JVCKENWOOD TECHNOLOGIES SINGAPORE PTE LTD

EMC TEST REPORT

Reference - No.: 20CE-J07

R&D	
Approved by	**Measured by**
R&D STAFF ENG 17Sep19 08:31 ADRIAN TAN	R&D ELECTRICAL 16Sep19 11:02 SARAH

Date of Issue: 16-Sep-19

1 Category: DMR DAB

2 EUT Model: KD-X472DBT

3 Type: E Stage: PP

4 Serial Number
(1) 134X0057 (2) (3)

JKTS Model Grouping List

Type	KWD Model Grouping	Remark(s)
-	-	-

5 Comments: Kindly refer to Yokohama's lab report for EN55032 and EN55035.

6 Measurement Result: Margin √ >5dB

7 **EMC Measurement Standard**

	EMC Regulation	Disturbance Voltage at Antenna Terminal	Radiated Emission (1 Meter)	Radiated Emission (3 Meter)	Conducted Emission & Immunity (Transient)	Immunity ESD
	FCC Part 15 Subpart. B (US : FCC) ICES 003 Class B					
O	AS/NZS (CISPR 32) (Aust: RCM Mark)	O Refer to Yokohama lab report		O Refer to Yokohama lab report		
	CISPR 32 (Asia & others)					
	EN55032 : 2012 + AC: 2013 / Class B (EAC)					
O	EN50498 : 2010 (Europe : CE)		O P2-P10		O P11-P21	
	EN55035					Refer to Yokohama lab report
	CNS13439 (Taiwan: BSMI)					
	KN20*, KN32 & KN41 (Korea : KC)					

Test Matrix Table for Disturbance Radiation (1 Meter)

Model Name:	KD-X472DBT
Stage:	PP
Serial No:	134X0057
Measured by:	SARAH
Date:	12-Sep-19
Condition:	APPLICATION
Standard:	EN50498

Media used:

DVD / CD Disc:	-
USB device:	EMC-3 SanDisk Ultra USB 3.0 Flash Drive
USB cable:	CA-U1EX USB cable
iPod device:	ITOUCH 6 (G057-00)
iPod cable:	ITOUCH 6 ORIGNAL WHITE CABLE
SD Card:	-
Bluetooth:	ITOUCH 6

DAB Tuner Media	USB (FM98MHz)	USB (BAND III:9D)			
Record:	**O**	**O**			
DAB Media: **Worst mode:CD (Band III: 9D)**	BT (BAND III : 5A)	ITOUCH(Band III: 13F)	AM531kHz	FM88MHz	FM108MHz
Record:	**O**	**O**	**O**	**O**	**O**
CD / DVD / SD Media:	CTS1000 (Tr.1, 1kHz)	TDVP-501 (T2 C2, Colorbar w/ 1kHz))	*SD (Tr.1, 1kHz)		
Record:					
Other Media:	†2 iPOD / iTOUCH PlayBack	USB PlayBack	BT(playback)		
Record:					
FRONT Media	Front USB (Rear BT)	Front BT (Rear iTouch)	Front iTouch (Rear BT)	Front iPod Video(Rear BT)	
Record:					
REAR Media	Rear USB (Front BT)	Rear BT (Front iPod Video)	Rear iTouch (Front BT)	Rear iPod Video(Front BT)	
Record:					

•All video playback are using color bar with 1kHz tone.

Note:

KCA-iP22F / KS-U30 / KCA-iP202 video cable used **ONLY** on JVC & KENWOOD MM model.

1) iTouch is used for measurement setup and BT pairing.

2) For EUT with Dual USB(1 & 2)ports, thumbdrive is connected without extension cable.

3) Measurement setup for USB ports is **only applicable on Tuner / CD / DVD / SD source** as follows:

Single USB port termination: iTouch (iPOD ready models), else USB thumbdrive

Dual USB ports termination: Front or Rear USB 1 → iTouch , Rear or Rear USB 2 → BT Dongle

* **SD Card and Disc** must be taken out when checking for Tuner Media & Other Media.

†2 For **JVC** "iPod USB" Measurement, iPod / iTouch device must be connected **using Apple's USB cable.**

†2 For **KENWOOD** "iPod USB" Measurement, iPod / iTouch cable connected **using KWD black USB cable**.

Remark: For models that supports AV-USB connection, ipod unit is used as the playback source.

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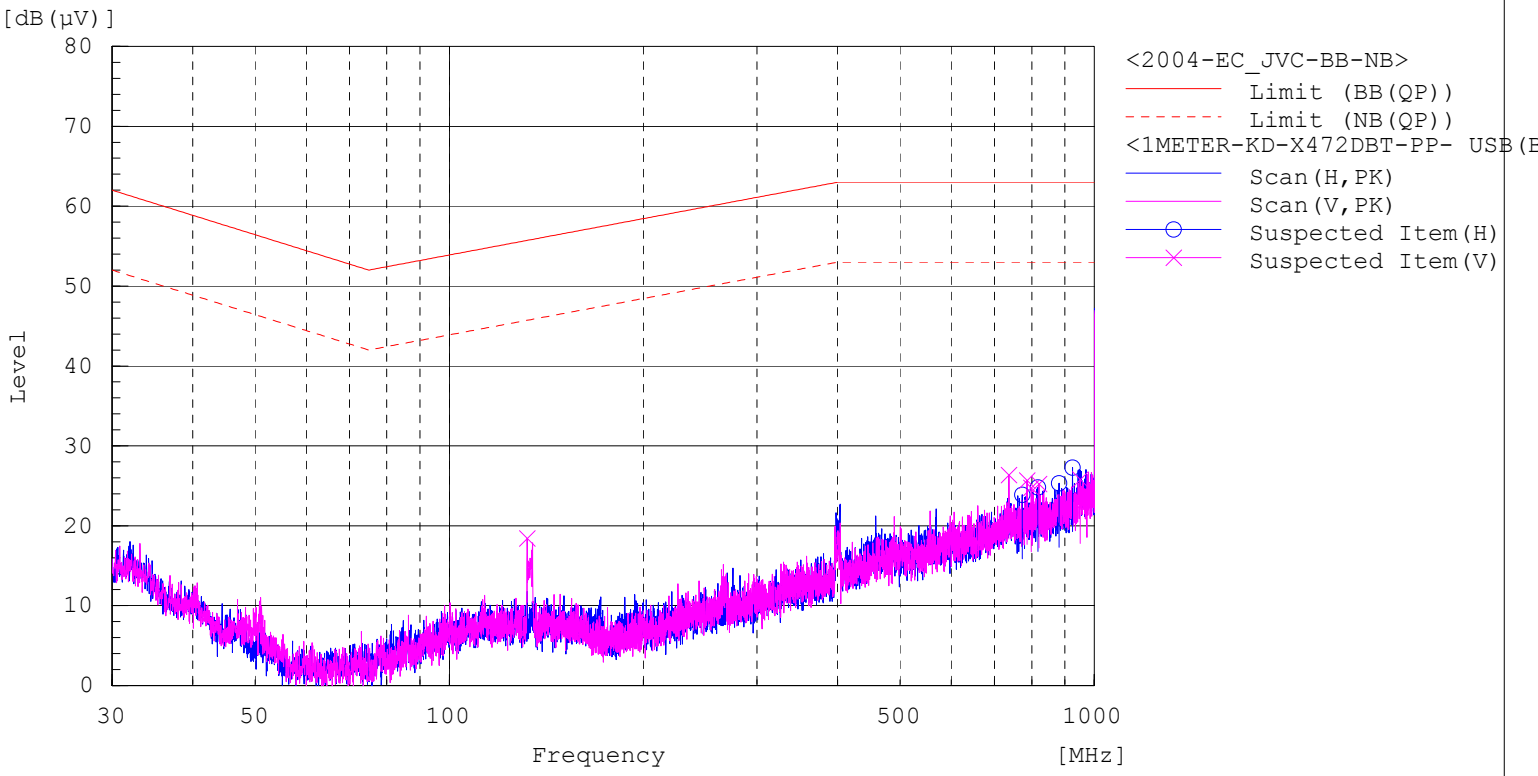
EMC TEST SITE

<<Radiated Electromagnetic Emissions (1m)>> 12 September,2019 17:03
1METER-KD-X472DBT-PP- USB(BG FM98MHz).dat

Model Name : KD-X472DBT
Serial No. : 134X0057
Description : DIGITAL MEDIA RECEIVER
Tester : SARAH
Power Supply : DC 12V

Standard : EN50498
Temp./Humi. : 25 deg C / 44 %
Source : USB (BACKGROUND : FM98MHz)
Stage : PP
:



