



CTK Co., Ltd.
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386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea

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EMC TEST REPORT For FCC

Test Report No. : 2009030005
Date of Issue : March 12, 2009
Model/Type No. : KCF-BG3HCOD and KCF-G3PVRX
FCC ID : WQT-KCF-BG3HCOD
Kind of Product : Digital Cable Broadcast Receiver
Applicant : KAONMEDIA Co., Ltd.
Applicant Address : KAONMEDIA Building, 513-4, Yatap-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
Manufacturer : KO-M TECH Co., Ltd.
Manufacturer Address : 772-7, Wonsi-dong, Danwon-gu, Ansan-si, Gyeonggi-do, Korea
Contact Person : SungMu-Oh / Senior Engineer / System Team
Telephone : +82-31-724-8873
Received Date : February 23, 2009
Test Date : March 11, 2009
Test Results : In Compliance Not in Compliance

The test results presented in this report relate only to the object tested.

Tested by

Eun-Won, Lee
EMC Test Engineer
Date: March 12, 2009

Reviewed by

James Hong
EMC Technical Manager
Date: March 12, 2009



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REPORT REVISION HISTORY

Date	Revision	Page No
March 12, 2009	Issued (2009030005)	All

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1.0 General Product Description

1.0.1 Tested Equipment

- Unless otherwise indicated, all tests were conducted on Model KCF-BG3HCOD.
- Tests performed on Model KCF-BG3HCOD were considered to be representative of Model(s) KCF-G3PVRX.

1.0.2 Equipment Size, Mobility and Identification

Dimensions: 400(W) by 60(H) by 300(D) mm inch
Mobility: Hand-held Table-top Built-in
 Traveling Floor-standing
Serial No.: Prototype

1.0.3 Electrical Ratings

AC ADAPTER	Input:	100-240 Vac, 50/60 Hz, 1.5 A
	Output:	12 Vdc, 5.0 A
EUT	Input:	12 Vdc
	Output:	-

1.0.4 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage: 120 Vac
Frequency: 60 Hz

