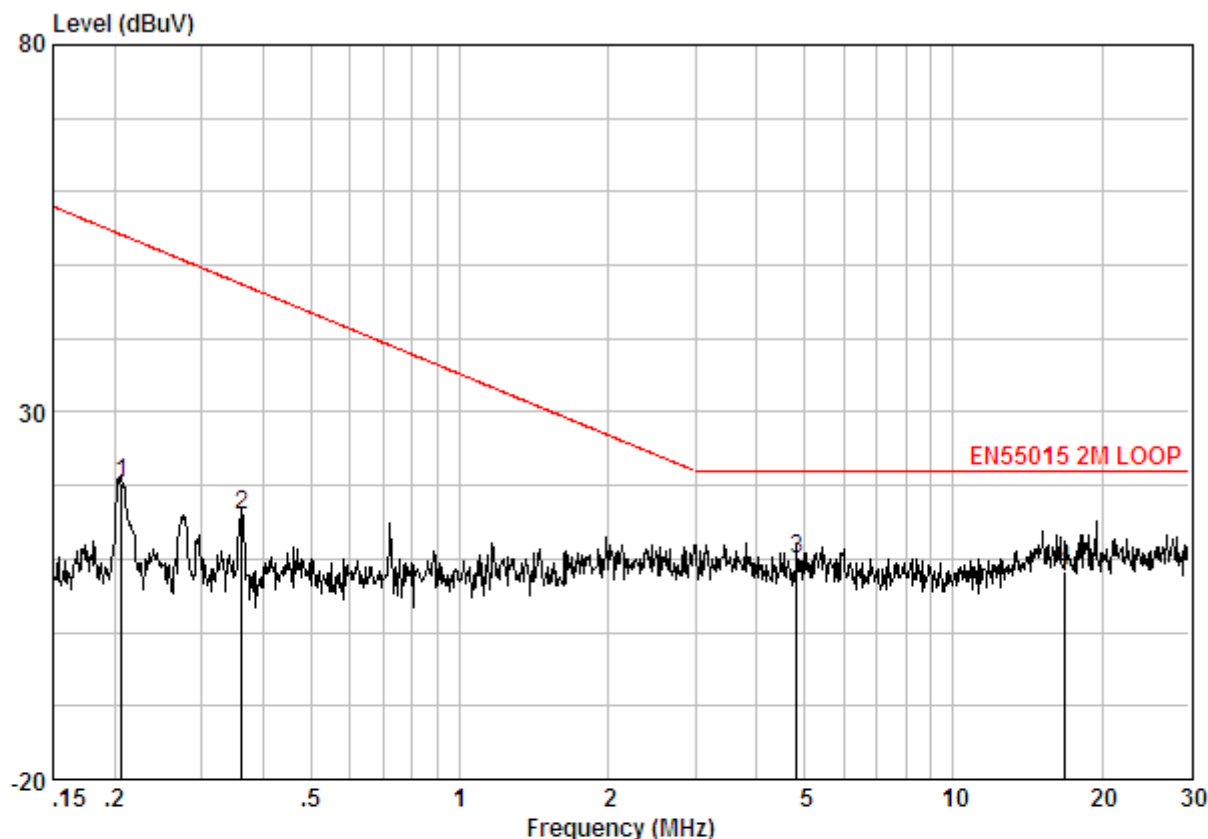
	Freq	CableAntenna	Read	Limit	Over	
		Loss	Factor	Level	Level	Line
	MHz	dB	dB	dBuV	dBuV	dBuV
1 @	0.06842	0.12	0.00	28.97	29.09	88.00
2 @	0.13786	0.12	0.00	18.32	18.44	61.32



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Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.20614	0.13	0.00	20.30	20.42	54.18 -33.76 QP
2	0.36146	0.16	0.00	15.86	16.02	47.43 -31.41 QP
3	4.822	0.32	0.00	9.56	9.88	22.00 -12.12 QP
4	16.839	0.52	0.00	7.92	8.43	22.00 -13.57 QP

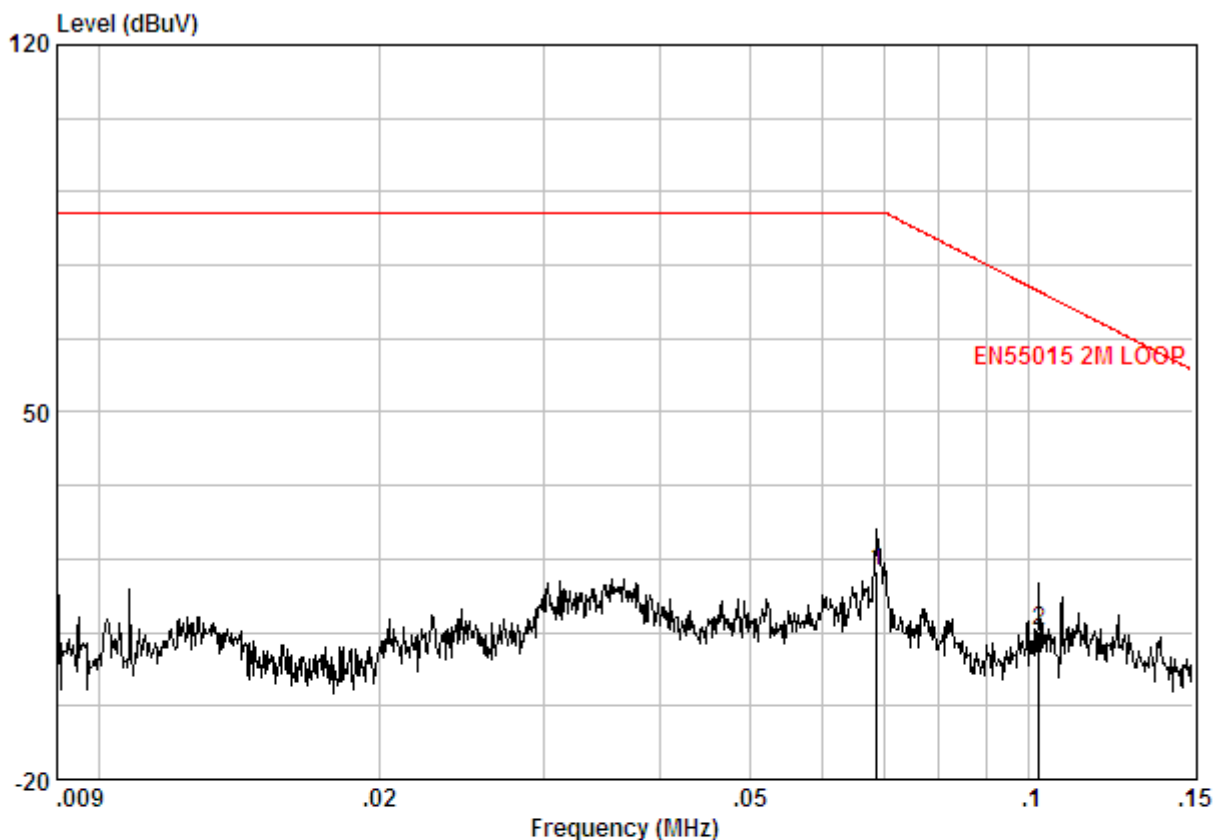


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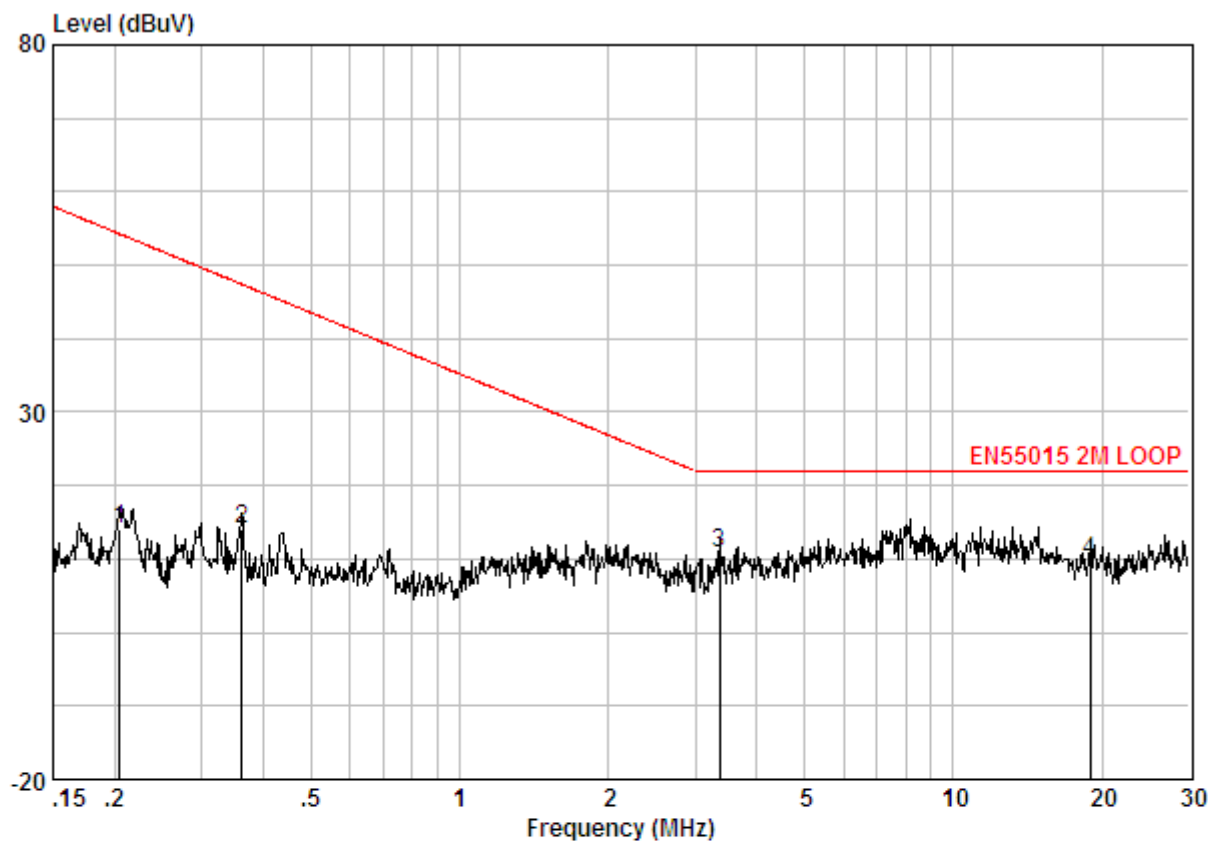
C-FR-F21A

Mode:a;Axial:X



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

	Freq	CableAntenna		Read		Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	Limit	
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.06861	0.12	0.00	19.74	19.86	88.00	-68.14	QP
2 @	0.10260	0.13	0.00	8.20	8.33	72.95	-64.62	QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: X

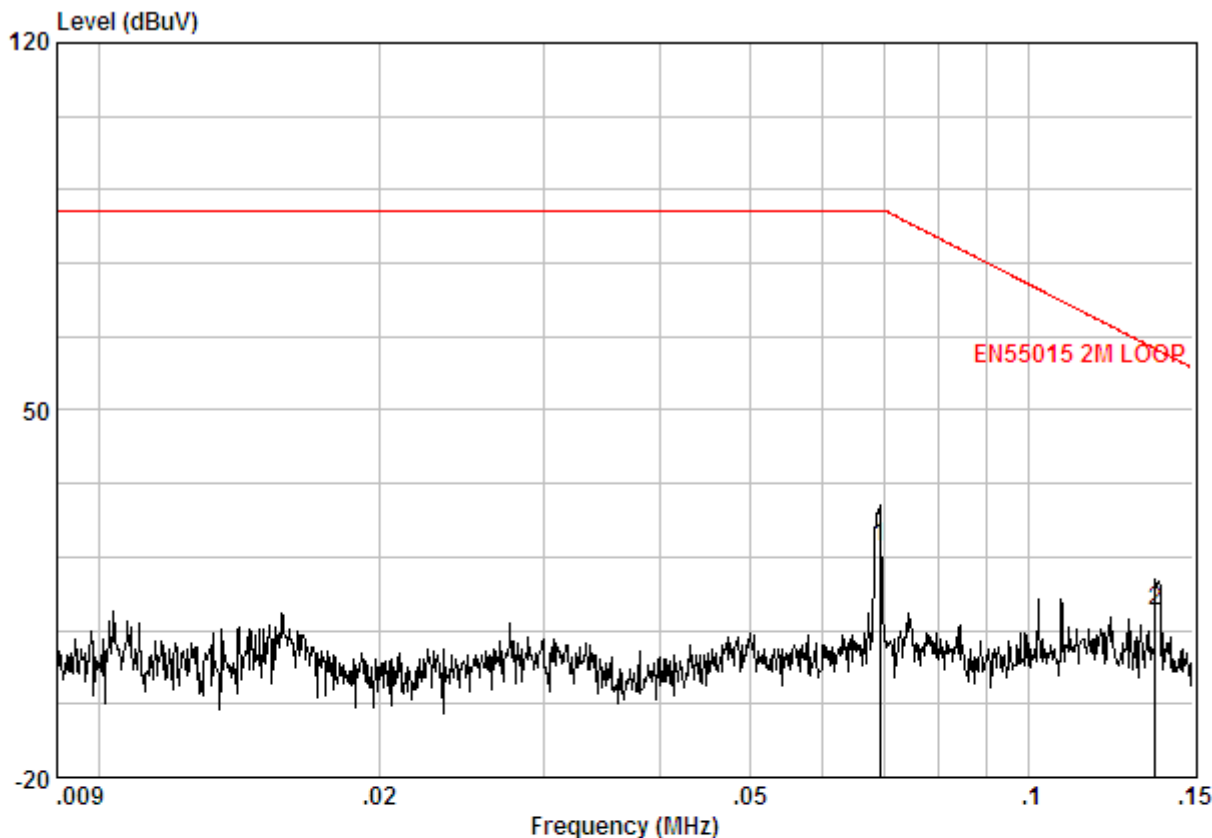
	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.20505	0.13	0.00	13.96	14.09	54.24 -40.16 QP
2	0.36146	0.16	0.00	13.98	14.14	47.43 -33.29 QP
3 @	3.364	0.28	0.00	10.40	10.69	22.00 -11.31 QP
4	18.920	0.55	0.00	9.24	9.80	22.00 -12.20 QP