Spectrum Selection

No.	Frequency [MHz]	(P)	Reading [dB(µV)]	c.f [dB]	Result PK [dB(µV)]	Limit BB(QP) [dB(µV)]	Limit NB(QP) [dB(µV)]	Margin BB(QP) [dB]	Margin NB(QP) [dB]
1	925.080	H	28.6	-1.3	27.3	63.0	53.0	35.7	25.7
2	737.245	V	31.1	-4.7	26.4	63.0	53.0	36.6	26.6
3	950.532	V	26.2	-0.4	25.8	63.0	53.0	37.2	27.2
4	132.050	V	34.7	-16.3	18.4	55.7	45.7	37.3	27.3
5	786.371	V	29.4	-3.7	25.7	63.0	53.0	37.3	27.3
6	881.448	H	27.5	-2.2	25.3	63.0	53.0	37.7	27.7
7	820.630	V	28.4	-3.2	25.2	63.0	53.0	37.8	27.8
8	817.398	H	28.1	-3.3	24.8	63.0	53.0	38.2	28.2
9	798.653	V	28.3	-3.5	24.8	63.0	53.0	38.2	28.2
10	773.120	H	27.8	-3.9	23.9	63.0	53.0	39.1	29.1

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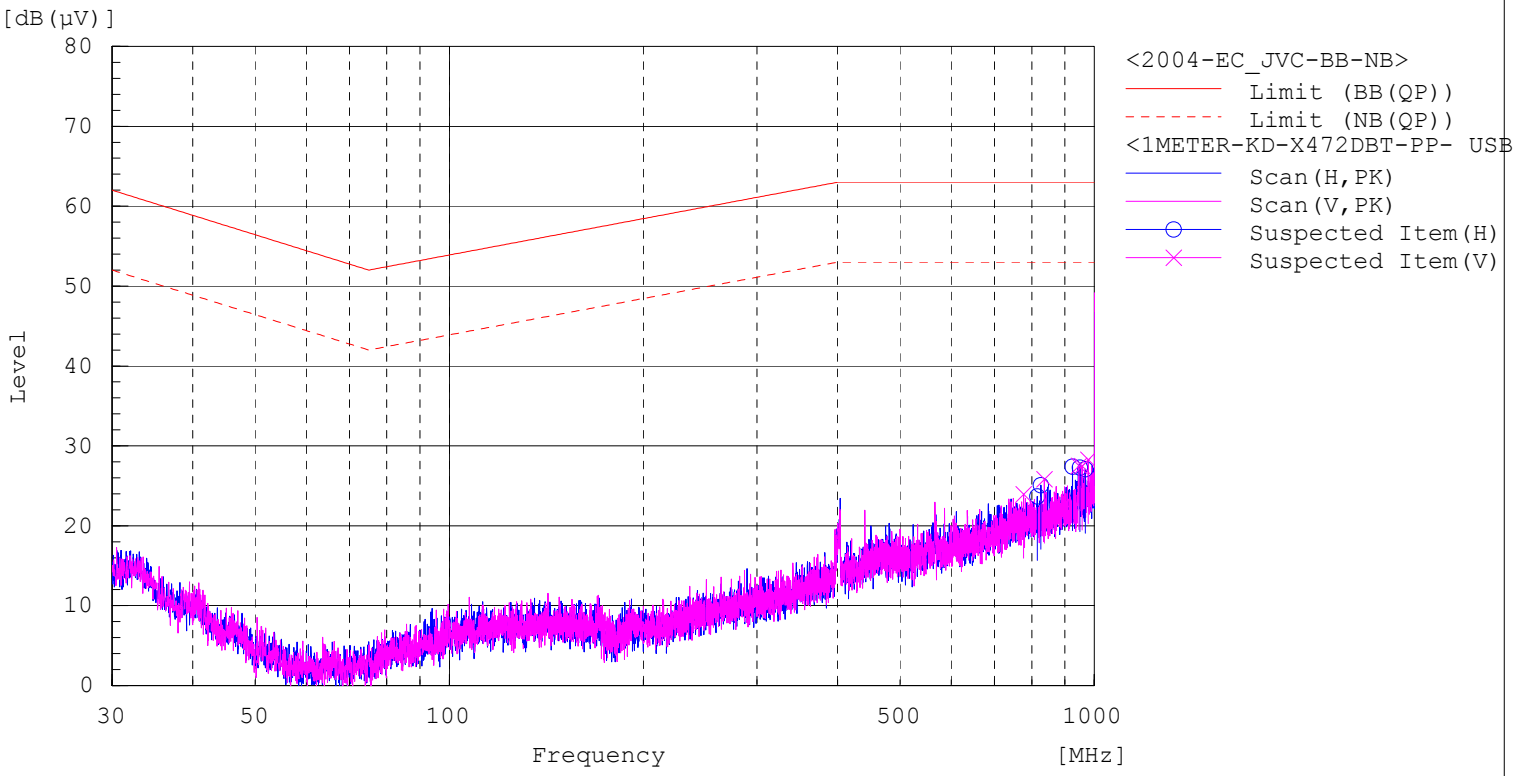
<<Radiated Electromagnetic Emissions (1m)>> 12 September,2019 17:14
1METER-KD-X472DBT-PP- USB(BG BAND III 9D).dat

Model Name : KD-X472DBT
Serial No. : 134X0057
Description : DIGITAL MEDIA RECEIVER
Tester : SARAH
Power Supply : DC 12V

Standard : EN50498
Temp./Humi. : 25 deg C / 44 %
Source : USB (BACKGROUND : BAND III 9D)
Stage : PP
:



Spectrum Selection

No.	Frequency [MHz]	(P)	Reading [dB(µV)]	c.f [dB]	Result PK [dB(µV)]	Limit BB(QP) [dB(µV)]	Limit NB(QP) [dB(µV)]	Margin BB(QP) [dB]	Margin NB(QP) [dB]
1	978.893	V	27.8	0.5	28.3	63.0	53.0	34.7	24.7
2	946.169	V	28.0	-0.5	27.5	63.0	53.0	35.5	25.5
3	957.804	V	27.6	-0.1	27.5	63.0	53.0	35.5	25.5
4	925.080	H	28.7	-1.3	27.4	63.0	53.0	35.6	25.6
5	949.442	H	27.7	-0.4	27.3	63.0	53.0	35.7	25.7
6	968.712	H	26.9	0.2	27.1	63.0	53.0	35.9	25.9
7	836.726	V	28.9	-3.0	25.9	63.0	53.0	37.1	27.1
8	826.545	H	28.3	-3.2	25.1	63.0	53.0	37.9	27.9
9	776.998	V	27.7	-3.8	23.9	63.0	53.0	39.1	29.1
10	815.782	H	27.0	-3.3	23.7	63.0	53.0	39.3	29.3

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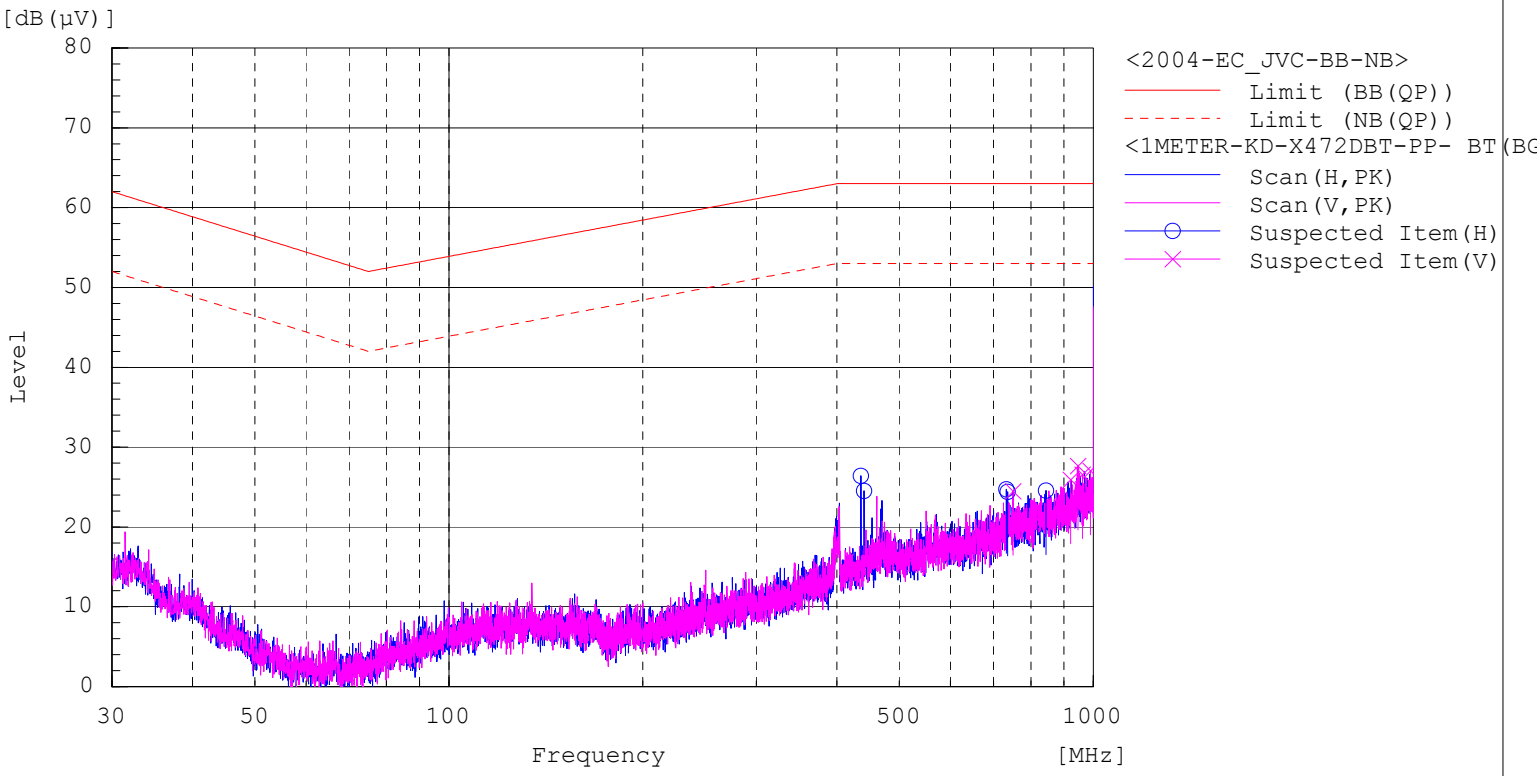
<<Radiated Electromagnetic Emissions (1m)>> 12 September,2019 17:26
1METER-KD-X472DBT-PP- BT(BG BAND III 5A).dat