1.0.5 Clock & Other Frequencies Utilized

12 MHz, 16 MHz, 25 MHz, 27 MHz, 54 MHz

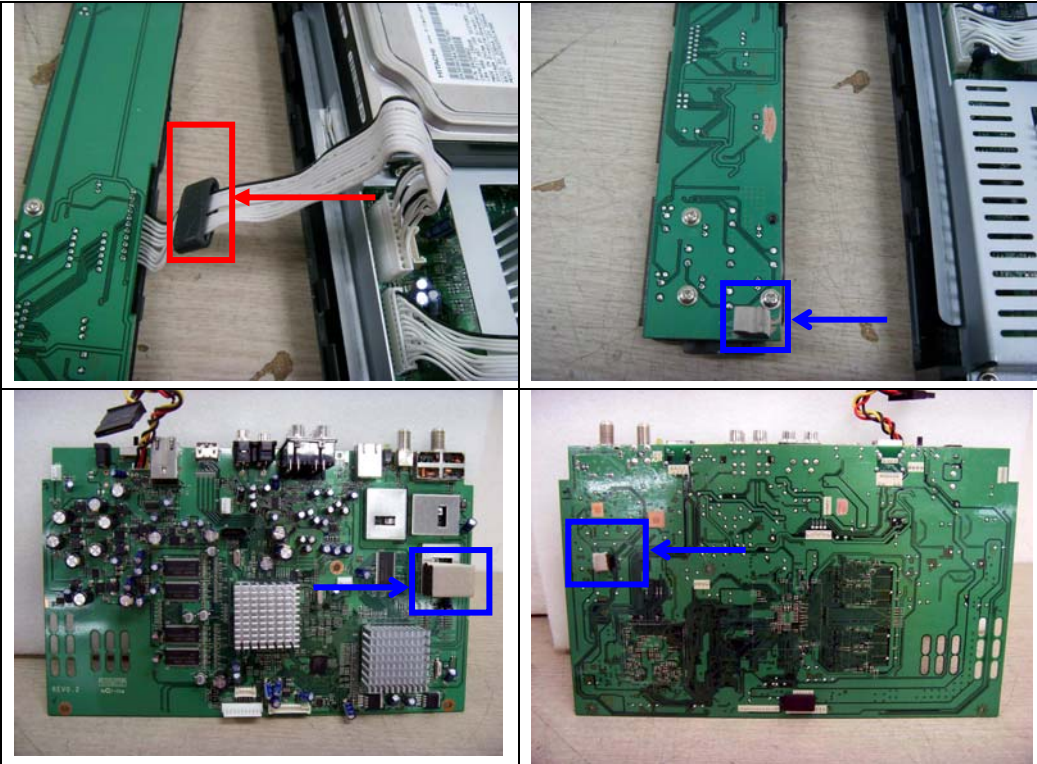
1.1 Model Differences



- KCF-BG3HCOD is basic model.
- The alternative model KCF-G3PVRX is same as model KCF-BG3HCOD except for software and enclosure's silk.

1.2 Device Modifications

The following modifications were necessary for compliance:

- The following modifications was applied by the applicant.



	<table border="1" data-bbox="558 1299 1212 1422"> <tr> <td>Manufacturer</td> <td>Core Name</td> </tr> <tr> <td>KUNSHAN CEC-FERRITE MANUFACTUREING CO, LTD</td> <td>JR700</td> </tr> </table>	Manufacturer	Core Name	KUNSHAN CEC-FERRITE MANUFACTUREING CO, LTD	JR700
Manufacturer	Core Name				
KUNSHAN CEC-FERRITE MANUFACTUREING CO, LTD	JR700				
	Gasket				



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1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

Peripheral Devices

Device	Manufacturer	Model No.	Serial No.	FCC ID or DoC
AC ADAPTER (For EUT)	LISHIN INTERNATIONAL ENTERPRISE CORP.	LSE9901B1260	A30833197987	-
LCD TV	SAMSUNG	LE19B450	-	-
Personal Computer	Conwins	DB-P73	BL5497DQ300027K	DoC
LCD Monitor	Lite-On Technology Corp.	VS17	CNN5130QMC	DoC
Keyboard(PS/2)	HEWLETT-PACKARD COMPANY	5219	BN50702141	DoC
Mouse(USB)	MICROSOFT CORPORATION	Optical Mouse USB/PS2 Compatible	69657-492-4974542-40420	DoC
USB Drive	BMK Technology Co., Ltd.	MemoRive	-	DoC

Cable Description

#	Description	Ferrite Core	Length (m)	Other Details
1	AC Power Cable, Unshielded	No	1.8	Connect to AC Power
2	DC IN Cable, Unshielded	Yes	1.5	Between the EUT and an AC ADAPTER
3	AC Power Cable, Unshielded	No	1.8	Connect to AC Power
4	YPbPr Cable, Unshielded	No	1.8	Between the EUT and a LCD TV
5	Audio Cable, Unshielded	No	1.8	Between the EUT and a LCD TV
6	S/PDIF Cable, Unshielded	No	1.8	Between the EUT and a LCD TV
7	Video Cable, Unshielded	No	1.8	Between the EUT and a LCD TV
8	Audio Cable, Unshielded	No	1.8	Between the EUT and a LCD TV
9	HDMI Cable, Shielded	No	2.0	Between the EUT and a LCD TV
10	Loop Out Cable, Shielded	No	1.8	Unterminated (only cable)
11	USB Cable, Unshielded	No	1.8	Unterminated (only cable)
12	RJ45 Cable, Unshielded	No	1.5	Unterminated (only cable)
13	ETHERNET Cable, Unshielded	No	2.5	Between the EUT and a Personal Computer
14	Keyboard Cable, Shielded	No	1.5	Connect to a Personal Computer
15	USB Mouse Cable, Shielded	Yes	1.5	Connect to a Personal Computer
16	D-SUB Cable, Shielded	Yes	1.8	Between a LCD Monitor and a Personal Computer
17	AC Power Cable, Unshielded	No	1.8	Connect to AC Power
18	AC Power Cable, Unshielded	No	1.8	Connect to AC Power
19	USB port	-	-	Between the EUT and a USB Drive
20	ANT IN Cable, Shielded	No	20.0	Connect to a TV Test Transmitter (Digital Signal - Out of the test sites)