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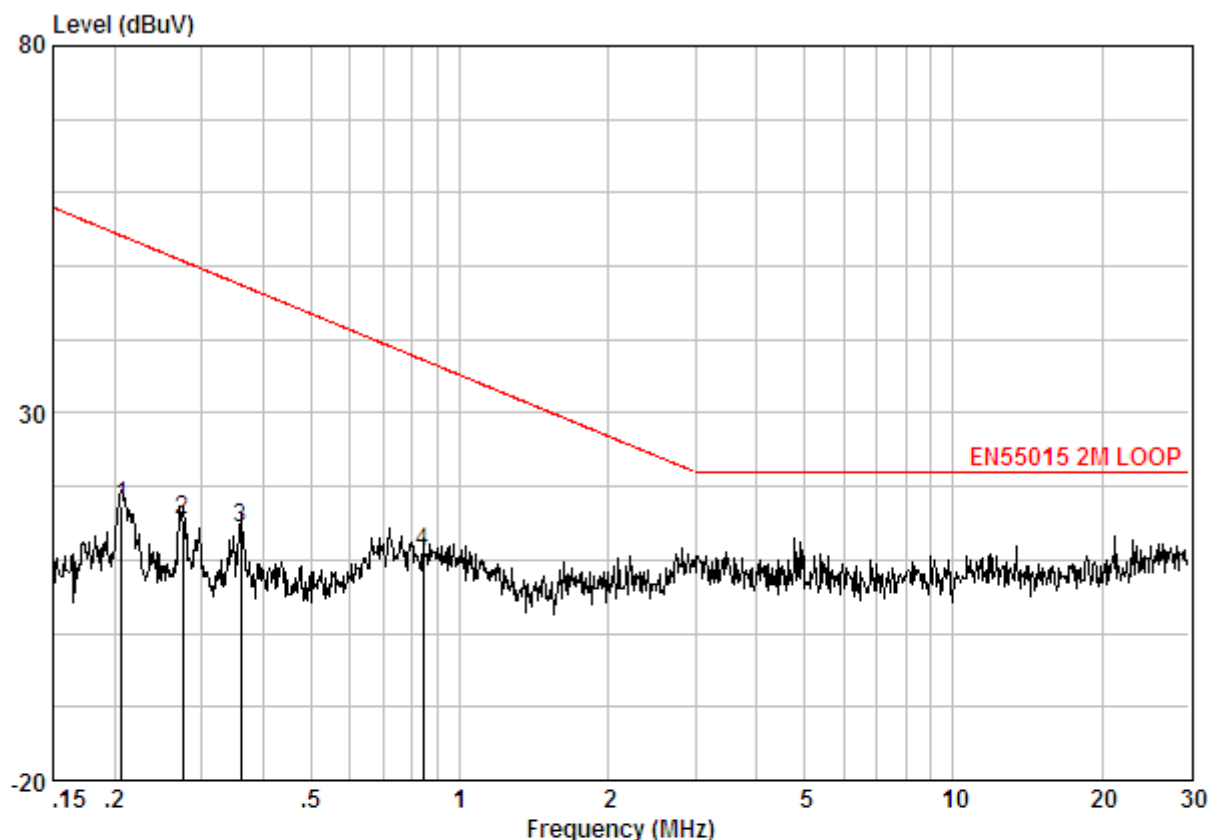
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Mode:a;Axial:Y



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Y

	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1 @	0.06900	0.12	0.00	23.72	23.84	88.00 -64.16 QP
2 @	0.13670	0.12	0.00	11.70	11.83	61.65 -49.83 QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Y

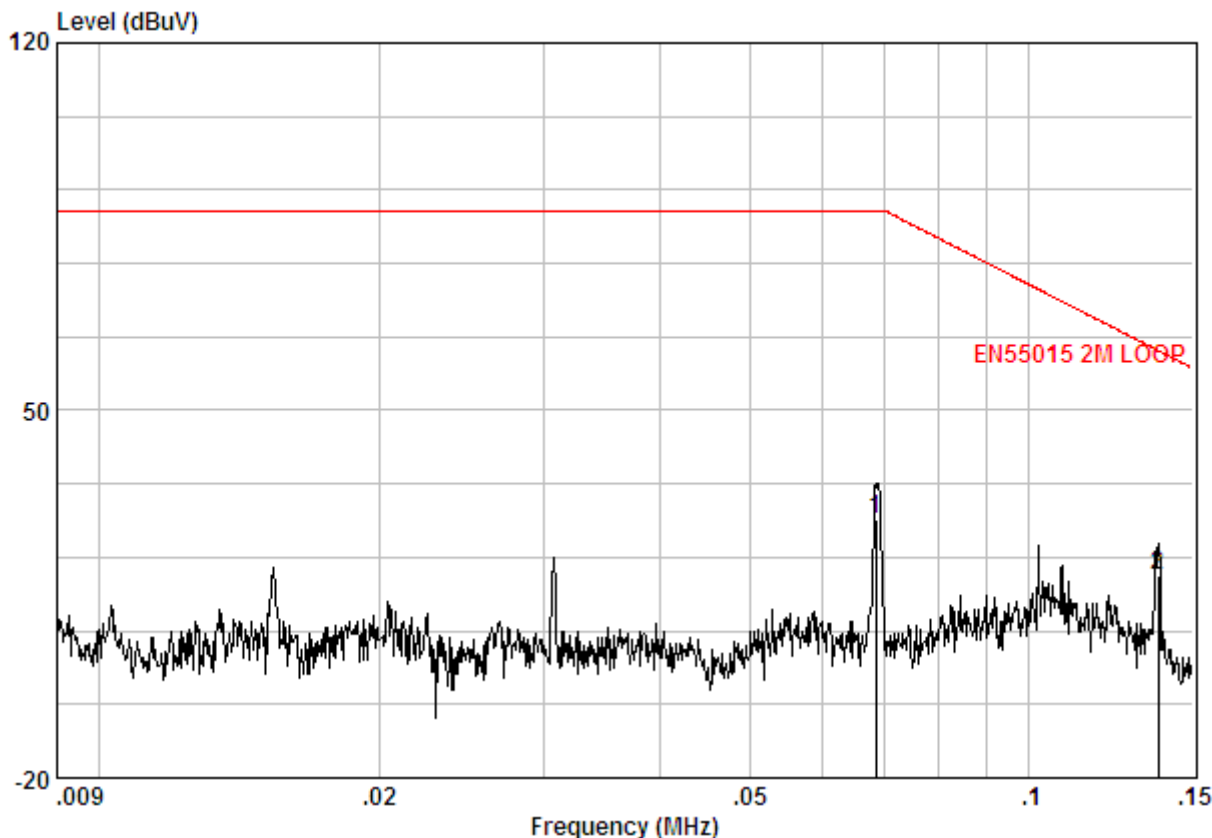
	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1	0.20614	0.13	0.00	17.31	17.44	54.18 -36.74 QP
2	0.27442	0.16	0.00	15.19	15.35	50.74 -35.39 QP
3	0.35955	0.16	0.00	14.06	14.22	47.49 -33.27 QP
4	0.84378	0.20	0.00	10.82	11.01	37.24 -26.23 QP



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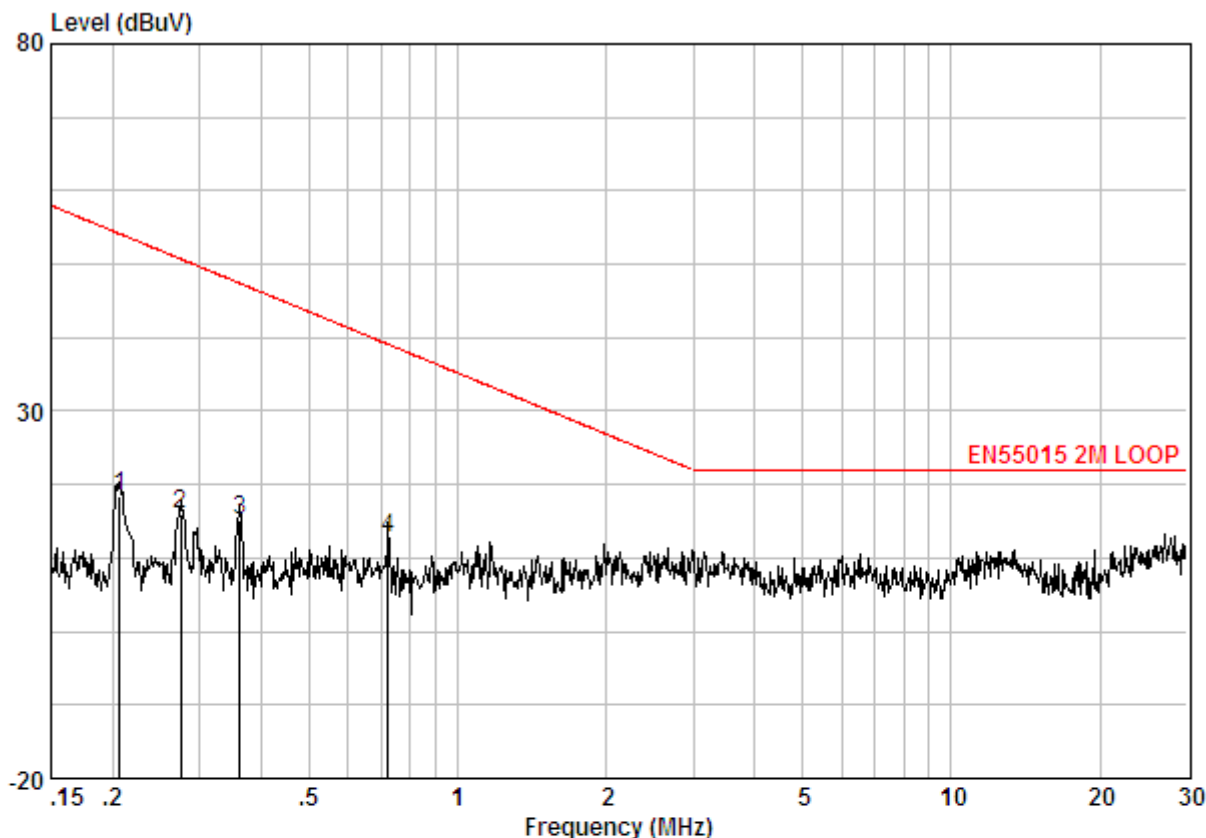
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Mode:a;Axial:Z



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

	Freq	CableAntenna	Read	Limit	Over	
	MHz	Loss	Level	Line	Limit	Remark
		Factor	Level			
			dBuV	dBuV	dBuV	dB
1 @	0.06842	0.12	0.00	28.97	29.09	88.00 -58.91 QP
2 @	0.13786	0.12	0.00	18.32	18.44	61.32 -42.88 QP



Site : Shielding Room
Condition : EN55015 2M LOOP LOOP
Job No. : 5768TX
Mode : On mode
: Z

	Freq	CableAntenna Loss Factor	Read Level	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.20614	0.13	0.00	18.30	18.42	54.18	-35.76 QP
2	0.27442	0.16	0.00	15.79	15.95	50.74	-34.79 QP
3	0.36146	0.16	0.00	14.86	15.02	47.43	-32.41 QP
4	0.72360	0.18	0.00	12.63	12.81	39.09	-26.28 QP



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6.4 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3:2013

Test Method: EN 61000-3-3:2013

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C

Humidity: 56 % RH

Atmospheric Pressure: 1010 mbar

Test mode: a: On mode, keep EUT lighting.

6.4.2 Measurement Data



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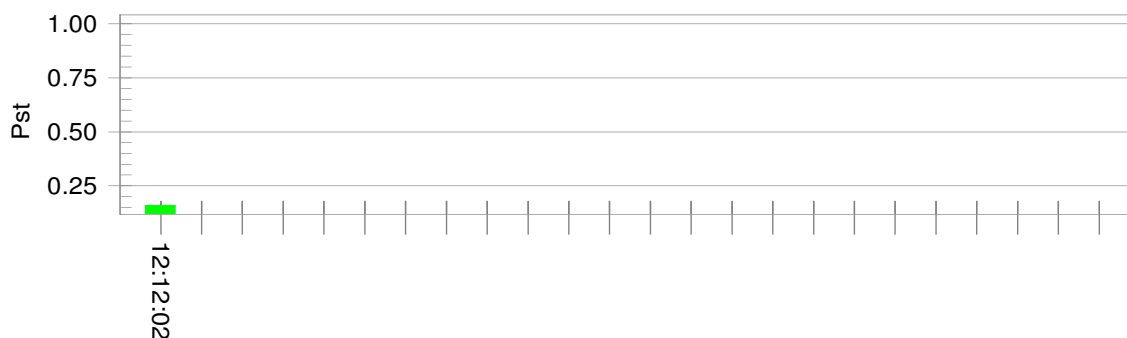
Mode:a

Test Result: Pass

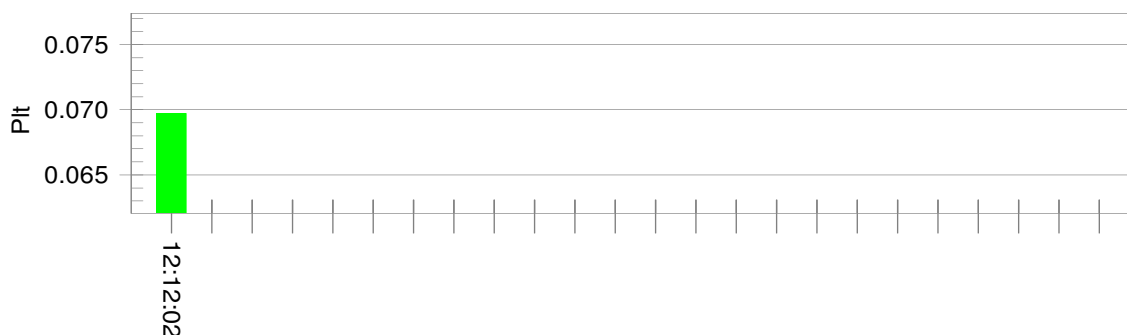
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.26		
Highest dt (%):	-0.14	Test limit (%):	3.30 Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.07	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.160	Test limit:	1.000 Pass



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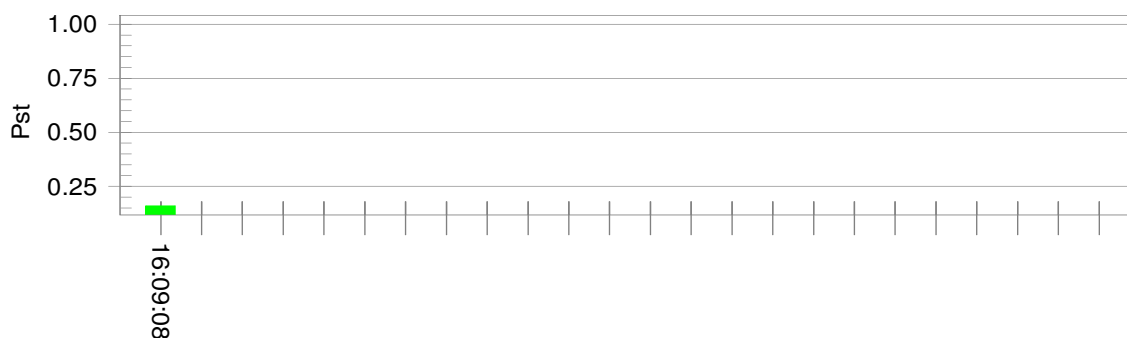
Mode:a