Model Name : KD-X472DBT
Serial No. : 134X0057
Description : DIGITAL MEDIA RECEIVER
Tester : SARAH
Power Supply : DC 12V

Standard : EN50498
Temp./Humi. : 25 deg C / 44 %
Source : BLUETOOTH(BACKGROUND : BAND III 5A)
Stage : PP
:



Spectrum Selection

No.	Frequency [MHz]	(P)	Reading [dB(µV)]	c.f [dB]	Result PK [dB(µV)]	Limit BB(QP) [dB(µV)]	Limit NB(QP) [dB(µV)]	Margin BB(QP) [dB]	Margin NB(QP) [dB]
1	946.169	V	28.1	-0.5	27.6	63.0	53.0	35.4	25.4
2	989.438	V	26.4	0.7	27.1	63.0	53.0	35.9	25.9
3	962.168	V	26.6	0.0	26.6	63.0	53.0	36.4	26.4
4	435.875	H	35.9	-9.5	26.4	63.0	53.0	36.6	26.6
5	922.172	V	27.3	-1.4	25.9	63.0	53.0	37.1	27.1
6	733.043	H	29.5	-4.8	24.7	63.0	53.0	38.3	28.3
7	844.725	H	27.4	-2.9	24.5	63.0	53.0	38.5	28.5
8	440.966	H	33.9	-9.4	24.5	63.0	53.0	38.5	28.5
9	750.496	V	28.9	-4.4	24.5	63.0	53.0	38.5	28.5
10	736.598	H	29.1	-4.7	24.4	63.0	53.0	38.6	28.6

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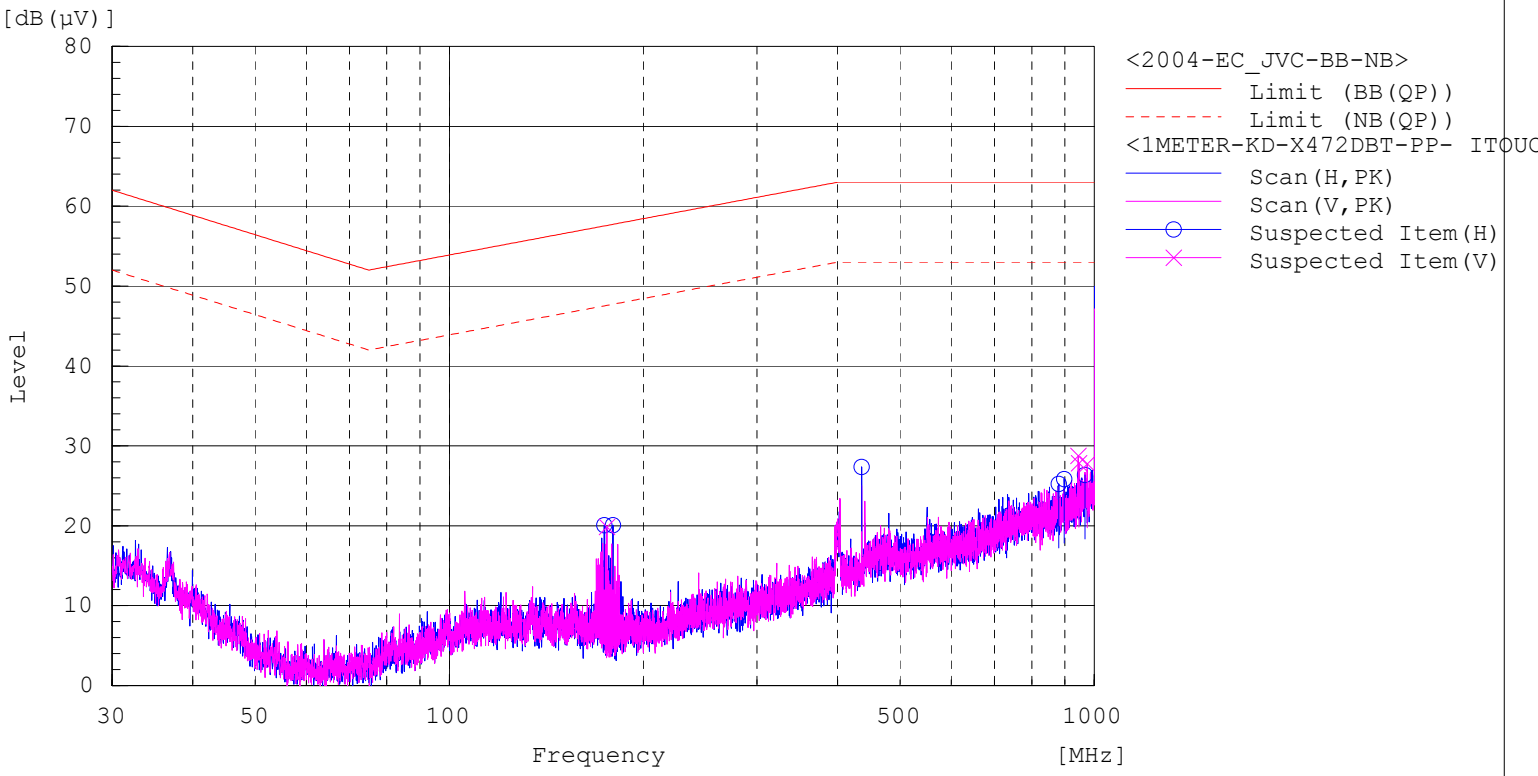
<<Radiated Electromagnetic Emissions (1m)>> 12 September,2019 17:37
1METER-KD-X472DBT-PP- ITOUCH(BG BAND III 13F).dat

Model Name : KD-X472DBT
Serial No. : 134X0057
Description : DIGITAL MEDIA RECEIVER
Tester : SARAH
Power Supply : DC 12V

Standard : EN50498
Temp./Humi. : 25 deg C / 44 %
Source : ITOUCH(BACKGROUND : BAND III 13F)
Stage : PP
:



Spectrum Selection

No.	Frequency [MHz]	(P)	Reading [dB(µV)]	c.f [dB]	Result PK [dB(µV)]	Limit BB(QP) [dB(µV)]	Limit NB(QP) [dB(µV)]	Margin BB(QP) [dB]	Margin NB(QP) [dB]
1	943.988	V	29.4	-0.6	28.8	63.0	53.0	34.2	24.2
2	946.533	V	28.3	-0.5	27.8	63.0	53.0	35.2	25.2
3	974.894	V	27.4	0.4	27.8	63.0	53.0	35.2	25.2
4	435.875	H	36.9	-9.5	27.4	63.0	53.0	35.6	25.6
5	967.258	H	26.2	0.2	26.4	63.0	53.0	36.6	26.6
6	898.538	H	27.7	-1.9	25.8	63.0	53.0	37.2	27.2
7	173.838	H	38.0	-17.9	20.1	57.5	47.5	37.4	27.4
8	179.281	H	38.2	-18.1	20.1	57.7	47.7	37.6	27.6
9	175.464	V	37.9	-18.0	19.9	57.6	47.6	37.7	27.7
10	880.721	H	27.4	-2.2	25.2	63.0	53.0	37.8	27.8