1.4 Test Software

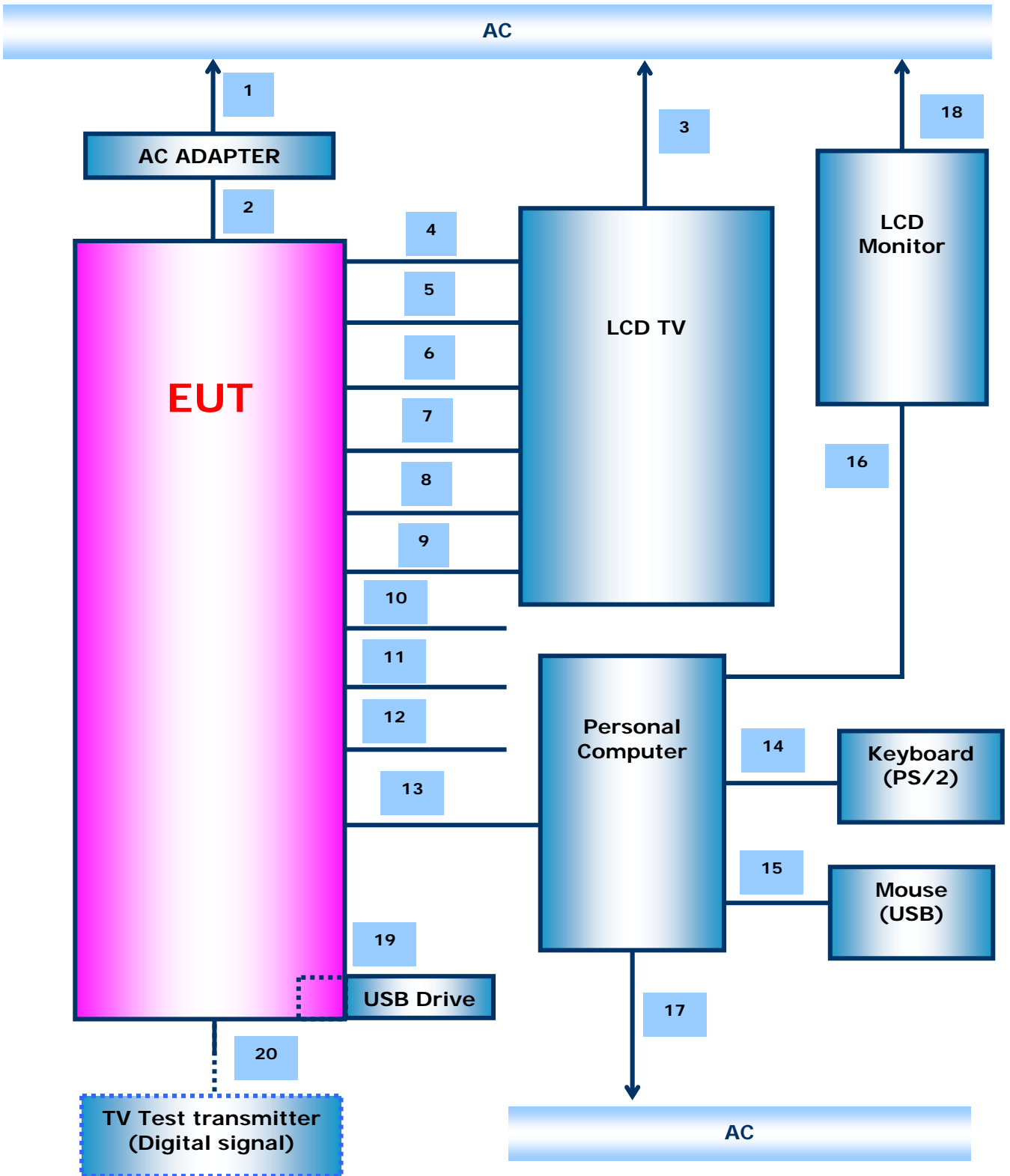
- EMC Test V 1.0
- Display Test Patterns – V1.5
- Ping.exe
- Not applicable