Test Result: Pass

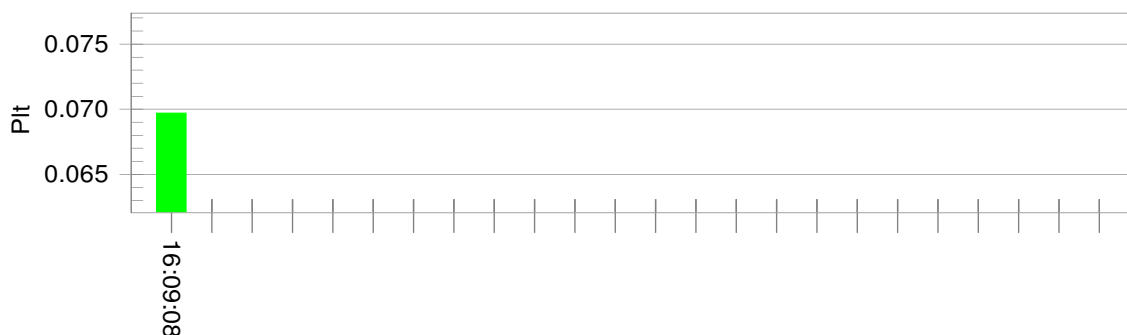
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.18

Highest dt (%): 0.13

Time(mS) > dt: 0.0

Highest dc (%): 0.00

Highest dmax (%): 0.07

Highest Pst (10 min. period): 0.160

Test limit (%): 3.30 Pass

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass



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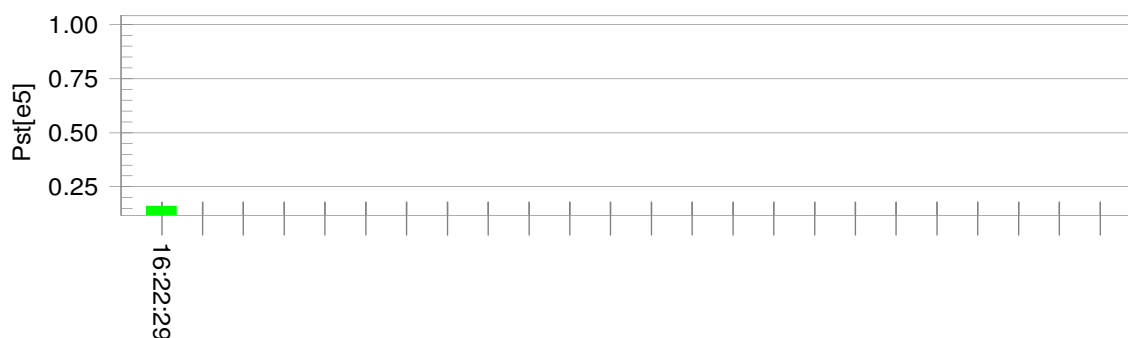
Mode:a

Test Result: Pass

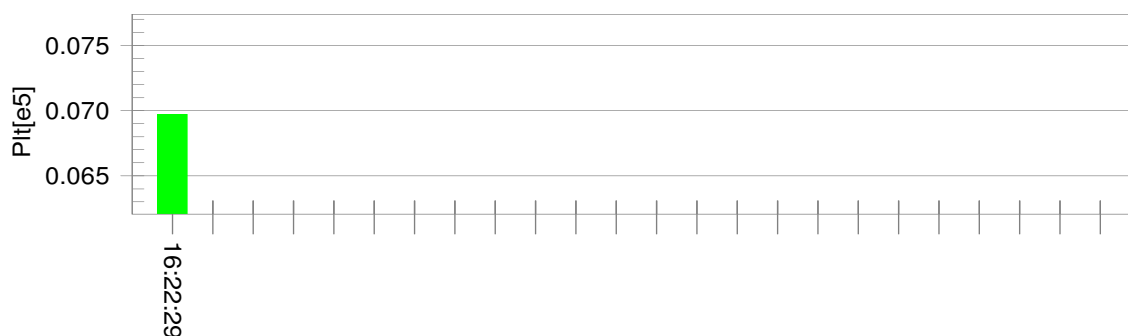
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.08

Highest dt (%): 0.13

Time(mS) > dt: 0.0

Highest dc (%): 0.00

Highest dmax (%): 0.04

Highest Pst (10 min. period): 0.160

Test limit (%): 3.30 Pass

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass



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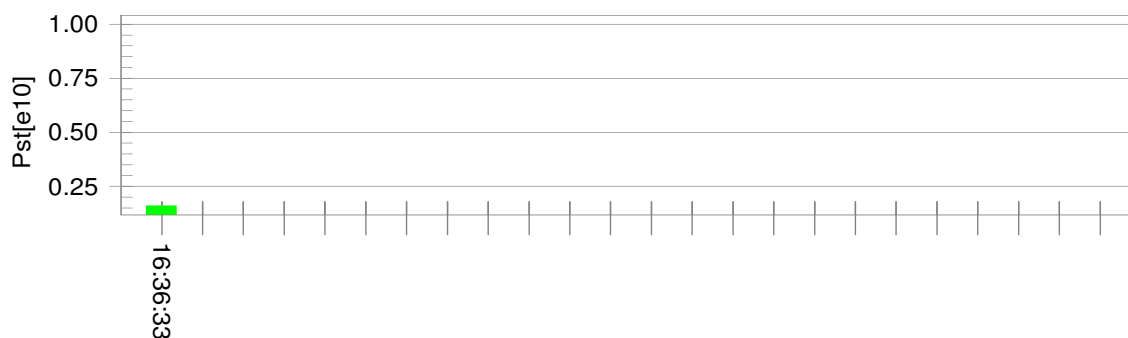
Mode:a

Test Result: Pass

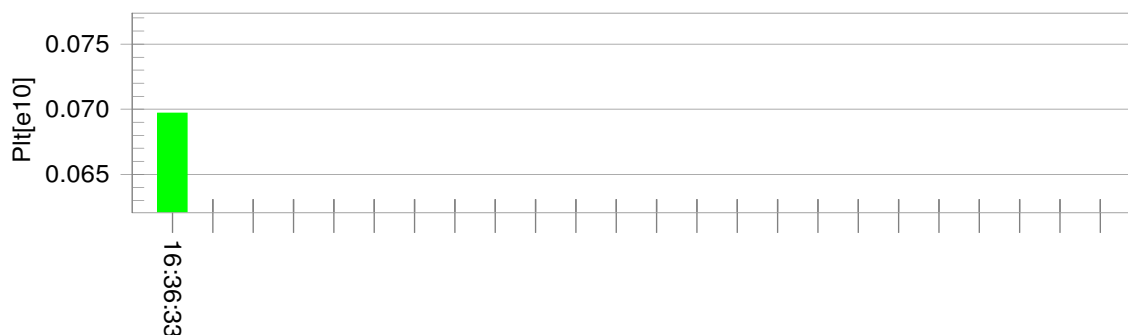
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.00

Highest dt (%): -0.14

Time(mS) > dt: 0.0

Highest dc (%): 0.00

Highest dmax (%): -0.06

Highest Pst (10 min. period): 0.160

Test limit (%): 3.30 Pass

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass



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6.5 Harmonic Current Emission

Test Requirement: EN 61000-3-2:2014

Test Method: EN 61000-3-2:2014

Frequency Range: 100Hz to 2kHz

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 56 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: On mode, keep EUT lighting.

6.5.2 Measurement Data



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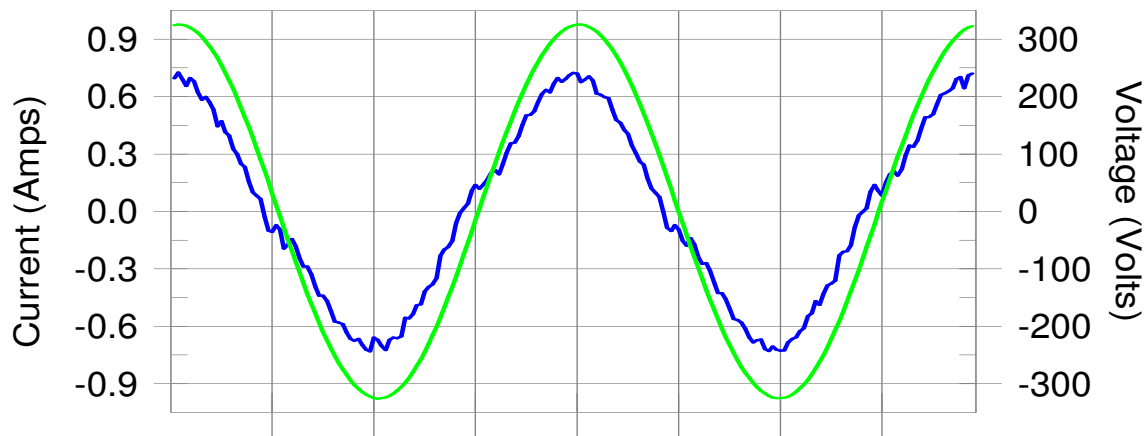
C-FR-F15B

Mode:a

Test Result: Pass

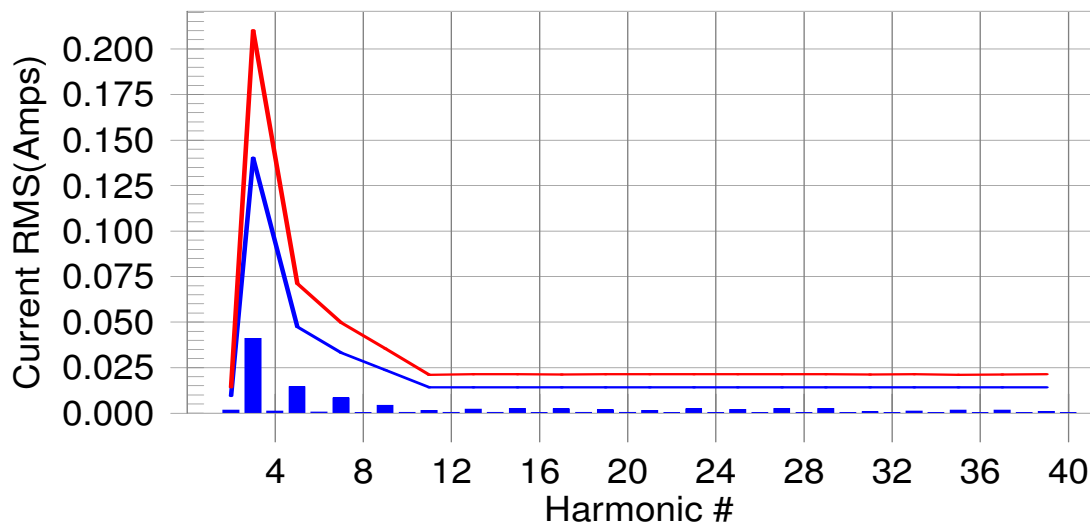
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line

European Limits



Test result: Pass Worst harmonic was #5 with 20.59% of the limit.



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Test Result: Pass

Source qualification: Normal

THC(A): 0.04 I-THD(%): 9.33

POHC(A): 0.005

POHC Limit(A): 0.045

Highest parameter values during test:

V_RMS (Volts): 230.23

Frequency(Hz): 50.00

I_Peak (Amps): 0.778

I_RMS (Amps): 0.478

I_Fund (Amps): 0.474

Crest Factor: 1.637

Power (Watts): 108.3

Power Factor: 0.986

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.009	14.4	0.002	0.014	11.89	Pass
3	0.040	0.140	28.4	0.041	0.210	19.57	Pass
4	0.001						
5	0.014	0.047	30.0	0.015	0.071	20.59	Pass
6	0.001						
7	0.008	0.033	23.9	0.008	0.050	17.03	Pass
8	0.000						
9	0.004	0.024	17.5	0.004	0.036	12.40	Pass
10	0.000						
11	0.001	0.014	9.2	0.002	0.021	7.24	Pass
12	0.001						
13	0.002	0.014	14.6	0.002	0.021	10.90	Pass
14	0.000						
15	0.002	0.014	16.3	0.003	0.021	11.98	Pass
16	0.000						
17	0.002	0.014	15.5	0.002	0.021	11.17	Pass
18	0.000						
19	0.002	0.014	12.0	0.002	0.021	8.90	Pass
20	0.000						
21	0.001	0.014	9.8	0.002	0.021	7.34	Pass
22	0.000						
23	0.002	0.014	15.8	0.002	0.021	11.60	Pass
24	0.000						
25	0.002	0.014	12.9	0.002	0.021	9.88	Pass
26	0.000						
27	0.002	0.014	16.6	0.003	0.021	11.97	Pass
28	0.000						
29	0.002	0.014	17.1	0.003	0.021	12.21	Pass
30	0.000						
31	0.001	0.014	4.2	0.001	0.021	3.73	Pass
32	0.000						
33	0.001	0.014	7.0	0.001	0.021	5.83	Pass
34	0.000						
35	0.002	0.014	11.3	0.002	0.021	8.58	Pass
36	0.000						
37	0.001	0.014	10.2	0.002	0.021	8.06	Pass
38	0.000						
39	0.001	0.014	4.8	0.001	0.021	4.56	Pass
40	0.000						

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.