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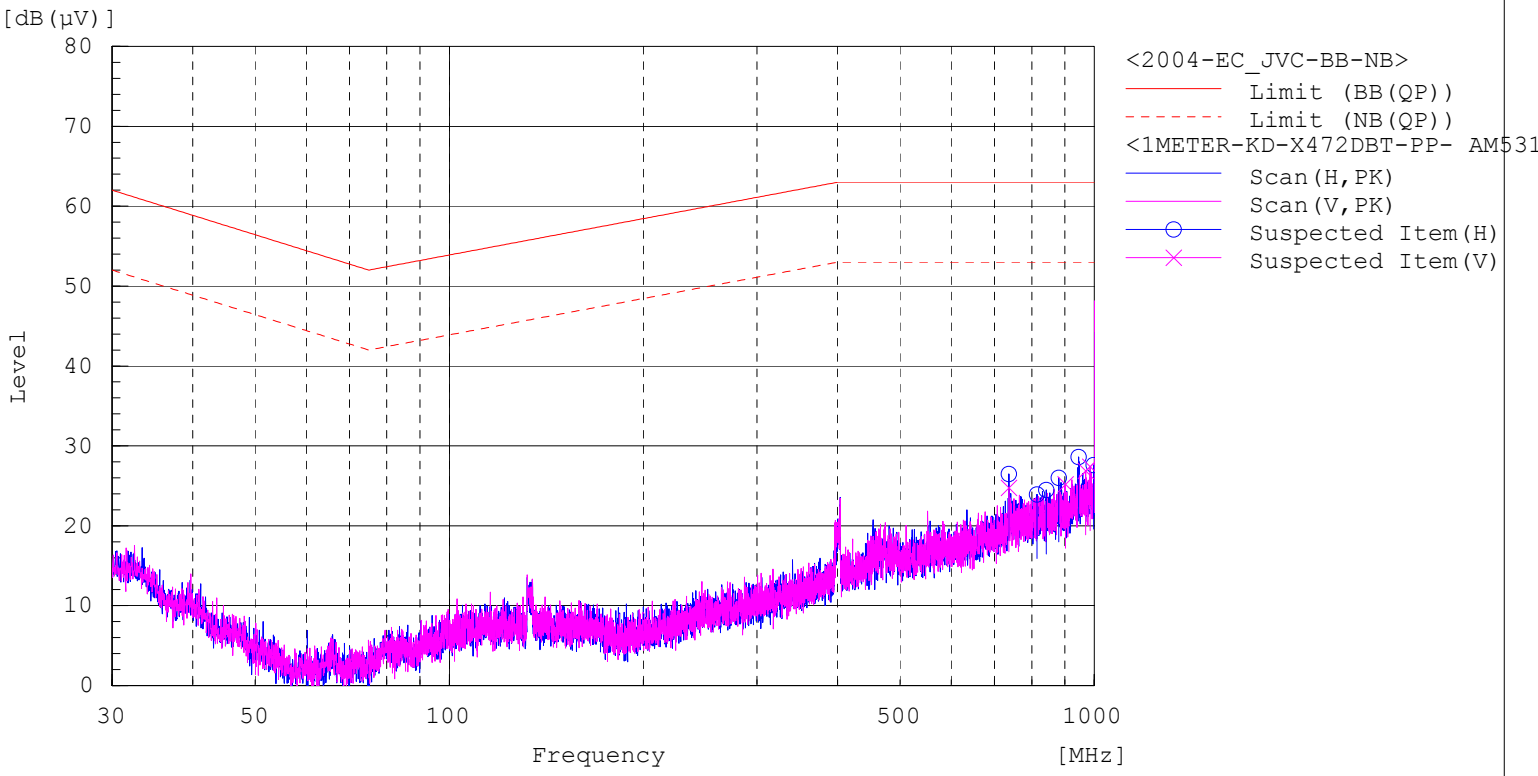
<<Radiated Electromagnetic Emissions (1m)>> 13 September,2019 09:11
1METER-KD-X472DBT-PP- AM531kHz.dat

Model Name : KD-X472DBT
Serial No. : 134X0057
Description : DIGITAL MEDIA RECEIVER
Tester : SARAH
Power Supply : DC 12V

Standard : EN50498
Temp./Humi. : 25 deg C / 44 %
Source : AM 531kHz
Stage : PP
:



Spectrum Selection

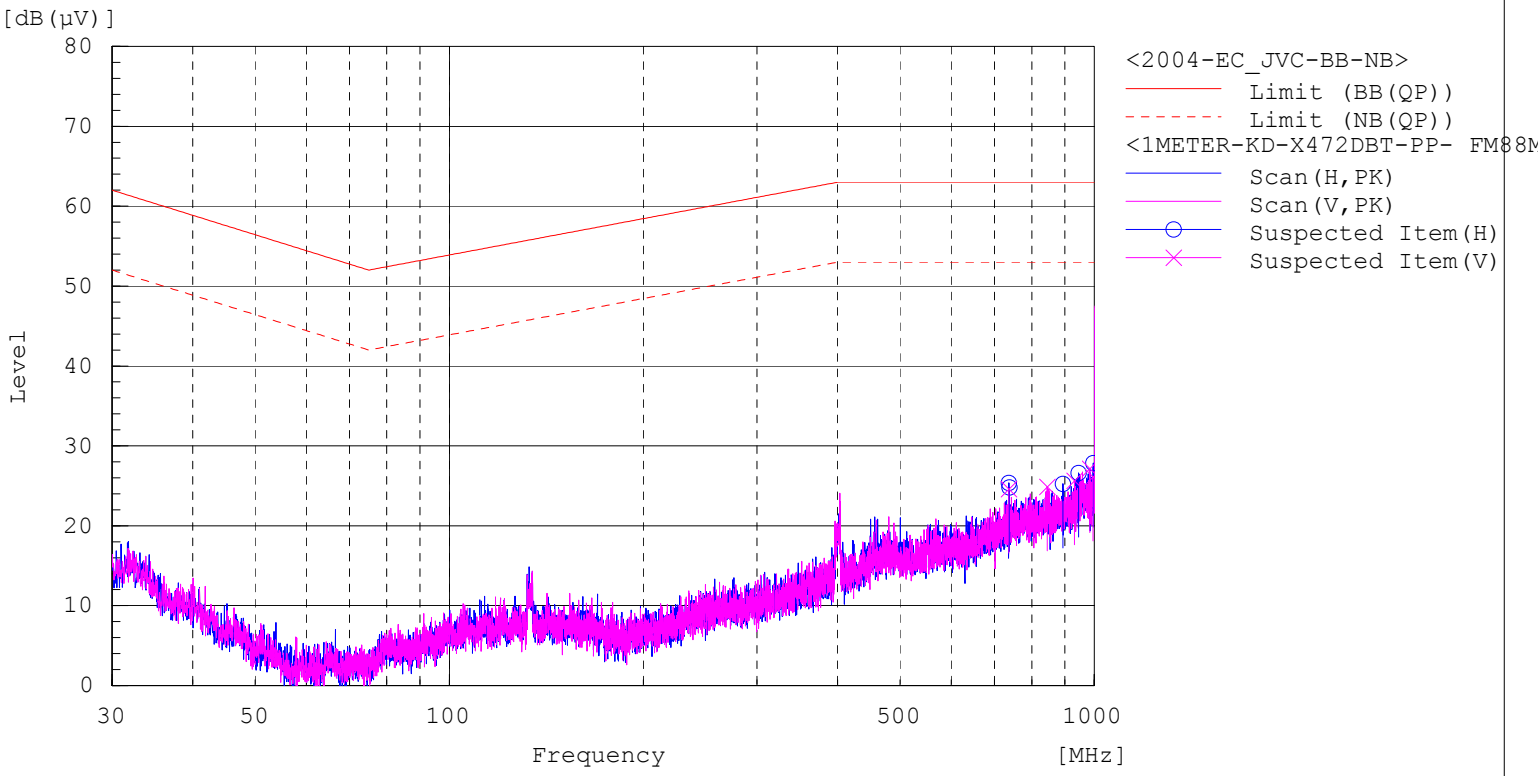
No.	Frequency [MHz]	(P)	Reading [dB(µV)]	c.f [dB]	Result PK [dB(µV)]	Limit BB(QP) [dB(µV)]	Limit NB(QP) [dB(µV)]	Margin BB(QP) [dB]	Margin NB(QP) [dB]
1	945.078	H	29.2	-0.6	28.6	63.0	53.0	34.4	24.4
2	998.164	H	26.8	0.8	27.6	63.0	53.0	35.4	25.4
3	985.438	V	26.7	0.7	27.4	63.0	53.0	35.6	25.6
4	969.076	V	26.6	0.3	26.9	63.0	53.0	36.1	26.1
5	737.245	H	31.2	-4.7	26.5	63.0	53.0	36.5	26.5
6	881.085	H	28.2	-2.2	26.0	63.0	53.0	37.0	27.0
7	902.174	V	27.1	-1.9	25.2	63.0	53.0	37.8	27.8
8	737.245	V	29.5	-4.7	24.8	63.0	53.0	38.2	28.2
9	842.907	H	27.4	-2.9	24.5	63.0	53.0	38.5	28.5
10	815.136	H	27.2	-3.3	23.9	63.0	53.0	39.1	29.1

JKTS Singapore
EMC TEST SITE

<<Radiated Electromagnetic Emissions (1m)>> 13 September,2019 09:23
1METER-KD-X472DBT-PP- FM88MHz.dat

Model Name : KD-X472DBT
Serial No. : 134X0057
Description : DIGITAL MEDIA RECEIVER
Tester : SARAH
Power Supply : DC 12V

Standard : EN50498
Temp./Humi. : 25 deg C / 44 %
Source : FM 88MHz
Stage : PP
:



Spectrum Selection

No.	Frequency [MHz]	(P)	Reading [dB(µV)]	c.f [dB]	Result PK [dB(µV)]	Limit BB(QP) [dB(µV)]	Limit NB(QP) [dB(µV)]	Margin BB(QP) [dB]	Margin NB(QP) [dB]
1	996.346	H	27.0	0.8	27.8	63.0	53.0	35.2	25.2
2	983.984	V	26.5	0.6	27.1	63.0	53.0	35.9	25.9
3	945.078	H	27.2	-0.6	26.6	63.0	53.0	36.4	26.4
4	994.892	V	25.3	0.8	26.1	63.0	53.0	36.9	26.9
5	931.989	V	26.7	-1.1	25.6	63.0	53.0	37.4	27.4
6	737.245	H	30.1	-4.7	25.4	63.0	53.0	37.6	27.6
7	894.174	H	27.3	-2.0	25.3	63.0	53.0	37.7	27.7
8	845.088	V	27.7	-2.8	24.9	63.0	53.0	38.1	28.1
9	738.538	H	29.5	-4.7	24.8	63.0	53.0	38.2	28.2
10	737.245	V	29.3	-4.7	24.6	63.0	53.0	38.4	28.4

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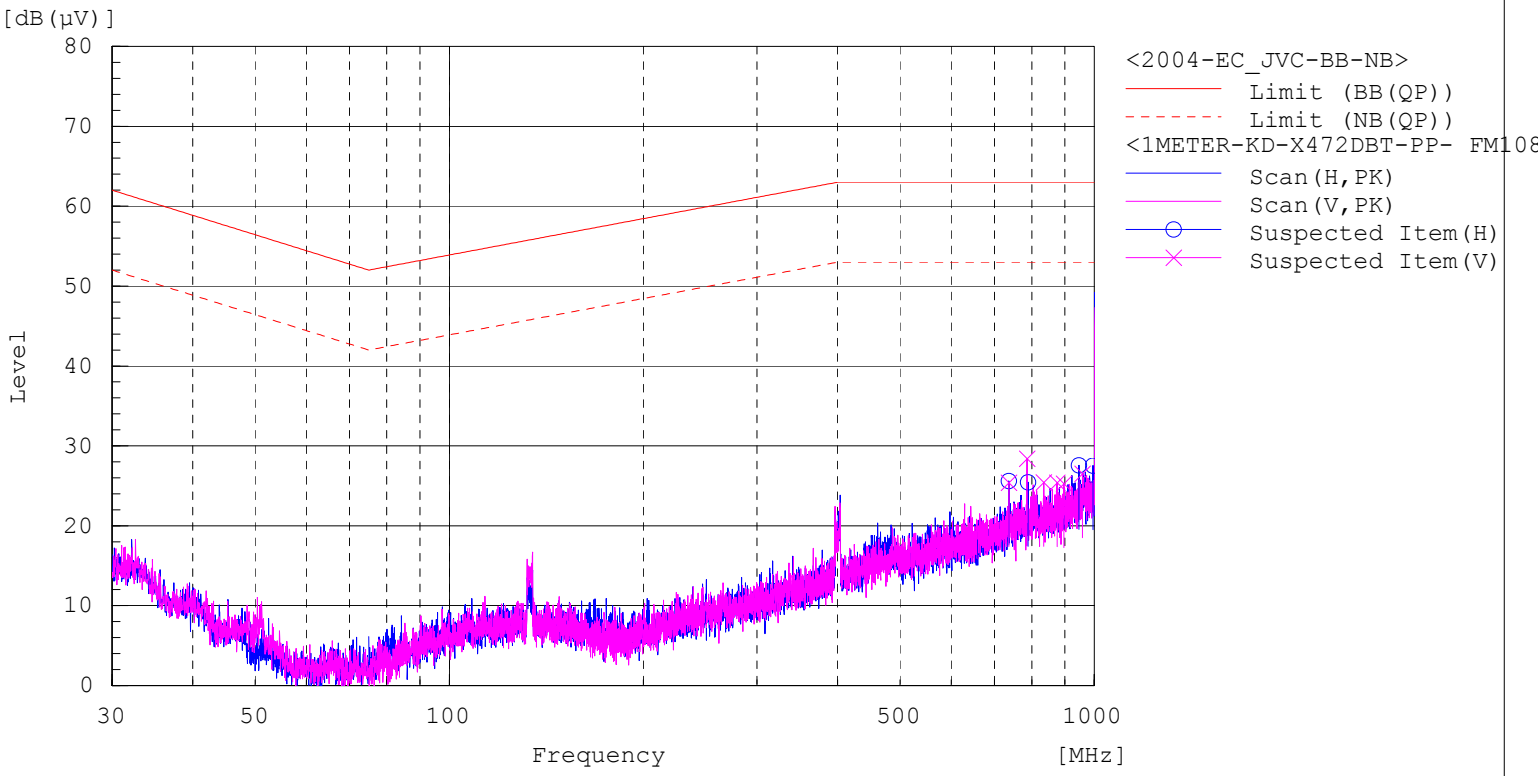
EMC TEST SITE

<<Radiated Electromagnetic Emissions (1m)>> 13 September,2019 09:38
1METER-KD-X472DBT-PP- FM108MHz.dat

Model Name : KD-X472DBT
Serial No. : 134X0057
Description : DIGITAL MEDIA RECEIVER
Tester : SARAH
Power Supply : DC 12V

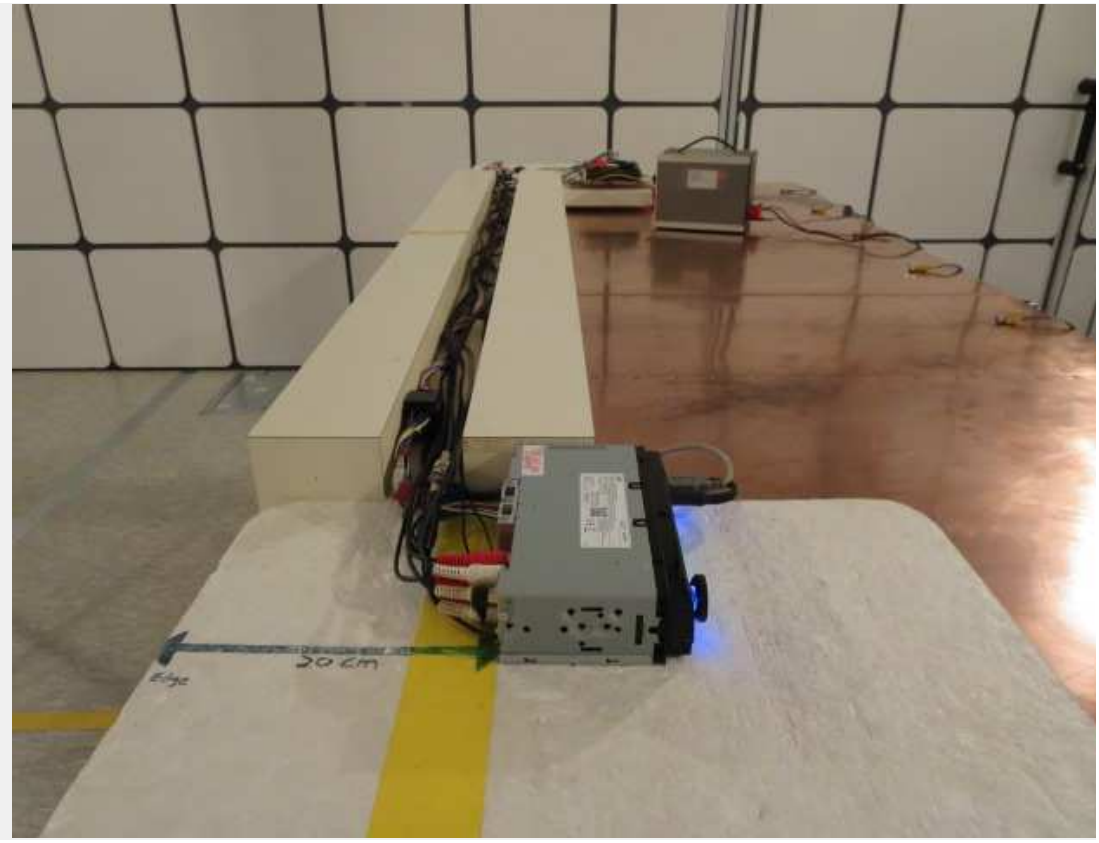
Standard : EN50498
Temp./Humi. : 25 deg C / 44 %
Source : FM 108MHz
Stage : PP
:



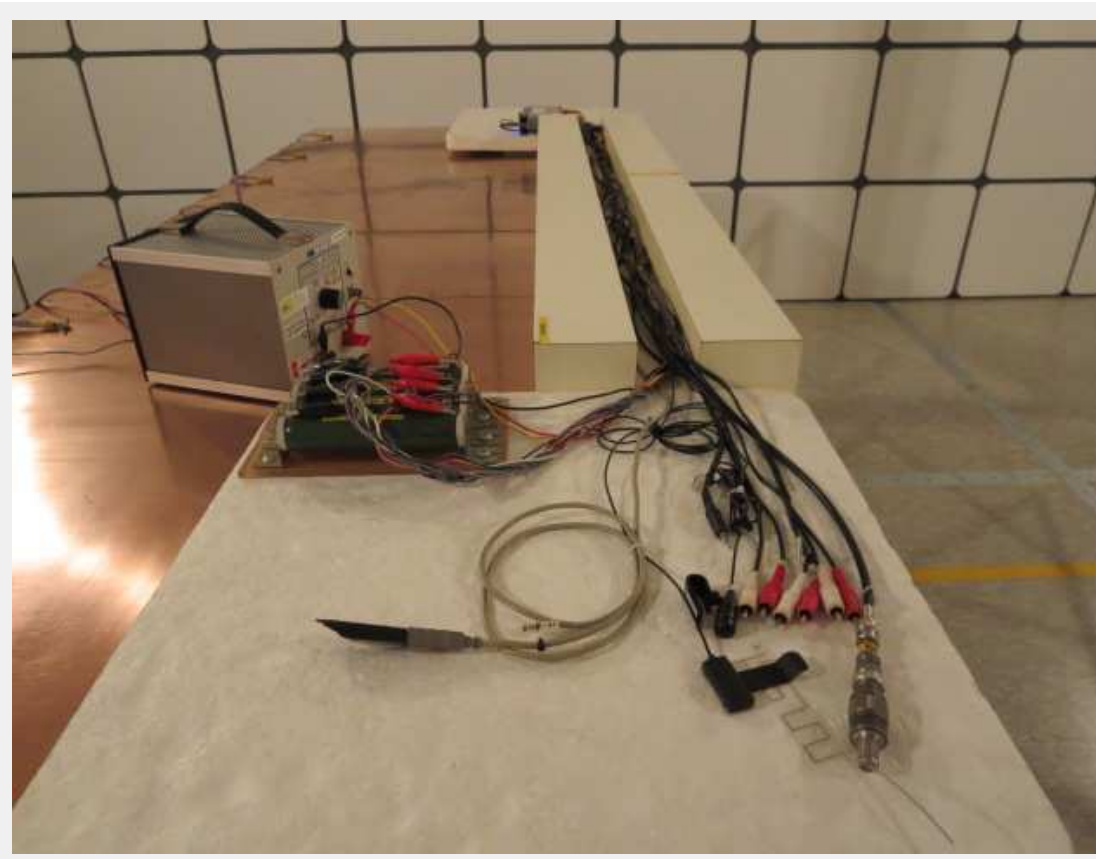
Spectrum Selection

No.	Frequency [MHz]	(P)	Reading [dB(µV)]	c.f [dB]	Result PK [dB(µV)]	Limit BB(QP) [dB(µV)]	Limit NB(QP) [dB(µV)]	Margin BB(QP) [dB]	Margin NB(QP) [dB]
1	786.371	V	32.1	-3.7	28.4	63.0	53.0	34.6	24.6
2	946.533	H	28.1	-0.5	27.6	63.0	53.0	35.4	25.4
3	995.619	H	26.7	0.8	27.5	63.0	53.0	35.5	25.5
4	958.895	V	26.6	-0.1	26.5	63.0	53.0	36.5	26.5
5	737.245	H	30.3	-4.7	25.6	63.0	53.0	37.4	27.4
6	789.280	H	29.0	-3.6	25.4	63.0	53.0	37.6	27.6
7	835.271	V	28.4	-3.0	25.4	63.0	53.0	37.6	27.6
8	875.994	V	27.7	-2.3	25.4	63.0	53.0	37.6	27.6
9	737.245	V	30.1	-4.7	25.4	63.0	53.0	37.6	27.6
10	896.720	V	27.3	-2.0	25.3	63.0	53.0	37.7	27.7

Picture 1 : 1 meter Radiation Emission Setup



Picture 2 : 1 meter Radiation Emission Setup



JVCKENWOOD TECHNOLOGIES SINGAPORE PTE LTD

EN50498 : 2010 (EAC)	Conducted Immunity (Transient)

ISO 7637-2 CONDUCTED TRANSIENT ON POWER LINE

Test Specification: EN 50498 (Conducted Immunity)

Measurement Setup for Transient Emissions Test:

Tester: Sarah

Brand Name: JVC

Model Name: **KD-X472BT**

Type: Digital Media Receiver

Serial No: 134X0057

EUT Supply: DC 13.5V by Battery

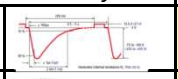
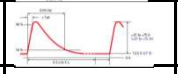
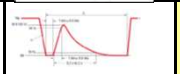
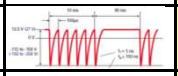
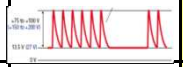
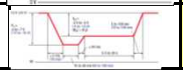
Test mode: USB Playback, 1kHz

Volume : 25

Temperature: 25 ℃

Humidity: 50 %

Pressure: 1000 hPa

Test Level III for 12V System		EUT Symptoms and Event Sequence	Date	Time	Class
Pulse 1		USB playback for 5sec --> EUT Off until the test end.	9-Sep-19	13:36	**A**
Pulse 2a		USB playback continuously	9-Sep-19	14:25	**A**
Pulse 2b		USB play for 47 secs, EUT reset, within 10secs, Power ON at STANDBY mode for 40 secs. EUT reset again for 10secs, Power ON at STANDBY mode (Repeat the same proceduce until the end)	9-Sep-19	15:15	**A**
Pulse 3a		USB playback continuously	9-Sep-19	15:25	**A**
Pluse 3b		USB playback continuously	9-Sep-19	16:34	**A**
Pulse 4		USB playback for 4sec-->EUT display OFF and ON. Continue playback.	10-Sep-19	######	**A**

Refer to subsequent pages on Pulse parameters

Measurement Result : **PASS**

Class	Definition
A	all functions of a device/system perform as designed during and after exposure to disturbance.
B	all functions of a device/system perform as designed during exposure. However, one or more of them can go beyond specified tolerance. All functions return automatically to within normal limits after
C	one or more functions of a device/system do not perform as designed during exposure but return automatically to normal operation after exposure is removed.
D	one or more functions of a device/system do not perform as designed during exposure and do not return to normal operation until exposure is removed and the device/system is reset by simple "operator/use" action.
E	one or more functions of a device/system do not perform as designed during and after exposure

*Minimum acceptable criteria is Class D or above

Autostar Test Report

TRANSIENT IMMUNITY TEST

Date : 9-Sep-19 **Time : 13:36**

Schaffner Electrotest GmbH
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97877 Wertheim
Germany
Tel +49 (0)9342 8750 Fax +49 (0)9342 87575
www.schaffner.com

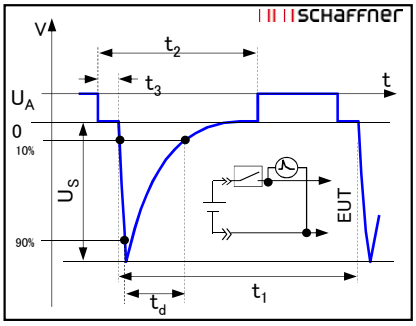
Brand Name :	JVC
Model Name :	KD-X472BT
Type:	Digital Media Receiver
Serial Number :	134X0057
Test Mode :	USB Playback, 1kHz

Pulse 1

Test Name: C:\Program Files\Schaffner Electrotest GmbH\Autostar\UserTests\Anzen\Pulse 1.ust

Test type: MT 5510 High Energy Pulse 1

Sequence Repetition: Count 5000



Test Status: **PASS**

Parameter	Operation	From	To	Step Size	Fail Value
Pulse Voltage(Us)	Static	-75 V	---	---	---
Pulse Period(t1)	Static	0.5 Secs	---	---	---

General	Value
Rise Time(tr)	1 us
Output Resistance(Ri)	10 ohms
Pulse Width(td)	2 ms
t2	200 ms
Polarity/Coupling	Negative Parallel

No Pulse(t4/t1)	Value
No of Pulse (Np)	100 nS
Burst Duration (t4)	10 mS

Battery	
Battery State	UPC/TIME
Voltage	13.5 V
Current Limit	25 A
End of Test Voltage	13.5 V

Comments

USB playback for 5sec --> EUT Off until the test end.