1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

- Standby
- Display circles pattern
- Practice operation – 1) Digital Cable Signal Receiving Mode
2) Ethernet Communication Mode
- Scrolling 'H'
- Read / Write

1.6 Configuration





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1.7 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.8 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.9 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested. Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test)
Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Open Area Test Site. Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-2003 7.2.3, 7.2.4, 8.3.1.1, 8.3.1.2



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1.10 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	 93250
JAPAN	VCCI	10 meter Open Area Test Site and one conducted site.	 R-948, C-986
KOREA	KCC	EMI (10 meter Open Area Test Site and two conducted sites) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 No. 51, KR0025
International	KOLAS	EMC	



2.0 Emissions Test Regulations

The emissions tests were performed according to following regulations:

- | | | |
|--|--|--|
| <input type="checkbox"/> EN 61000-6-3:2007 | | |
| <input type="checkbox"/> EN 61000-6-4:2007 | | |
| <input type="checkbox"/> EN 55011:2007 +A2:2007 | <input type="checkbox"/> Group 1
<input type="checkbox"/> Class A | <input type="checkbox"/> Group 2
<input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55013:2001 +A1:2003 +A2:2006 | | |
| <input type="checkbox"/> EN 55014-1:2006 | | |
| <input type="checkbox"/> EN 55015:2006 | | |
| <input type="checkbox"/> EN 61204-3:2000 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 61131-2:2003 | | |
| <input type="checkbox"/> EN 61326-1:2006 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55022:2006 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 61000-3-2:2006 | | |
| <input type="checkbox"/> EN 61000-3-3:1995 +A1:2001 +A2:2005 | | |
| <input type="checkbox"/> VCCI V-3/2008.04 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS CISPR22:2006 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> FCC Part 15 Subpart B | <input type="checkbox"/> Class A | <input checked="" type="checkbox"/> Class B |
| <input type="checkbox"/> CISPR 22:2006 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |



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2.1 Conducted Voltage Emissions

Test Date

March 11, 2009

Test Location

Shielded Room

Test Equipment

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
<input type="checkbox"/>	Field Strength Meter	Rohde & Schwarz	ESHS30	828144/002	2010-02-27
<input type="checkbox"/>	LISN	EMCO	3825/2	9607-2575	2009-08-19
<input type="checkbox"/>	LISN	EMCO	3825/2	9409-2246	2009-08-19
<input checked="" type="checkbox"/>	Field Strength Meter	Rohde & Schwarz	ESHS30	862024/001	2010-03-04
<input checked="" type="checkbox"/>	LISN	Rohde & Schwarz	ESH3-Z5	100207	2009-12-12
<input checked="" type="checkbox"/>	LISN	EMCO	3825/2	9206-1971	2009-12-12

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Procedures

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

Test Results

The requirements are:

MET

Frequency (MHz)	Measured Data (dBuV)	Margin (dB)	Remark
24.23	41.7	8.3	Average

NOT MET

Frequency (MHz)	Measured Data (dBuV)	Margin (dB)	Remark

NOT APPLICABLE

Remarks

See Appendix A for test data.