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Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms): 230.23

I_{Peak} (Amps): 0.778

I_{Fund} (Amps): 0.474

Power (Watts): 108.3

Frequency(Hz): 50.00

I_{RMS} (Amps): 0.478

Crest Factor: 1.637

Power Factor: 0.986

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.150	0.460	32.52	OK
3	0.505	2.072	24.36	OK
4	0.097	0.460	20.99	OK
5	0.051	0.921	5.56	OK
6	0.041	0.460	8.98	OK
7	0.055	0.691	7.91	OK
8	0.020	0.460	4.29	OK
9	0.067	0.460	14.53	OK
10	0.021	0.460	4.66	OK
11	0.024	0.230	10.46	OK
12	0.021	0.230	9.08	OK
13	0.019	0.230	8.23	OK
14	0.015	0.230	6.53	OK
15	0.010	0.230	4.40	OK
16	0.015	0.230	6.30	OK
17	0.009	0.230	3.73	OK
18	0.014	0.230	6.20	OK
19	0.007	0.230	3.25	OK
20	0.014	0.230	5.95	OK
21	0.009	0.230	4.03	OK
22	0.010	0.230	4.46	OK
23	0.009	0.230	3.73	OK
24	0.007	0.230	2.89	OK
25	0.009	0.230	3.70	OK
26	0.010	0.230	4.26	OK
27	0.007	0.230	3.22	OK
28	0.008	0.230	3.29	OK
29	0.009	0.230	3.83	OK
30	0.007	0.230	2.93	OK
31	0.005	0.230	2.14	OK
32	0.006	0.230	2.79	OK
33	0.005	0.230	2.18	OK
34	0.005	0.230	2.15	OK
35	0.005	0.230	2.33	OK
36	0.005	0.230	1.97	OK
37	0.006	0.230	2.80	OK
38	0.004	0.230	1.65	OK
39	0.003	0.230	1.29	OK
40	0.006	0.230	2.67	OK



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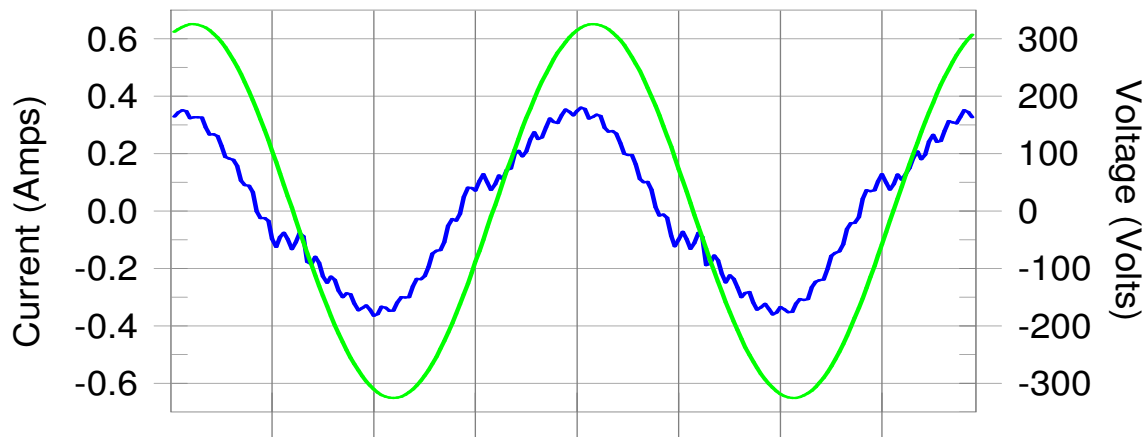
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C-FR- F16S
Mode:a

Test Result: Pass

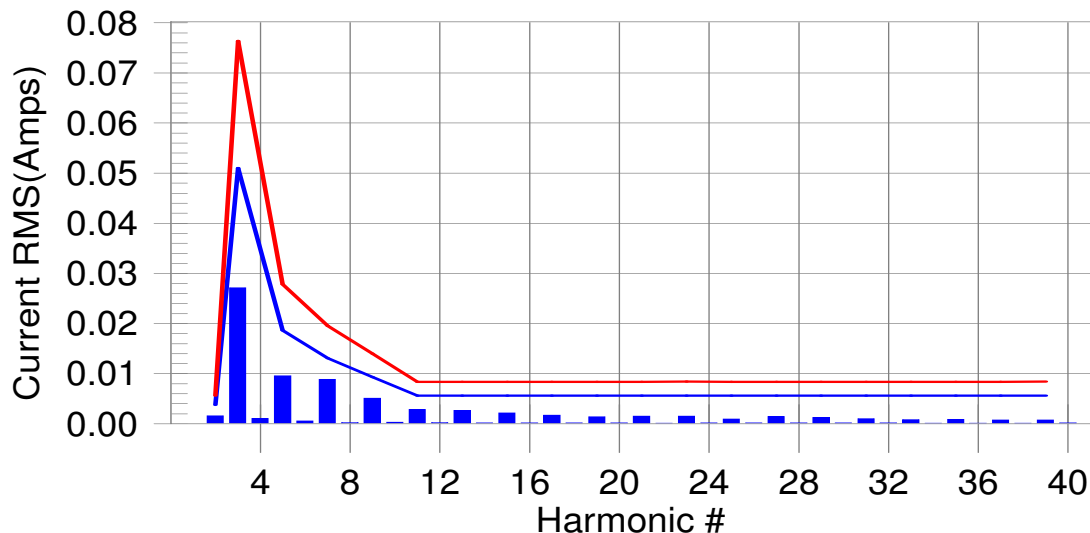
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line

European Limits



Test result: Pass Worst harmonic was #7 with 51.25% of the limit.



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Test Result: Pass

Source qualification: Normal

THC(A): 0.03 I-THD(%): 16.74

POHC(A): 0.003

POHC Limit(A): 0.018

Highest parameter values during test:

V_RMS (Volts): 230.24

Frequency(Hz): 50.00

I_Peak (Amps): 0.370

I_RMS (Amps): 0.229

I_Fund (Amps): 0.187

Crest Factor: 1.873

Power (Watts): 48.0

Power Factor: 0.912

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.004	35.6	0.002	0.006	28.74	Pass
3	0.024	0.051	47.1	0.027	0.076	35.57	Pass
4	0.001						
5	0.008	0.019	44.4	0.010	0.028	34.26	Pass
6	0.001						
7	0.007	0.013	56.7	0.009	0.020	45.39	Pass
8	0.000						
9	0.004	0.009	44.0	0.005	0.014	36.64	Pass
10	0.000						
11	0.003	0.006	46.9	0.003	0.008	34.34	Pass
12	0.000						
13	0.002	0.006	39.0	0.003	0.008	32.00	Pass
14	0.000						
15	0.002	0.006	30.5	0.002	0.008	25.87	Pass
16	0.000						
17	0.001	0.006	25.6	0.002	0.008	20.59	Pass
18	0.000						
19	0.001	0.006	21.3	0.001	0.008	17.06	Pass
20	0.000						
21	0.001	0.006	24.6	0.002	0.008	18.55	Pass
22	0.000						
23	0.001	0.006	24.7	0.002	0.008	18.14	Pass
24	0.000						
25	0.001	0.006	14.3	0.001	0.008	11.32	Pass
26	0.000						
27	0.001	0.006	20.1	0.001	0.008	17.82	Pass
28	0.000						
29	0.001	0.006	17.8	0.001	0.008	15.63	Pass
30	0.000						
31	0.001	0.006	15.3	0.001	0.008	12.09	Pass
32	0.000						
33	0.001	0.006	12.5	0.001	0.008	9.95	Pass
34	0.000						
35	0.001	0.006	13.5	0.001	0.008	10.78	Pass
36	0.000						
37	0.001	0.006	11.9	0.001	0.008	9.31	Pass
38	0.000						
39	0.001	0.006	11.3	0.001	0.008	9.04	Pass
40	0.000						

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.



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Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms): 230.24
I_Peak (Amps): 0.370
I_Fund (Amps): 0.187
Power (Watts): 48.0

Frequency(Hz): 50.00
I_RMS (Amps): 0.229
Crest Factor: 1.873
Power Factor: 0.912

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.157	0.460	34.01	OK
3	0.490	2.072	23.64	OK
4	0.097	0.460	21.11	OK
5	0.052	0.921	5.62	OK
6	0.039	0.460	8.42	OK
7	0.055	0.691	7.98	OK
8	0.022	0.460	4.86	OK
9	0.066	0.460	14.41	OK
10	0.021	0.460	4.57	OK
11	0.024	0.230	10.35	OK
12	0.020	0.230	8.74	OK
13	0.018	0.230	7.65	OK
14	0.013	0.230	5.60	OK
15	0.008	0.230	3.38	OK
16	0.013	0.230	5.74	OK
17	0.008	0.230	3.41	OK
18	0.014	0.230	6.19	OK
19	0.006	0.230	2.75	OK
20	0.014	0.230	5.88	OK
21	0.010	0.230	4.17	OK
22	0.009	0.230	3.90	OK
23	0.007	0.230	3.03	OK
24	0.005	0.230	2.31	OK
25	0.008	0.230	3.27	OK
26	0.009	0.230	3.97	OK
27	0.006	0.230	2.62	OK
28	0.008	0.230	3.36	OK
29	0.007	0.230	3.11	OK
30	0.006	0.230	2.64	OK
31	0.004	0.230	1.86	OK
32	0.006	0.230	2.56	OK
33	0.006	0.230	2.55	OK
34	0.004	0.230	1.78	OK
35	0.004	0.230	1.67	OK
36	0.004	0.230	1.81	OK
37	0.005	0.230	2.04	OK
38	0.004	0.230	1.56	OK
39	0.004	0.230	1.72	OK
40	0.005	0.230	2.15	OK



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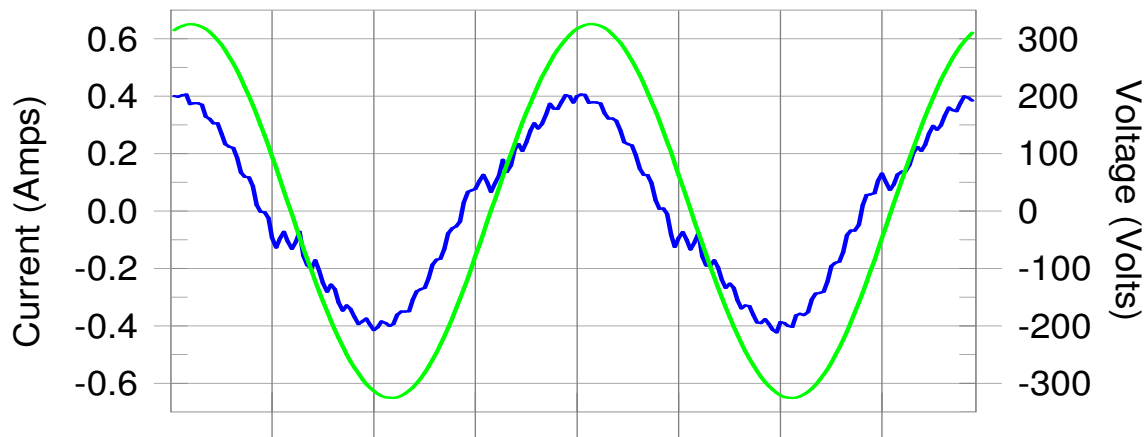
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C-FR-F17D
Mode:a

Test Result: Pass

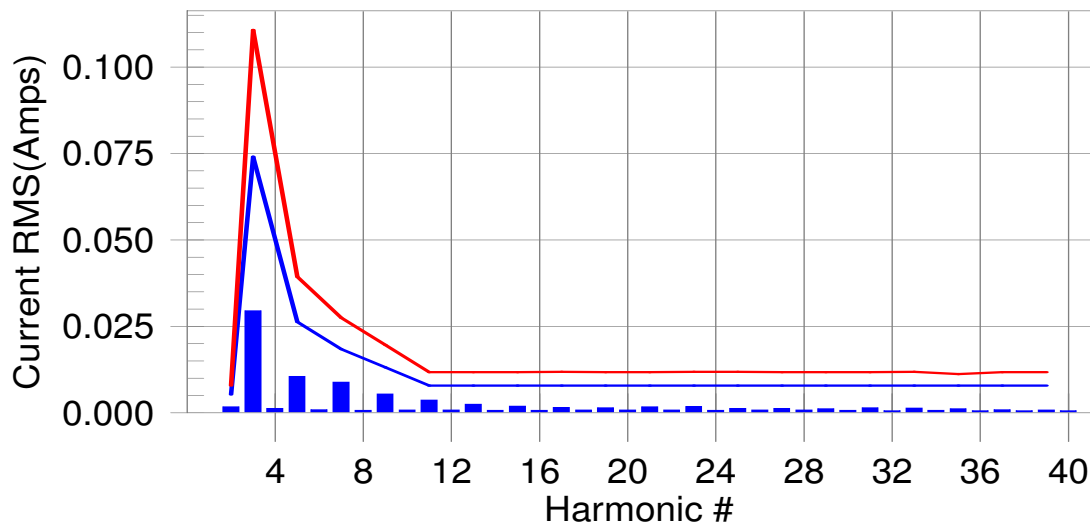
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line

European Limits



Test result: Pass Worst harmonic was #7 with 32.41% of the limit.



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Test Result: Pass

Source qualification: Normal

THC(A): 0.03 I-THD(%): 14.47

POHC(A): 0.003

POHC Limit(A): 0.025

Highest parameter values during test:

V_RMS (Volts): 230.23

Frequency(Hz): 50.00

I_Peak (Amps): 0.437

I_RMS (Amps): 0.268

I_Fund (Amps): 0.263

Crest Factor: 2.598

Power (Watts): 57.9

Power Factor: 0.941

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.005	25.1	0.002	0.008	22.08	Pass
3	0.024	0.074	32.5	0.030	0.111	26.69	Pass
4	0.001						
5	0.008	0.026	29.5	0.011	0.039	26.89	Pass
6	0.001						
7	0.006	0.018	33.2	0.009	0.028	32.41	Pass
8	0.001						
9	0.004	0.013	32.2	0.005	0.020	27.80	Pass
10	0.001						
11	0.003	0.008	36.6	0.004	0.012	31.30	Pass
12	0.001						
13	0.002	0.008	24.6	0.003	0.012	21.35	Pass
14	0.001						
15	0.001	0.008	16.4	0.002	0.012	16.67	Pass
16	0.001						
17	0.001	0.008	13.2	0.002	0.012	13.40	Pass
18	0.001						
19	0.001	0.008	12.9	0.001	0.012	12.53	Pass
20	0.001						
21	0.001	0.008	15.9	0.002	0.012	14.93	Pass
22	0.001						
23	0.001	0.008	18.2	0.002	0.012	15.45	Pass
24	0.001						
25	0.001	0.008	12.9	0.001	0.012	10.84	Pass
26	0.001						
27	0.001	0.008	12.8	0.001	0.012	11.30	Pass
28	0.001						
29	0.001	0.008	11.2	0.001	0.012	10.39	Pass
30	0.001						
31	0.001	0.008	10.3	0.001	0.012	12.45	Pass
32	0.001						
33	0.001	0.008	11.4	0.001	0.012	11.73	Pass
34	0.001						
35	0.001	0.008	10.5	0.001	0.011	10.47	Pass
36	0.001						
37	0.001	0.008	9.1	0.001	0.012	8.12	Pass
38	0.001						
39	0.001	0.008	9.0	0.001	0.012	7.33	Pass
40	0.001						

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.