General Conditions

Ambient Temperature :	25 ℃	Humidity :	50 %	Pressure :	1000 hPa
Tested by :	Sarah				

Autostar Test Report

TRANSIENT IMMUNITY TEST

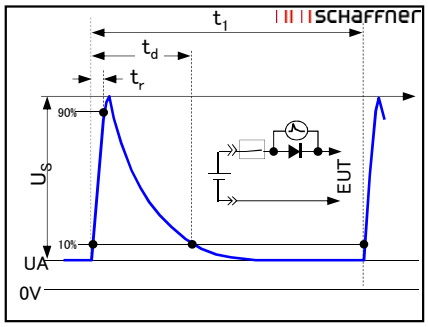
Date : 2019-09-09 Time : 14:25

Schaffner Electrotest GmbH
Hafenstrase 1
97877 Wertheim
Germany
Tel +49 (0)9342 8750 Fax +49 (0)9342 87575
www.schaffner.com

Brand Name :	JVC
Model Name :	KD-X472BT
Type:	Digital Media Receiver
Serial Number :	134X0057
Test Mode :	USB Playback, 1kHz

Pulse 2a

Test Name	C:\Program Files\Schaffner Electrotest GmbH\Autostar\UserTests\Anzen\Pulse 2a.ust
Test type	MT 5510 High Energy Pulse 2
Sequence Repetition	Count 5000
Test Status	**PASS**



Parameter	Operation	From	To	Step Size	Fail Value
Pulse Voltage (Us)	Static	37 V	---	---	---
Pulse Period(t1)	Static	0.2 Secs	---	---	---

General	Value
Rise Time(tr)	1 us
Output Resistance(Ri)	2 ohms
Pulse Width(td)	50 us
t2	Not Applicable
Polarity/Coupling	Positive Serial

Battery	
Battery State	On
Voltage	13.5 V
Current Limit	5 A
End of Test Voltage	13.5 V

Comments

USB playback continuously

General Conditions

Ambient Temperature :	25 ℃	Humidity :	50 %	Pressure :	1000 hPa
Tested by :	Sarah				

Autostar Test Report

TRANSIENT IMMUNITY TEST

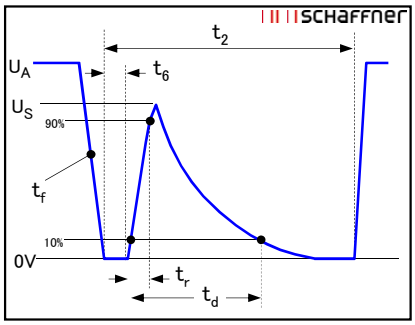
Date : 2019-09-09 Time : 15:15

Schaffner Electrotest GmbH
Hafenstrase 1
97877 Wertheim
Germany
Tel +49 (0)9342 8750 Fax +49 (0)9342 87575
www.schaffner.com

Brand Name :	JVC
Model Name :	KD-X472BT
Type:	Digital Media Receiver
Serial Number :	134X0057
Test Mode :	USB Playback, 1kHz

Pulse 2b

Test Name	C:\Program Files\Schaffner Electrotest GmbH\Autostar\UserTests\Anzen\Pulse 2b.ust
Test type	NSG 5600 Pulse 2B (SVV)
Sequence Repetition	Count 10
Test Status	**PASS**



Voltage

Ua	13.5 V
Us	10 V

Timing	Value
tf	1 ms
t6	1 ms
tr	1 ms
td	500 ms
t2	2 ms
t1	50 ms

Resistance

Resistance	0 ohms

Battery

Current Limit	5 A
End of Test Voltage	13.5 V

Comments

USB play for 47 secs, EUT reset, within 10secs, Power ON at STANDBY mode for 40 secs. EUT reset again for 10secs, Power ON at STANDBY mode (Repeat the same proceduce until the end)

General Conditions

Ambient Temperature :	25 ℃	Humidity :	50 %	Pressure :	1000 hPa
Tested by :	Sarah				

Autostar Test Report

TRANSIENT IMMUNITY TEST

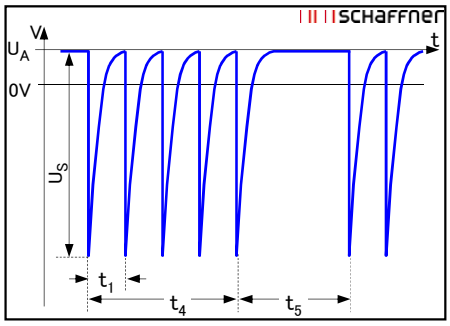
Date : 2019-09-09 Time : 15:25

Schaffner Electrotest GmbH
Hafenstrase 1
97877 Wertheim
Germany
Tel +49 (0)9342 8750 Fax +49 (0)9342 87575
www.schaffner.com

Brand Name :	JVC
Model Name :	KD-X472BT
Type:	Digital Media Receiver
Serial Number :	134X0057
Test Mode :	USB Playback, 1kHz

Pulse 3b

Test Name C:\Program Files\Schaffner Electrotest GmbH\Autostar\UserTests\Anzen\Pulse 3a.ust
Test type FT 5530 Pulse 3A/B (Burst)
Sequence Repetition Minutes 60



Test Status **PASS**

Parameter	Operation	From	To	Step Size	Fail Value
Pulse Voltage (Us)	Static	112 V	---	---	---
Pulse Period (1/t1)	Static	10 kHz	---	---	---

General	Value
Rise Time (tr)	5 nS
Output Resistance (Ri)	50 ohms
Pulse Width (td)	100 nS
Burst Interval (t5)	0.09 Seconds
Output Mode	NORMAL

No Pulse(t4/t1)	Value
No of Pulse (Np)	100 ns
Burst Duration (t4)	10 ms

Battery	
Battery State	On
Voltage	13.5 V
Current Limit	5 A
End of Test Voltage	13.5 V

Polarity	
Polarity	Negative

Comments

USB playback continuously

General Conditions

Ambient Temperature :	25 ℃	Humidity :	50 %	Pressure :	1000 hPa
Tested by :	Sarah				

Autostar Test Report

TRANSIENT IMMUNITY TEST

Date : 2019-09-09 Time : 16:34

Schaffner Electrotest GmbH
Hafenstrase 1
97877 Wertheim
Germany
Tel +49 (0)9342 8750 Fax +49 (0)9342 87575
www.schaffner.com

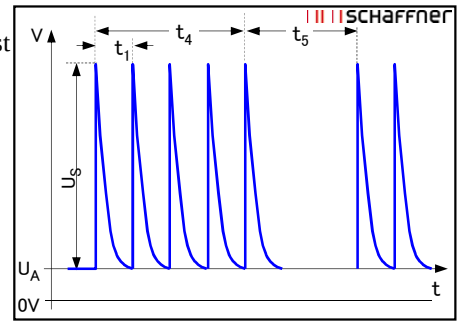
Brand Name :	JVC
Model Name :	KD-X472BT
Type:	Digital Media Receiver
Serial Number :	134X0057
Test Mode :	USB Playback, 1kHz

Pulse 3b

Test Name C:\Program Files\Schaffner Electrotest GmbH\Autostar\UserTests\Anzen\Pulse 3b.ust

Test type FT 5530 Pulse 3A/B (Burst)

Sequence Repetition Minutes 60



Test Status **PASS**

Parameter	Operation	From	To	Step Size	Fail Value
Pulse Voltage (Us)	Static	75 V	---	---	---
Pulse Period (1/t1)	Static	10 kHz	---	---	---

General	Value
Rise Time (tr)	5 ns
Output Resistance (Ri)	50 ohms
Pulse Width (td)	100 ns
Burst Interval (t5)	0.09 Seconds
Output Mode	NORMAL

No Pulse(t4/t1)	Value
No of Pulse (Np)	100 ns
Burst Duration (t4)	10 ns

Battery	
Battery State	On
Voltage	13.5 V
Current Limit	5 A
End of Test Voltage	13.5 V

Polarity	
Polarity	Positive

Comments

USB playback continuously

General Conditions

Ambient Temperature :	25 ℃	Humidity :	50 %	Pressure :	1000 hPa
Tested by :	Sarah				

Autostar Test Report

TRANSIENT IMMUNITY TEST

Date : 2019-09-10 **Time: 13:09**

Schaffner Electrotest GmbH
Hafenstrase 1
97877 Wertheim
Germany
Tel +49 (0)9342 8750 Fax +49 (0)9342 87575
www.schaffner.com

Brand Name :	JVC
Model Name :	KD-X472BT
Type:	Digital Media Receiver
Serial Number :	134X0057
Test Mode :	USB Playback, 1kHz

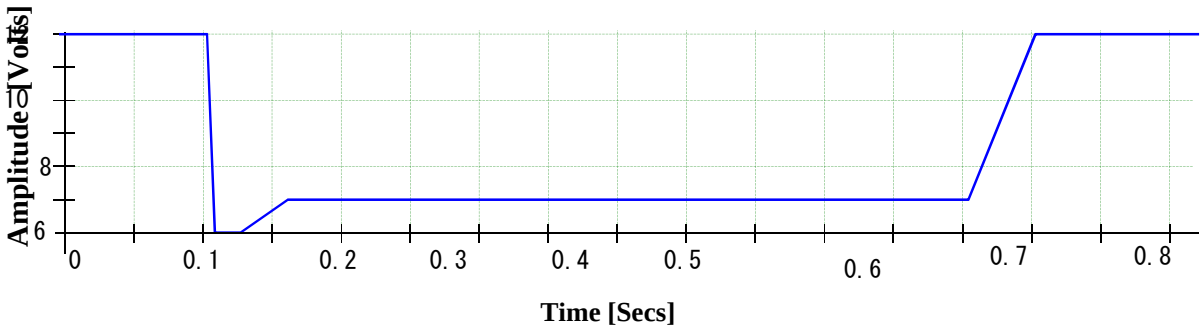
Pulse 4

Test Name C:\Program Files\Schaffner Electrotest GmbH\Autostar\UserTests\Anzen\Pulse 4.ust

Test type Double Arb : Master-＞NSG 5600 Pulse 4C (SVV)

Sequence Repetition Count 1

Test Status **PASS**



Number \ Segment		# 1	# 2	# 3	# 4	# 5	# 6	# 7
Amplitude	Mode	Static	Linear	Static	Linear	Static	Linear	Static
	Initial Value	12 Vpp	12 Vpp	6 Vpp	6 Vpp	7 Vpp	7 Vpp	12 Vpp
	Final Value	—	6 Vpp	—	7 Vpp	—	12 Vpp	—
Segment Duration	Value	100 ms	5 ms	20 ms	30 ms	0.5 Sec	50 ms	100 ms

Battery: Current Limit: 5 A Voltage: 12 V

Comments

USB playback for 4sec-->EUT display OFF and ON. Continue playback.