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2.2 Radiated Electric Field Emissions

Test Date

March 11, 2009

Test Location

Testing was performed at a test distance of 3 meter Open Area Test Site

Test Equipment

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
<input checked="" type="checkbox"/>	Field Strength Meter	Rohde & Schwarz	ESVS30	826638/008	2009-06-10
<input checked="" type="checkbox"/>	ULTRA Broadband Antenna	Rohde & Schwarz	HL562	361324/014	2010-06-20
<input type="checkbox"/>	Biconical Antenna	EMCO	3110	9202-1510	2010-05-07
<input type="checkbox"/>	Log-periodic Antenna	EMCO	3146	9607-4567	2010-05-07

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Procedures

The height of the measuring antenna was varied between 1 to 4 m and the table was rotated a full revolution in order to obtain maximum values of the electric field intensity. The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

Measurements were performed with a quasi-peak detector.

Test Results

The requirements are:

MET

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
799.99	42.1	3.9	Quasi-peak

NOT MET

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark

NOT APPLICABLE

Remarks

See Appendix A for test data



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APPENDIX A – TEST DATA

Conducted Voltage Emissions

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
	LISN	Cable		Limit	Reading	Result	Margin	Limit	Reading	Result	Margin
				[dBuV]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]
0.15	0.1	0.2	N	66.0	44.1	44.4	21.6	56.0	12.1	12.4	43.6
0.16	0.1	0.2	N	65.5	43.0	43.3	22.2	55.5	9.4	9.7	45.8
0.18	0.1	0.2	N	64.5	52.9	53.2	11.3	54.5	40.1	40.4	14.1
0.24	0.1	0.2	N	62.1	43.9	44.2	17.9	52.1	32.9	33.2	18.9
24.23	1.0	0.5	H	60.0	44.5	46.0	14.0	50.0	40.2	41.7	8.3
26.10	1.0	0.4	H	60.0	40.4	41.8	18.2	50.0	28.6	30.0	20.0