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Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms): 230.23

I_Peak (Amps): 0.437

I_Fund (Amps): 0.263

Power (Watts): 57.9

Frequency(Hz): 50.00

I_RMS (Amps): 0.268

Crest Factor: 2.598

Power Factor: 0.941

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.156	0.460	33.84	OK
3	0.495	2.072	23.87	OK
4	0.098	0.460	21.23	OK
5	0.053	0.921	5.78	OK
6	0.038	0.460	8.17	OK
7	0.052	0.691	7.59	OK
8	0.021	0.460	4.67	OK
9	0.067	0.460	14.54	OK
10	0.021	0.460	4.56	OK
11	0.024	0.230	10.44	OK
12	0.022	0.230	9.51	OK
13	0.021	0.230	9.17	OK
14	0.013	0.230	5.78	OK
15	0.010	0.230	4.29	OK
16	0.015	0.230	6.52	OK
17	0.008	0.230	3.50	OK
18	0.015	0.230	6.46	OK
19	0.007	0.230	3.15	OK
20	0.013	0.230	5.78	OK
21	0.009	0.230	4.11	OK
22	0.010	0.230	4.15	OK
23	0.007	0.230	3.15	OK
24	0.007	0.230	2.91	OK
25	0.007	0.230	3.14	OK
26	0.010	0.230	4.27	OK
27	0.006	0.230	2.64	OK
28	0.008	0.230	3.51	OK
29	0.007	0.230	2.89	OK
30	0.007	0.230	2.99	OK
31	0.005	0.230	2.26	OK
32	0.006	0.230	2.72	OK
33	0.006	0.230	2.59	OK
34	0.005	0.230	2.36	OK
35	0.004	0.230	1.84	OK
36	0.005	0.230	2.23	OK
37	0.005	0.230	2.16	OK
38	0.004	0.230	1.86	OK
39	0.004	0.230	1.87	OK
40	0.006	0.230	2.69	OK



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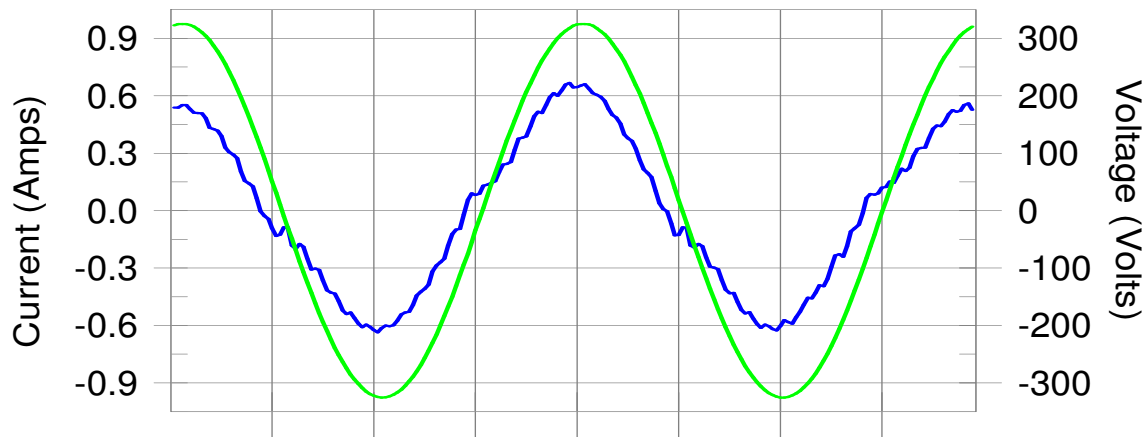
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C-FR-F21A
Mode:a

Test Result: Pass

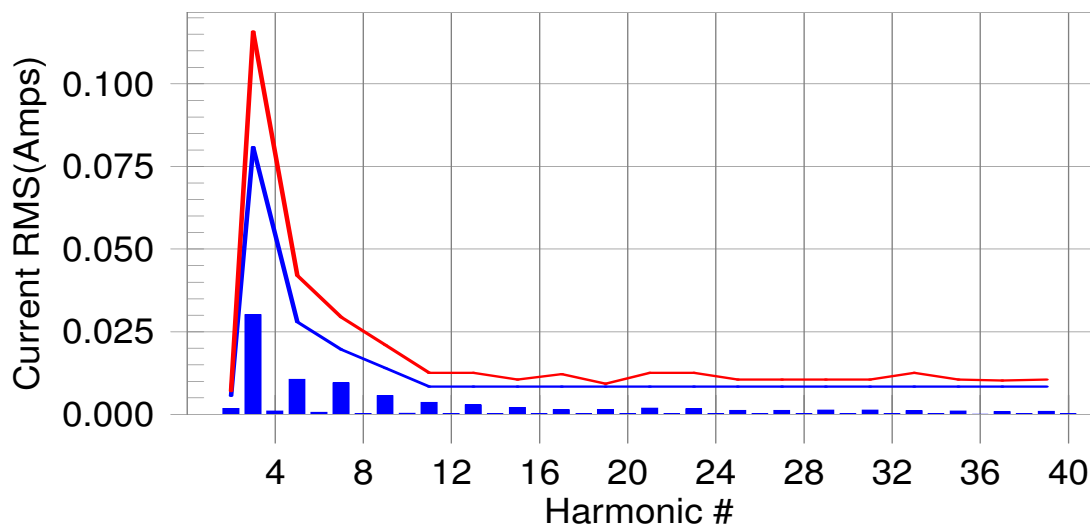
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line

European Limits



Test result: Pass Worst harmonic was #7 with 43.40% of the limit.



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Test Result: Pass

Source qualification: Normal

THC(A): 0.03 I-THD(%): 15.45

POHC(A): 0.003

POHC Limit(A): 0.027

Highest parameter values during test:

V_RMS (Volts): 230.22

Frequency(Hz): 50.00

I_Peak (Amps): 0.674

I_RMS (Amps): 0.334

I_Fund (Amps): 0.280

Crest Factor: 2.412

Power (Watts): 73.6

Power Factor: 0.962

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.006	23.6	0.002	0.007	26.08	Pass
3	0.028	0.081	34.7	0.030	0.116	26.06	Pass
4	0.001						
5	0.007	0.028	24.2	0.011	0.042	25.21	Pass
6	0.001						
7	0.009	0.020	44.7	0.010	0.029	32.54	Pass
8	0.000						
9	0.005	0.014	38.9	0.006	0.021	27.00	Pass
10	0.000						
11	0.003	0.008	30.3	0.004	0.013	29.03	Pass
12	0.000						
13	0.001	0.008	11.0	0.003	0.013	22.74	Pass
14	0.000						
15	0.001	0.008	8.0	0.002	0.011	19.47	Pass
16	0.000						
17	0.001	0.008	9.8	0.001	0.012	11.70	Pass
18	0.000						
19	0.001	0.008	15.6	0.002	0.009	16.44	Pass
20	0.000						
21	0.002	0.008	20.4	0.002	0.013	15.32	Pass
22	0.000						
23	0.002	0.008	17.9	0.002	0.013	13.60	Pass
24	0.000						
25	0.001	0.008	12.1	0.001	0.011	11.60	Pass
26	0.000						
27	0.001	0.008	9.7	0.001	0.011	11.62	Pass
28	0.000						
29	0.001	0.008	9.7	0.001	0.011	12.87	Pass
30	0.000						
31	0.001	0.008	12.1	0.001	0.011	12.27	Pass
32	0.000						
33	0.001	0.008	11.2	0.001	0.013	9.37	Pass
34	0.000						
35	0.001	0.008	8.6	0.001	0.011	9.72	Pass
36	0.000						
37	0.001	0.008	8.7	0.001	0.010	8.37	Pass
38	0.000						
39	0.001	0.008	8.7	0.001	0.011	9.15	Pass
40	0.000						

Note: Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.



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Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms): 230.22

I_{Peak} (Amps): 0.674

I_{Fund} (Amps): 0.280

Power (Watts): 73.6

Frequency(Hz): 50.00

I_{RMS} (Amps): 0.334

Crest Factor: 2.412

Power Factor: 0.962

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.156	0.460	33.81	OK
3	0.488	2.072	23.54	OK
4	0.091	0.460	19.84	OK
5	0.049	0.921	5.28	OK
6	0.040	0.460	8.71	OK
7	0.048	0.691	6.95	OK
8	0.018	0.460	3.89	OK
9	0.065	0.460	14.17	OK
10	0.020	0.460	4.44	OK
11	0.022	0.230	9.73	OK
12	0.018	0.230	7.80	OK
13	0.017	0.230	7.57	OK
14	0.013	0.230	5.83	OK
15	0.009	0.230	3.77	OK
16	0.013	0.230	5.64	OK
17	0.007	0.230	3.01	OK
18	0.015	0.230	6.36	OK
19	0.006	0.230	2.66	OK
20	0.014	0.230	6.01	OK
21	0.008	0.230	3.45	OK
22	0.009	0.230	3.94	OK
23	0.006	0.230	2.42	OK
24	0.005	0.230	2.31	OK
25	0.006	0.230	2.77	OK
26	0.009	0.230	3.92	OK
27	0.005	0.230	2.35	OK
28	0.007	0.230	3.20	OK
29	0.006	0.230	2.79	OK
30	0.006	0.230	2.72	OK
31	0.005	0.230	2.05	OK
32	0.005	0.230	2.38	OK
33	0.006	0.230	2.77	OK
34	0.003	0.230	1.43	OK
35	0.004	0.230	1.69	OK
36	0.003	0.230	1.39	OK
37	0.005	0.230	2.19	OK
38	0.003	0.230	1.24	OK
39	0.004	0.230	1.72	OK
40	0.005	0.230	2.10	OK

7 Immunity Test Results

7.1 Performance Criteria Description in EN 61547:2009

Criterion A	During the test no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.
Criterion B	<p>During the test the luminous intensity may change to any value. After the test the luminous intensity shall be restored to its initial value within 1 min.</p> <p>Regulating controls need not function during the test, but after the test the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.</p>
Criterion C	During and after the test any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal if necessary by temporary interruption of the mains supply and/or operating the regulating control.



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7.2 Electrostatic Discharge

Test Requirement: EN 61547:2009
Test Method: EN 61000-4-2:2009
Performance Criterion: B
Discharge Impedance: 330Ω/150pF
Number of Discharge: Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar

Test mode: a: On mode, keep EUT lighting.

7.2.2 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Results:

A: No degradation in the performance of the EUT was observed.



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7.3 Radiated Immunity(80MHz-1GHz)

Test Requirement: EN 61547:2009
Test Method: EN 61000-4-3:2006+A1:2008+A2:2010
Performance Criterion: A
Frequency Range: 80MHz to 1GHz
Antenna Polarisation: Vertical and Horizontal
Modulation: 1kHz,80% Amp. Mod,1% increment

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 52 % RH Atmospheric Pressure: 1015 mbar

Test mode: a: On mode, keep EUT lighting.

7.3.2 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	2s	A
80MHz-1GHz	3	Back	2s	A
80MHz-1GHz	3	Left	2s	A
80MHz-1GHz	3	Right	2s	A
80MHz-1GHz	3	Top	2s	A
80MHz-1GHz	3	Underside	2s	A

Results:

A: No degradation in the performance of the EUT was observed.



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7.4 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 61547:2009
Test Method: EN 61000-4-4:2012
Performance Criterion: B
Repetition Frequency: 5kHz
Burst Period: 300ms
Test Duration: 2 minute per level & polarity

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 56 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: On mode, keep EUT lighting.

7.4.2 Test Results:

Test Line	Level (kV)	Polarity	Direct/Coupling	Result / Observations
Live, Neutral	1	+	Direct	A
Live, Neutral	1	-	Direct	A

Results:

A: No degradation in the performance of the EUT was observed.



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7.5 Surge at Power Port

Test Requirement: EN 61547:2009
Test Method: EN 61000-4-5:2014
Performance Criterion: C

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 52 % RH Atmospheric Pressure: 1015 mbar
Test mode: a: On mode, keep EUT lighting.

7.5.2 Test Results:

Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	90°	A
L-N	1	-	90°	A
L-N	1	+	270°	A
L-N	1	-	270°	A
L-PE	2	+	90°	A
L-PE	2	-	90°	A
L-PE	2	+	270°	A
L-PE	2	-	270°	A
N-PE	2	+	90°	A
N-PE	2	-	90°	A
N-PE	2	+	270°	A
N-PE	2	-	270°	A
L-N-PE	2	+	90°	A
L-N-PE	2	-	90°	A
L-N-PE	2	+	270°	A
L-N-PE	2	-	270°	A

Results:

A: No degradation in the performance of the EUT was observed.



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7.6 Conducted Immunity at Power Port(150kHz-80MHz)

Test Requirement: EN 61547:2009
Test Method: EN 61000-4-6:2014
Performance Criterion: A
Frequency Range: 0.15MHz to 80MHz
Modulation: 80%, 1kHz Amplitude Modulation
Step Size: 1%

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 56 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: On mode, keep EUT lighting.

7.6.2 Test Results:

Cable port	Level (Vrms)	Direct/Coupling	Dwell time	Result / Observations
AC power port	3	Direct	2s	A

Results:

A: No degradation in the performance of the EUT was observed.



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7.7 Voltage Dips and Interruptions

Test Requirement: EN 61547:2009
Test Method: EN 61000-4-11:2004
Performance Criterion: 0% of UT (Supply Voltage) for 0.5 Periods:B; 70 % of UT for 10 Periods:C
No. of Dips / Interruptions: 3 per Level
Time between dropout 10s

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 56 % RH Atmospheric Pressure: 1010 mbar
Test mode: a: On mode, keep EUT lighting.

7.7.2 Test Results:

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Periods	3	A
0	180°	0.5 Periods	3	A
70	0°	10 Periods	3	A
70	180°	10 Periods	3	A

Results:

A: No degradation in the performance of the EUT was observed.