General Conditions

Ambient Temperature : 25 ℃ Humidity : 50 % Pressure : 1000 hPa

Tested by : Sarah

JVCKENWOOD TECHNOLOGIES SINGAPORE PTE LTD

EN50498 : 2010 (EAC)	Conducted Emission (Transient)

ISO 7637-2 CONDUCTED EMISSIONS ON POWER LINE

Test Specification: EN 50498 (Conducted Emissions)

Date: 26-May-16

Measurement Setup for Transient Emissions Test:

Tester: Sarah

Brand Name: JVC

Model Name: **KD-X472BT**

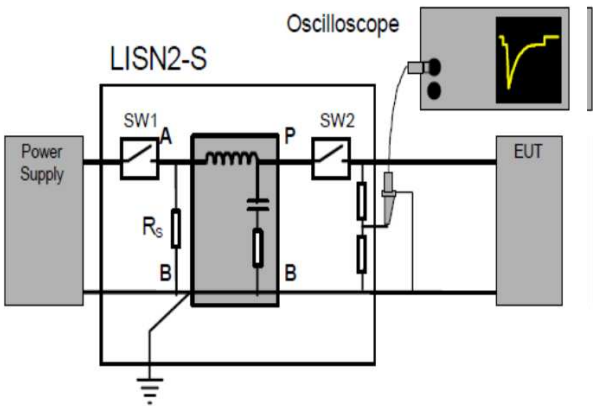
Serial No: 134X0057

EUT Supply: DC 13.5V by Battery

Test mode: USB Playback, 1kHz

EUT at ⅛W power: 2.82 V_{pp} at 4Ω per channel

Volume : 22



Block Diagram

Repetition(s)	SW1+ AN (Disconnection Time)				AN + SW2 (Disconnection Time)			
	3ms ± (300~400)ms		800ms ± (650~750)ms		3ms ± (300~400)ms		800ms ± (650~750)ms	
	$V_{max(+peak)}$	$V_{min\ (-Peak)}$	$V_{max(+peak)}$	$V_{min\ (-Peak)}$	$V_{max(+peak)}$	$V_{min\ (-Peak)}$	$V_{max(+peak)}$	$V_{min\ (-Peak)}$
1	-0.1	-13.6	-0.1	-13.5	-0.6	-13.1	-0.6	-14.7
2	-0.1	-13.9	-0.1	-13.5	-0.6	-13.2	2.1	-10.5
3	-0.1	-14.3	-0.1	-13.5	-0.6	-14.3	1.8	-10.7
4	-0.1	-13.3	-0.1	-13.6	-0.6	-13.5	-0.7	-14.7
5	-0.1	-13.7	-0.1	-13.6	-0.6	-9.6	-0.7	-12.8
6	0.4	-13.3	-0.1	-13.5	-0.6	-15.4	-0.6	-10.7
7	0.0	-13.3	-0.1	-13.7	-0.6	-14.3	-0.6	-10.5
8	-0.1	-13.3	-0.2	-13.5	-0.5	-9.6	-0.6	-10.5
9	0.4	-13.3	-0.1	-13.5	-0.6	-9.6	-0.6	-13.0
10	0.1	-13.3	-0.1	-13.5	-0.6	-9.7	-0.6	-13.3

Measured values taken from oscilloscope offset to DC supply voltage

Suggested Limits of classification of 12V Equipment:		
Pulse Amplitude (Us)	Positive	Negative
	+75V	-100V
50% of specification Limits	**37.5V**	**-50V**
Peak Measurement Results	2.1V	-15.4V

Judgement: Final evaluation is required if result is >50% of the specification limits

Final Evaluation: Not Required

Measurement Result: Pass

Comment if have any:

At SW1 + AN (3ms & 800ms) : After the switch is triggered, EUT will reset and back to initial condition.
At AN + SW2 (3ms & 800ms) : After the switch is triggered, EUT will reset and back to initial condition .

Picture 1 : Conducted Immunity Setup

Picture 2 : Conducted Immunity Setup

Picture 1 : Conducted Emission Setup

Picture 2 : Conducted Emission Setup

JVC KENWOOD
creates excitement & peace of mind

JKTS EMC EQUIPMENT LIST 2018/2019

Semi-Anechoic Chamber for Disturbance Radiation (3m) Equipment Setup

	Instrumentation	Type no.	Manufacturer	Date of calibration
■	EMI TEST RECEIVER	ESPI3	Rohde & Schwarz	8-Jan-19
■	PRE-AMPLIFIER	310N	SONOMA	22-Jan-19
■	BILOG ANTENNA	CBL6111D	SCHAFFNER	25-Dec-18
■	MATCHING PAD	BT3127	AEROFLEX WEINSCHEL	-

Semi-Anechoic Chamber for Disturbance Radiation (1m) Equipment Setup

	Instrumentation	Type no.	Manufacturer	Date of calibration
■	EMI TEST RECEIVER	ESPI3	Rohde & Schwarz	8-Jan-19
■	PRE-AMPLIFIER	310N	SONOMA	22-Jan-19
■	BILOG ANTENNA	CBL6111D	SCHAFFNER	25-Dec-18
■	MATCHING PAD	BT3127	AEROFLEX WEINSCHEL	-
■	L.I.S.N.	NNBM 8125	SCHWARZBECK	22-Jan-19

IMMUNITY TEST for S1/ S2a/ S2b Equipment Setup

	Instrumentation	Type no.	Manufacturer	Date of calibration
■	SIGNAL GENERATOR	SMG	Rohde & Schwarz	-
■	AUDIO ANALYZER	UPA	Rohde & Schwarz	-
	SPECIAL FILTER	UPA-B2	Rohde & Schwarz	-
	AF GENERATOR	UPA-B6	Rohde & Schwarz	-
■	RF POWER SENSOR	NRV-Z5	Rohde & Schwarz	-
■	RF RELAIS MATRIX	PSU	Rohde & Schwarz	-
■	RF AMPLIFIER	325LA	ENI	-
■	RF VOLT METER	URV5	Rohde & Schwarz	-
■	POWER DIVIDER	AUF 1603	KYORITSU D.K.	-
■	BANDPASS FILTER	BPF2	E.FIEDLER	-
■	LOWPASS FILTER	IHF-200-A FILTER	KENWOOD	-
■	OSCILLOSCOPE	CS-5170	KENWOOD	-
■	MATCHING PAD	ZT187	TME	-
■	POWER SPLITTER	ZFSC-2-4	MINI CIRCUITS	-

Transient Emission / Immunity Equipment Setup

	Instrumentation	Type no.	Manufacturer	Date of calibration
■	DIGITAL PHOSPHOR OSCILLOSCOPE	DPO4104	TEKTRONIX	31-Mar-19
■	PROBE	TEKP5100	TEKTRONIX	-
■	L.I.S.N.	LISN2-S	TESEQ	19-Feb-19
■	NSG 5500 SYSTEM			
	Automotive Surge Simulator	MT5511	SCHAFFNER	15-Feb-19
	Automotive Burst Simulator	FT5530	SCHAFFNER	15-Feb-19
■	NSG5600 SYSTEM			
	Function Generator	FG5620	SCHAFFNER	15-Feb-19
■	POWER AMPLIFIER/BATTERY SIMULATOR	PA5840	SCHAFFNER	15-Feb-19

Electrostatic Discharge (ESD) Test Equipment Setup

	Instrumentation	Type no.	Manufacturer	Date of calibration
■	ESD Simulator	ESD 3000	EMC PARTNER	7-Jan-19

Test site: EMI Shield Room at JKTS in Singapore

<Disturbance Voltage at Antenna Terminal>

	Instrumentation	Type no.	Manufacturer	Date of calibration
■	EMI TEST RECEIVER	ESPI3	ROHDE & SCHWARZ	24-Jan-19
■	POWER SPLITTER	ZFRSC-2050	MINI CURCUITS	-
■	SIGNAL GENERATOR	KSG-4110	KIKUSUI	30-Jun-19
■	MATCHING PAD(MPRAM-01)	11852B	AGILENT	-

<Disturbance Power>

	Instrumentation	Type no.	Manufacturer	Date of calibration
■	EMI TEST RECEIVER	ESPI3	ROHDE & SCHWARZ	24-Jan-19
■	ABSORBING CLAMP	MDS21	LUTHI	26-Dec-18
■	MATCHING PAD	J01006A0835	-	-