H : HOT, N : NEUTRAL



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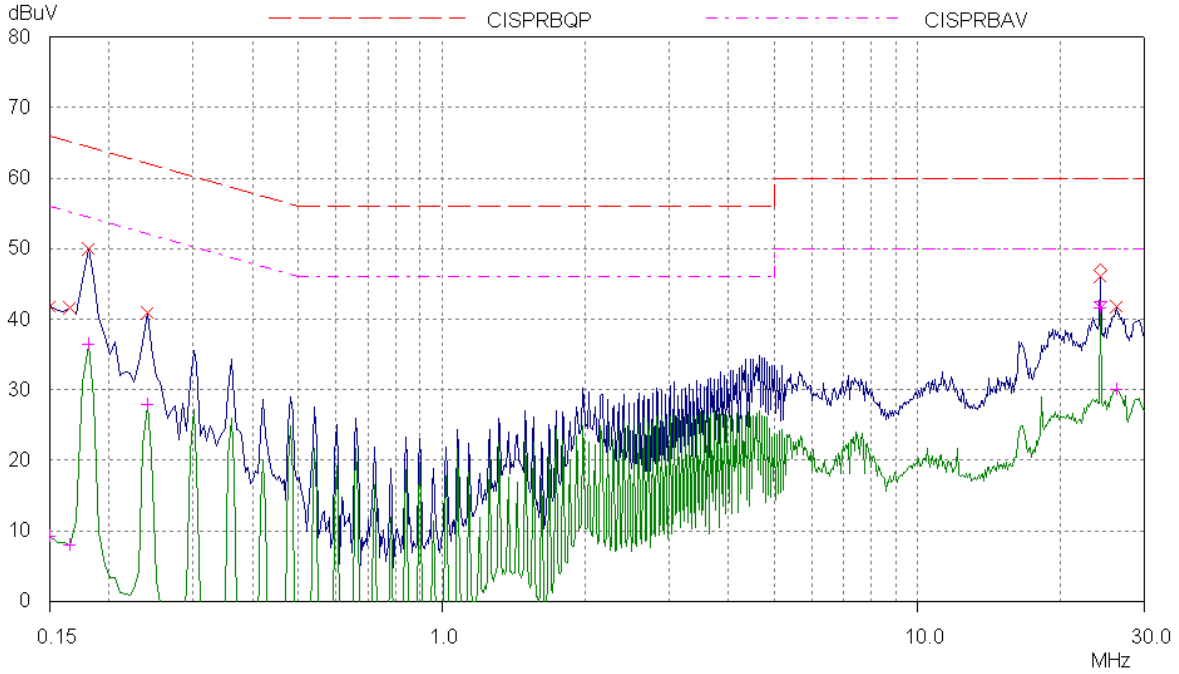
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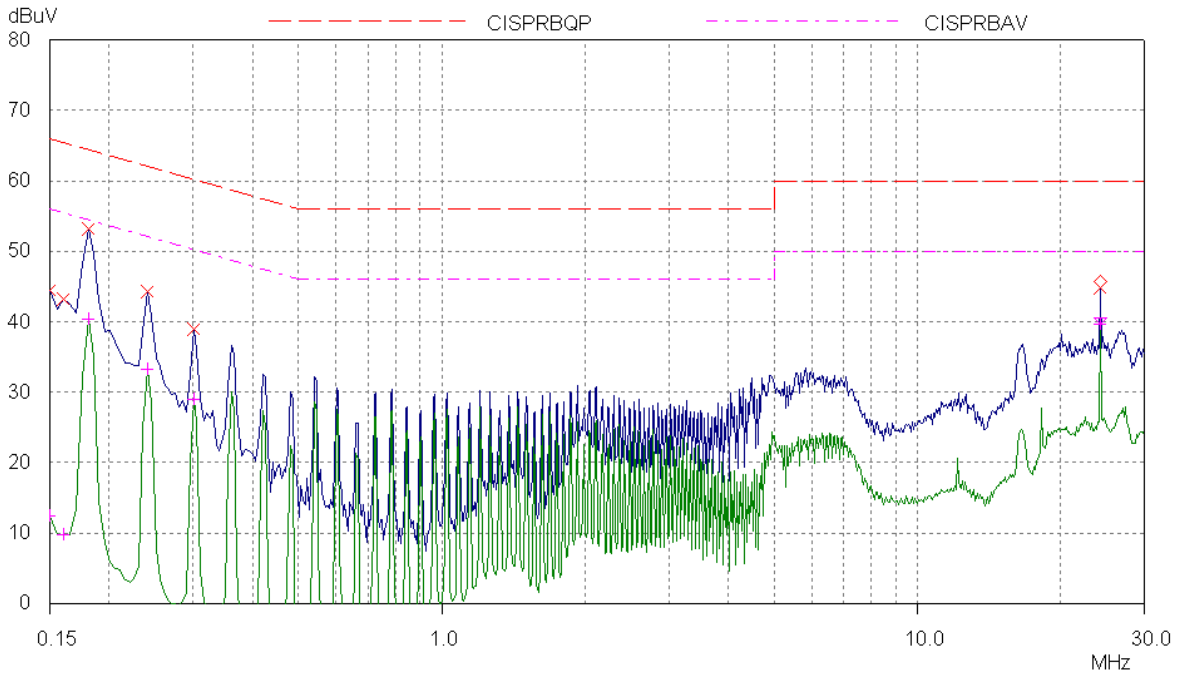
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[HOT]



[NEUTRAL]





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Radiated Electric Field Emissions

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Cable			
429.00	23.5	H	1.0	14.1	3.0	46.0	41.3	4.7
459.00	21.5	V	1.1	14.7	3.2	46.0	39.4	6.6
459.00	23.3	H	1.5	14.7	3.2	46.0	41.2	4.8
562.54	19.1	H	1.0	16.4	3.8	46.0	39.3	6.7
799.99	15.0	H	1.2	19.7	4.4	46.0	39.1	6.9
799.99	18.0	V	1.0	19.7	4.4	46.0	42.1	3.9

H : Horizontal, V : Vertical