8 Photographs

8.1 Conducted Disturbance at Mains Terminals(9kHz-30MHz) Test Setup

C-FR-F15B



C-FR- F16S



C-FR-F17D



C-FR-F21A

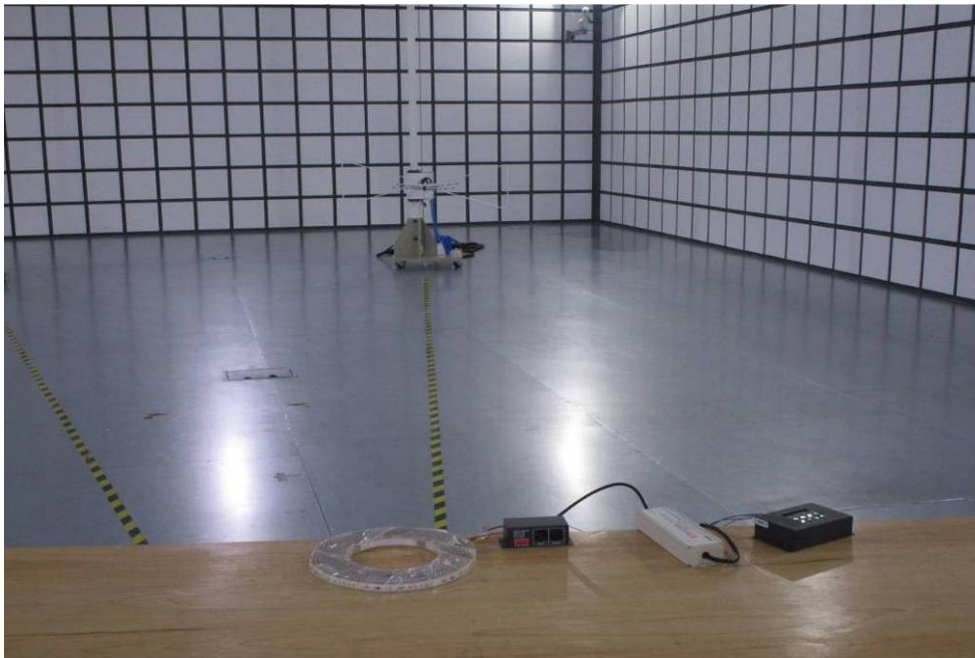


8.2 Radiated Disturbance(30MHz-300MHz) Test Setup

C-FR-F15B



C-FR- F16S



C-FR-F17D



C-FR-F21A



8.3 Radiated Disturbance (Magnetic field Induced Current)(9kHz-30MHz)

Test Setup

C-FR-F15B



C-FR- F16S



C-FR-F17D



C-FR-F21A



8.4 Harmonic Current Emission Test Setup

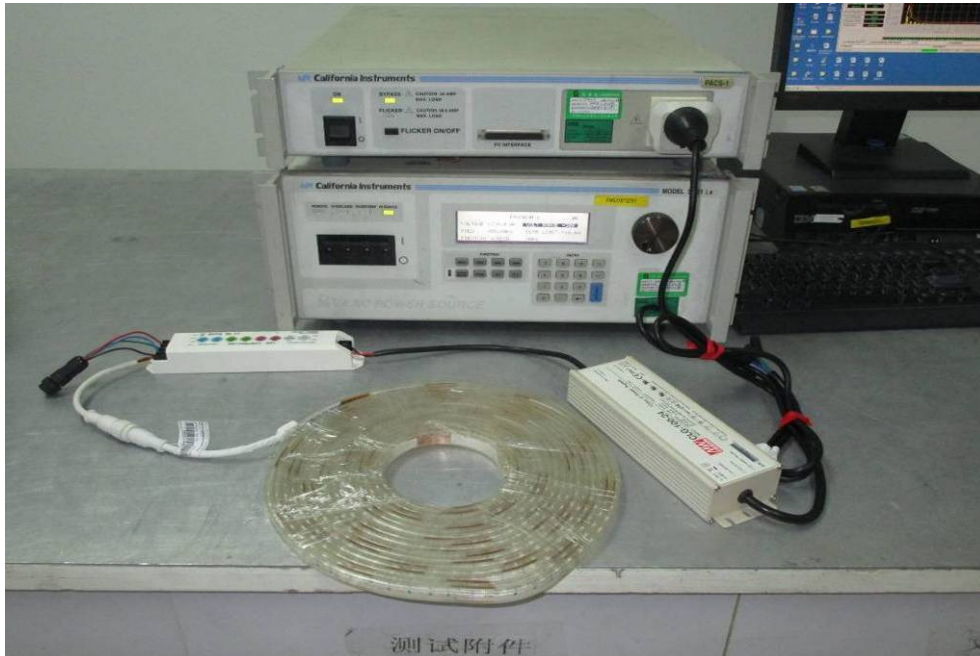
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C-FR- F16S



C-FR-F17D



C-FR-F21A



8.5 Voltage Fluctuations and Flicker Test Setup

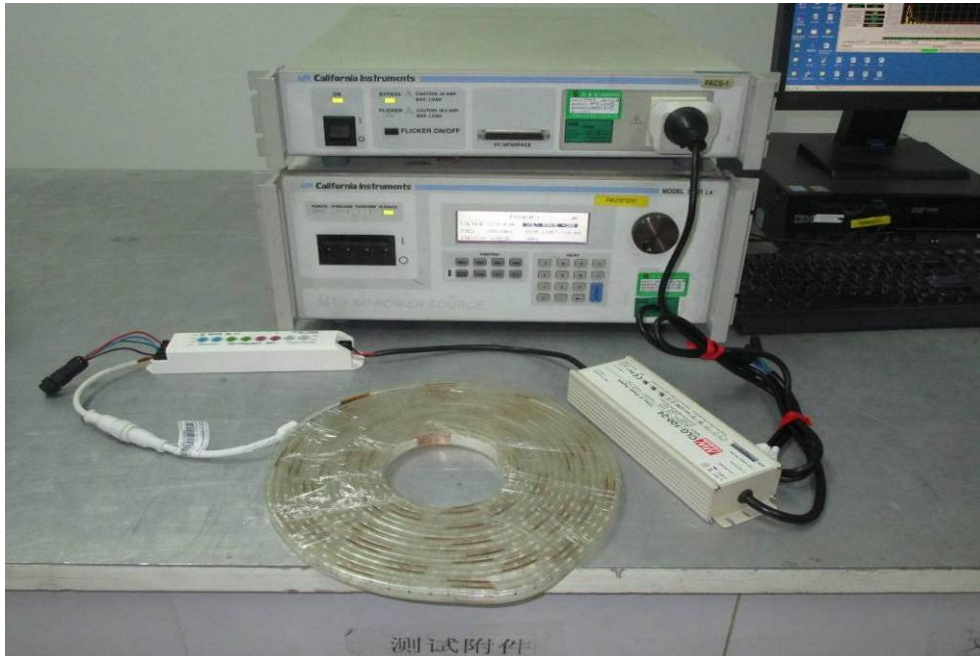
C-FR-F15B



C-FR- F16S



C-FR-F17D



C-FR-F21A



8.6 Electrostatic Discharge Test Setup

C-FR-F15B



C-FR- F16S



C-FR-F17D



C-FR-F21A



8.7 Radiated Immunity(80MHz-1GHz) Test Setup

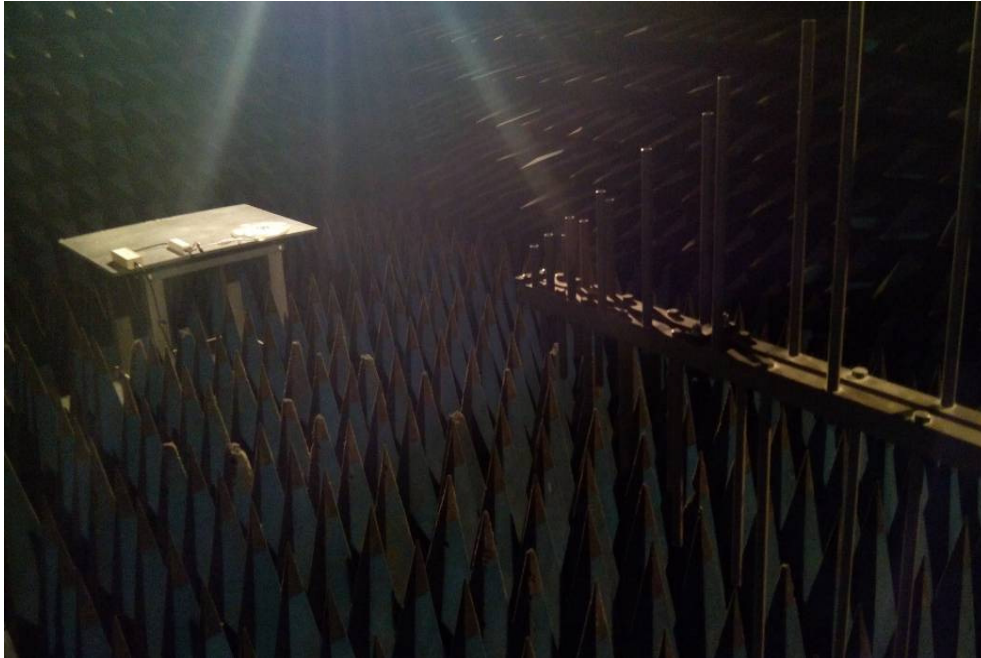
C-FR-F15B



C-FR- F16S



C-FR-F17D

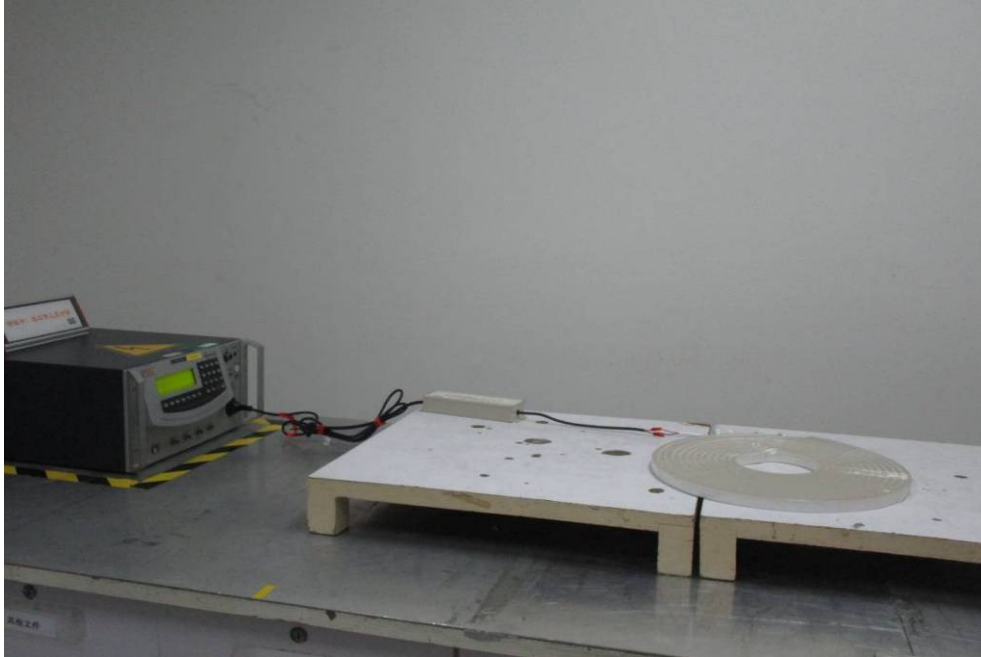


C-FR-F21A

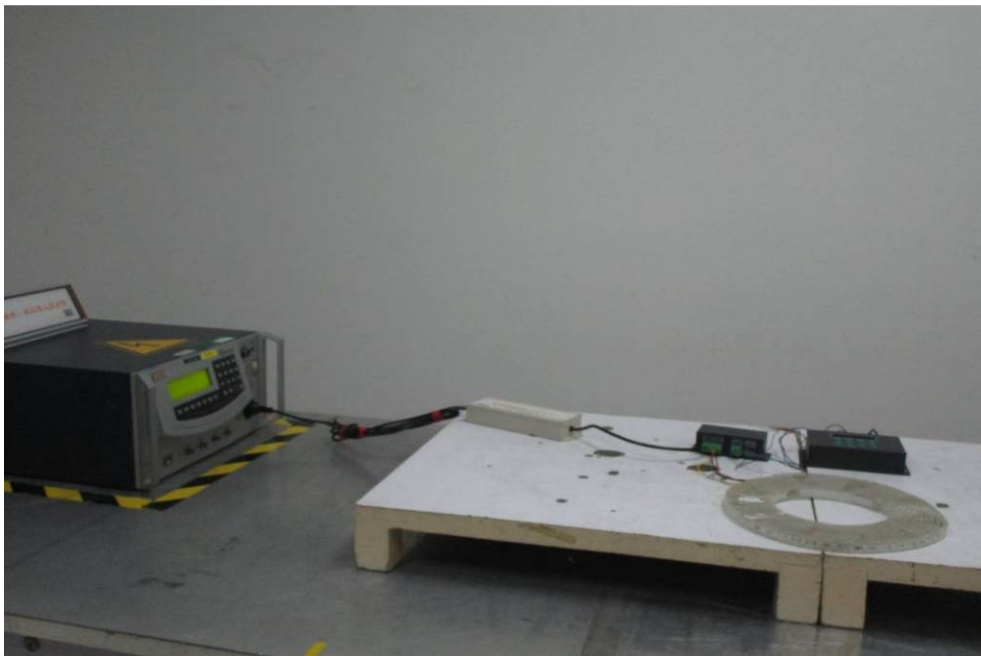


8.8 Electrical Fast Transients/Burst at Power Port Test Setup

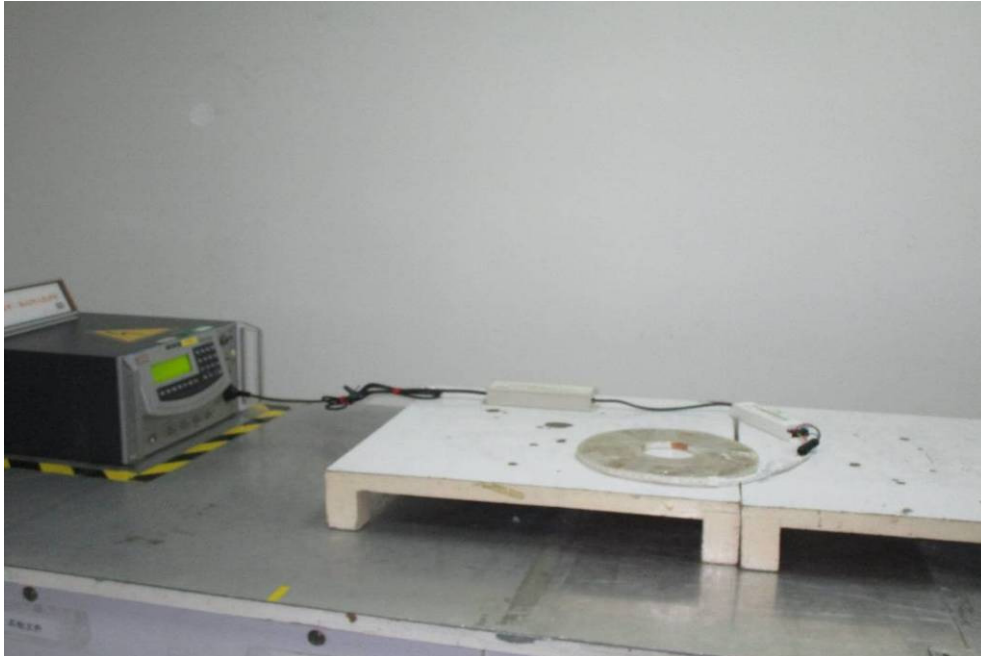
C-FR-F15B



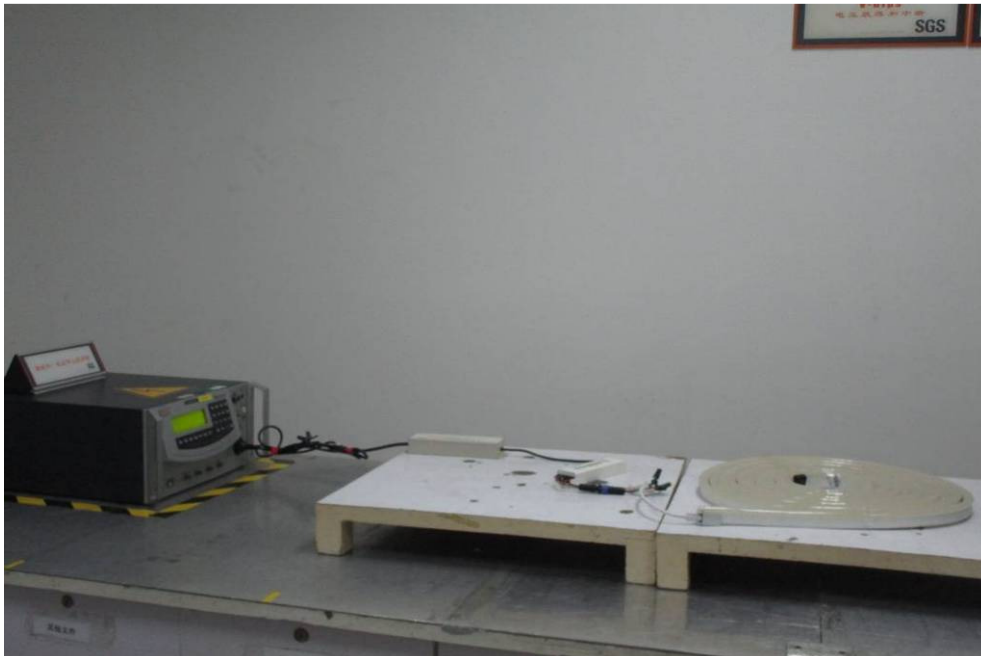
C-FR- F16S



C-FR-F17D

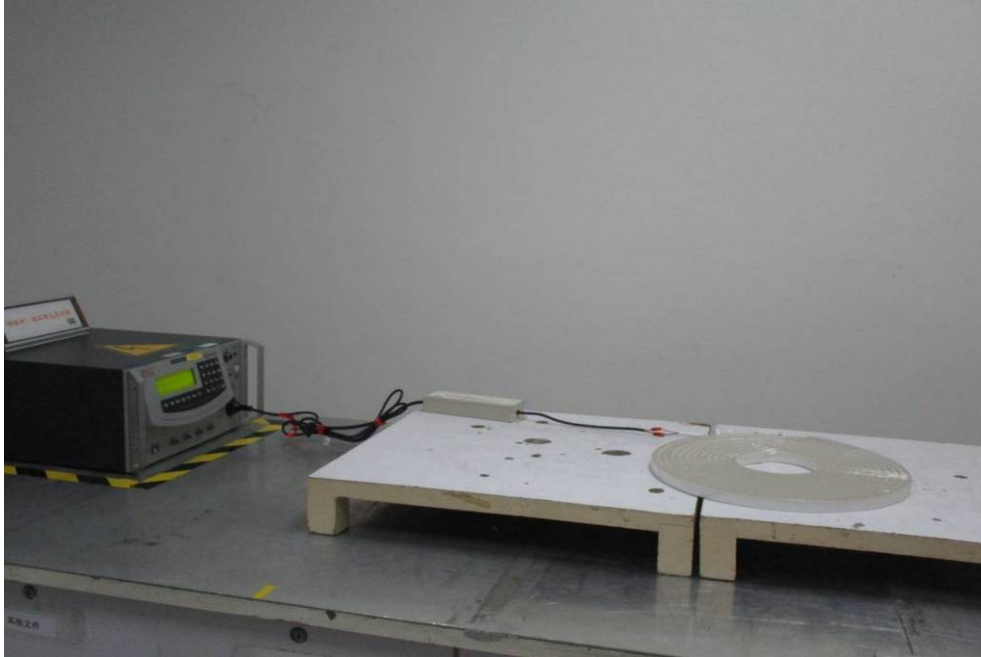


C-FR-F21A

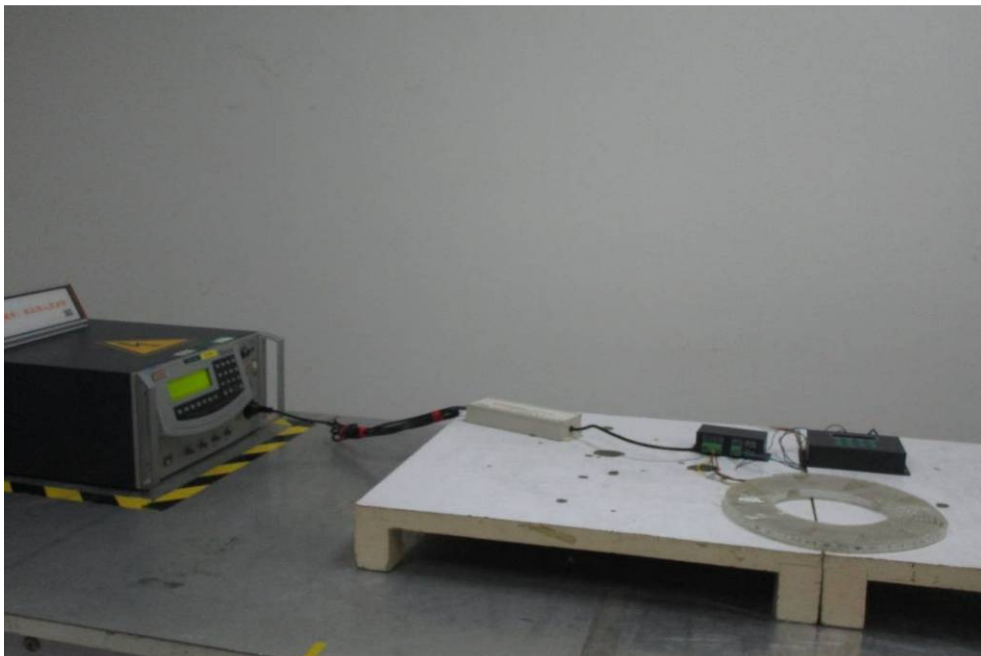


8.9 Surge at Power Port Test Setup

C-FR-F15B



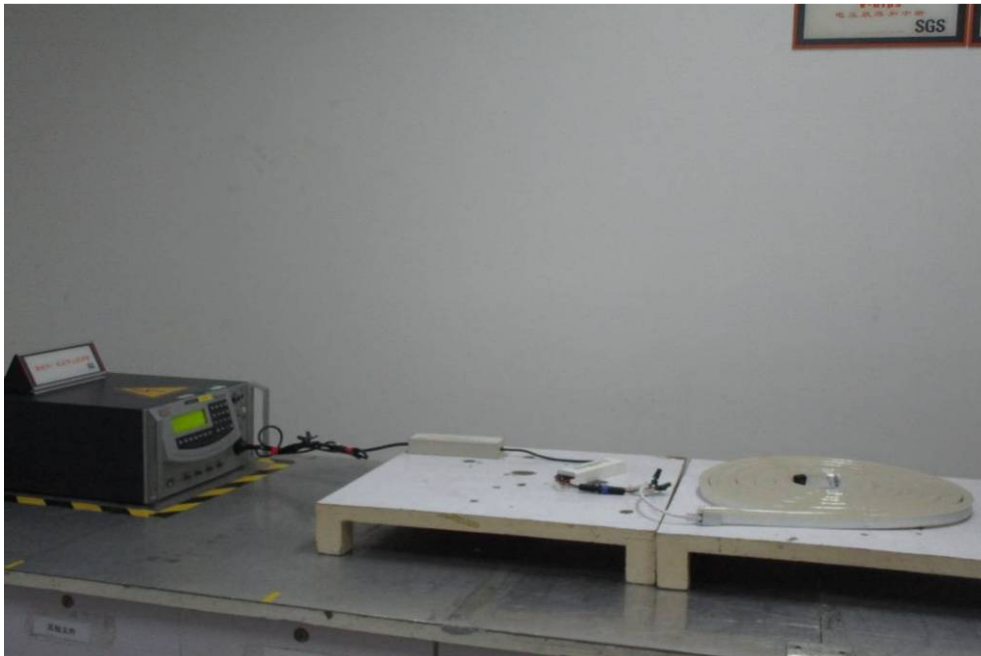
C-FR- F16S



C-FR-F17D



C-FR-F21A



8.10 Conducted Immunity at Power Port(150kHz-80MHz) Test Setup

C-FR-F15B



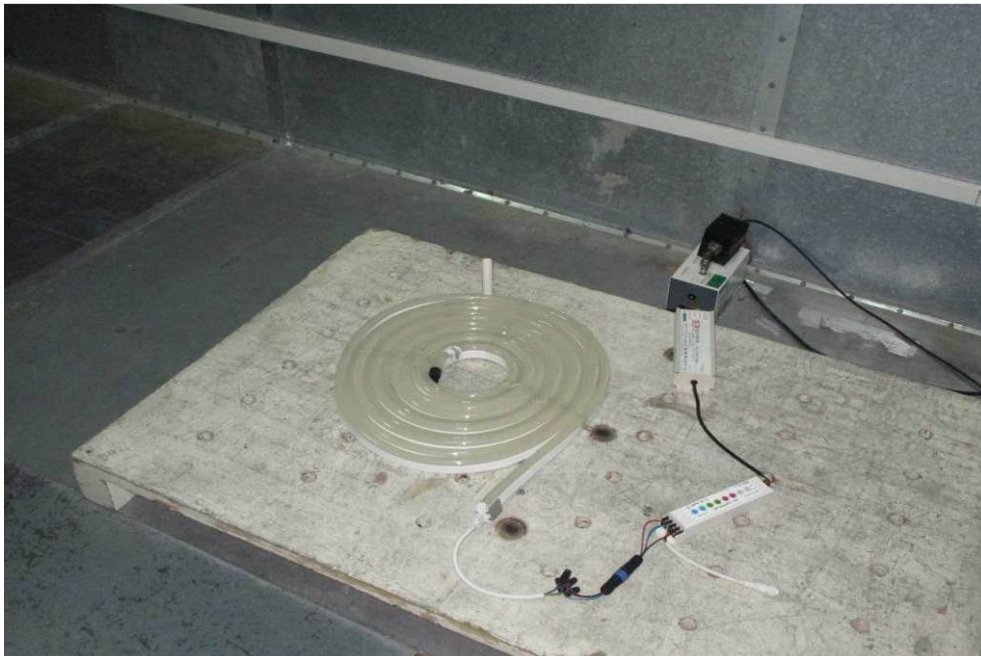
C-FR- F16S



C-FR-F17D

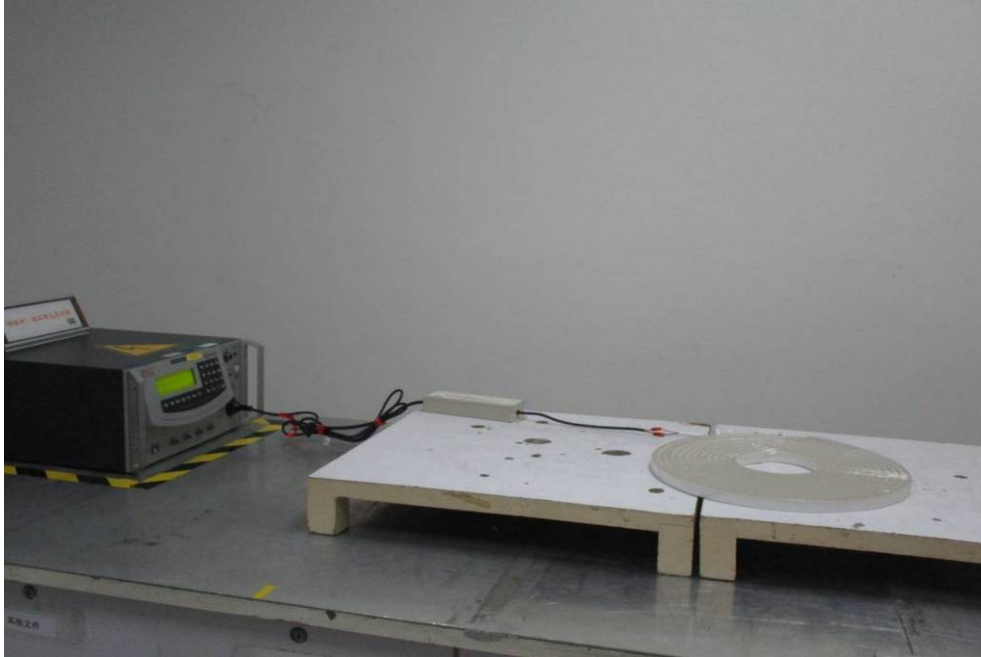


C-FR-F21A

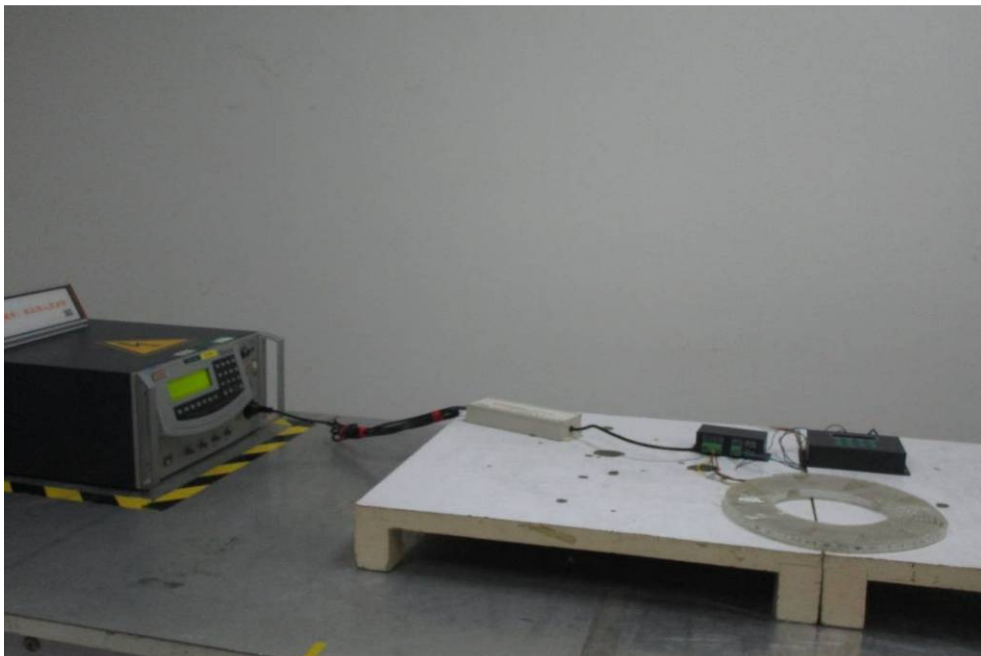


8.11 Voltage Dips and Interruptions Test Setup

C-FR-F15B



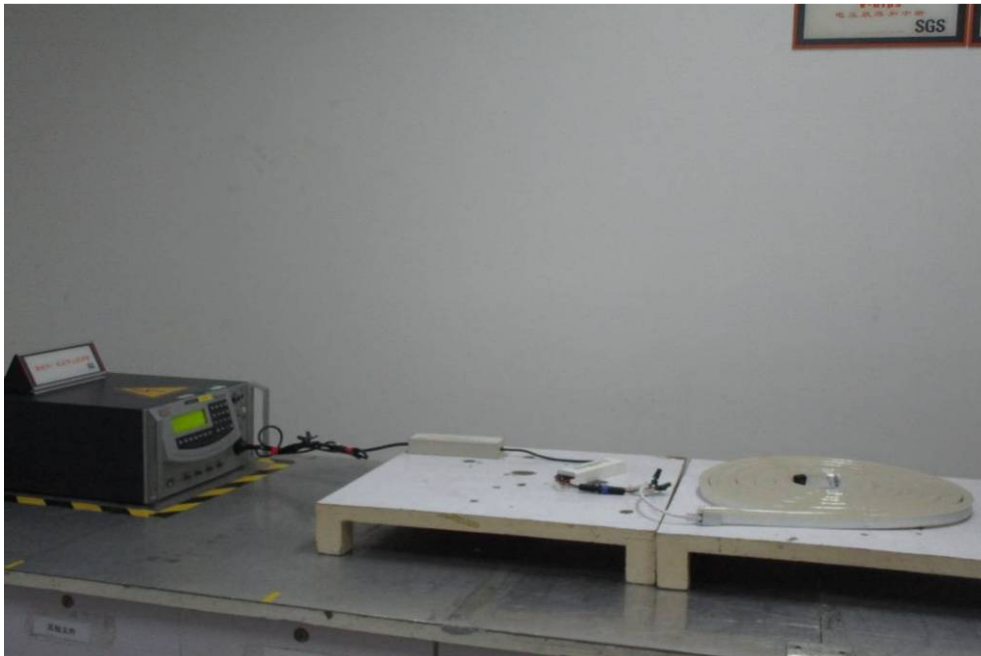
C-FR- F16S



C-FR-F17D



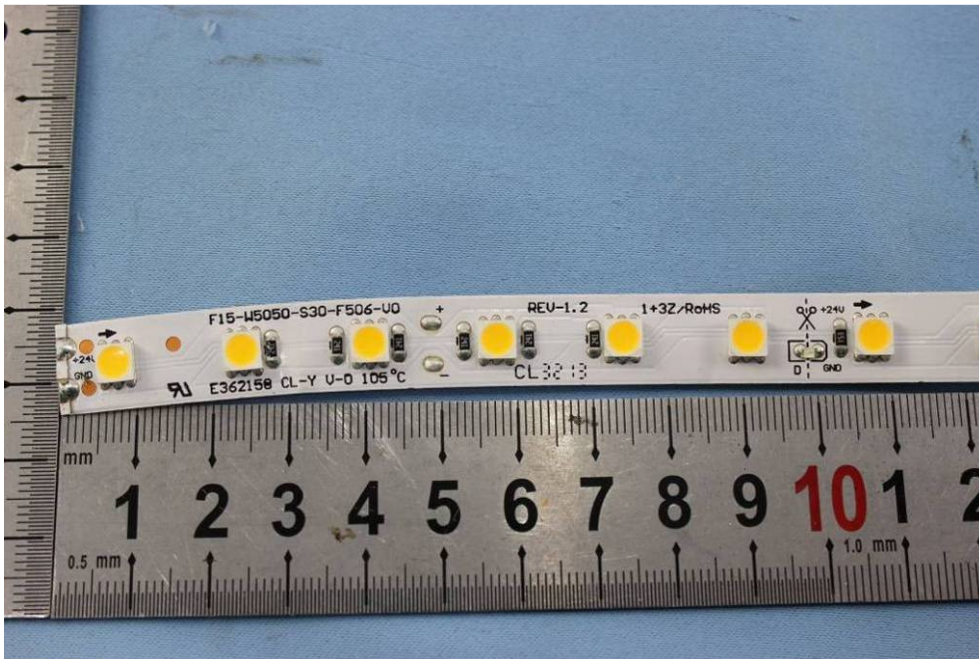
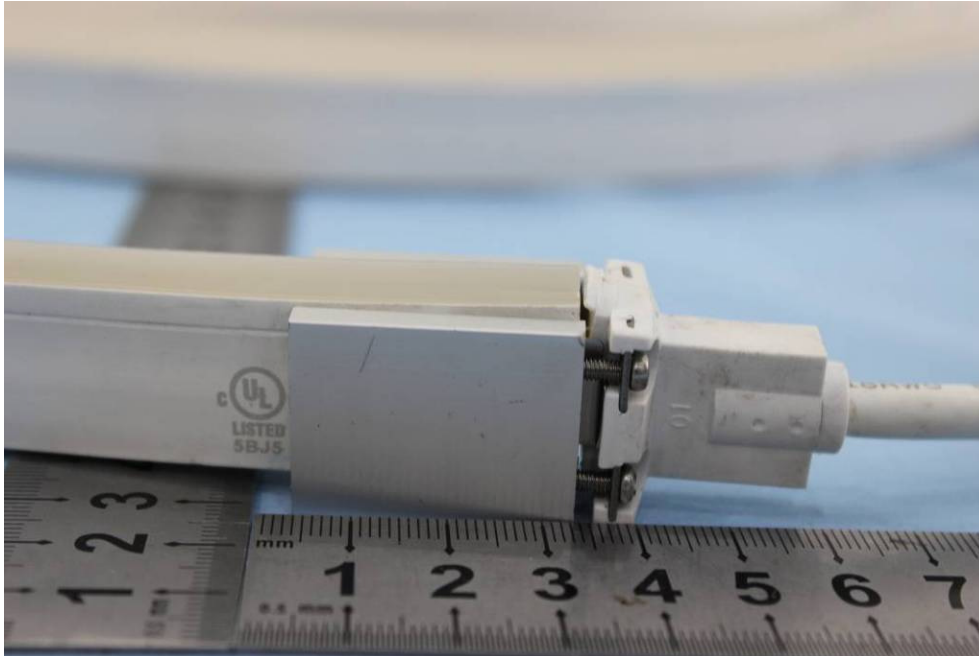
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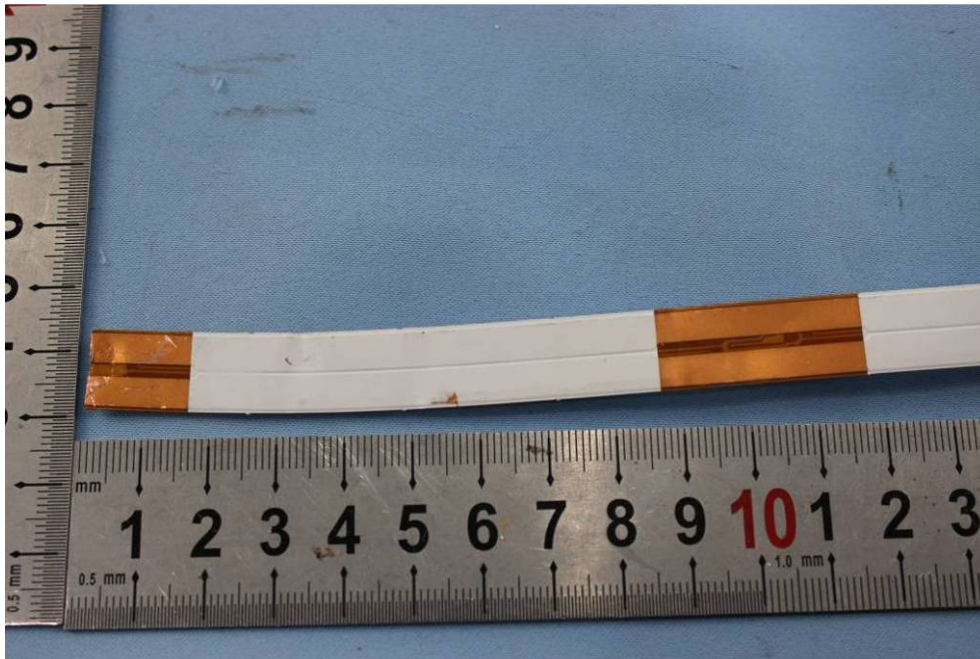


8.12 EUT Constructional Details

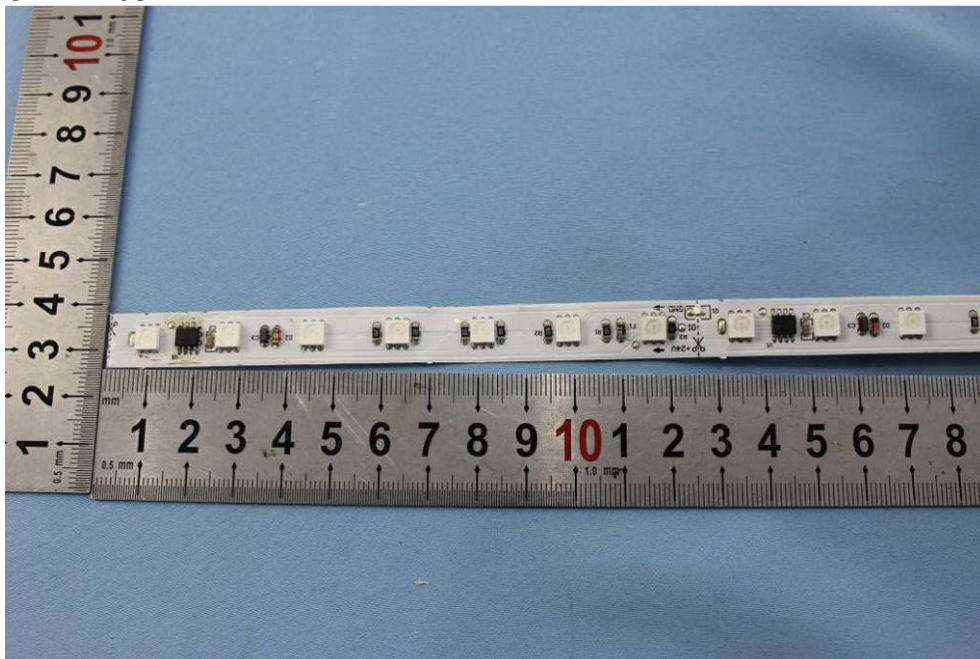


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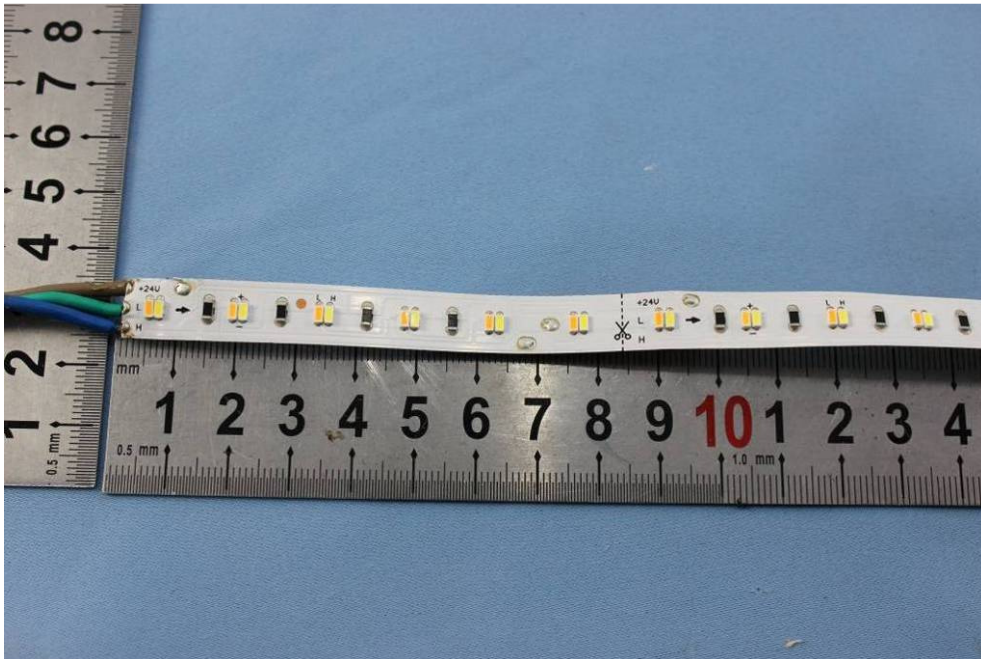


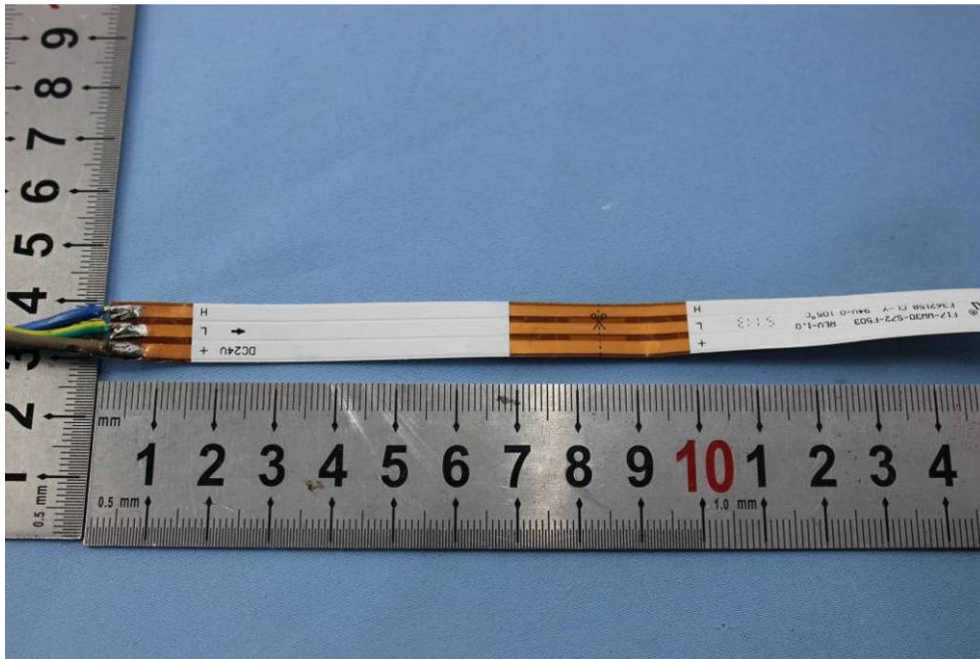
C-FR- F16S





C-FR-F17D





C-FR-F21A

