

ENVIRONMENTAL TEST REPORT			
TEST ITEM :	GU512X32F-3000	APP.	S. Nakamura
SAMPLE TYPE :	ENGINEERING SAMPLES	CHECK	M. Yamamoto
REQUESTED :	DEVELOPMENT DIV.	DRW.	T. Shimagaki
REQUEST No. :	01-87	INSPECT	
REPORT NO. :	TAM-02002		
ISSUE DATE :	2002-3-8		

PURPOSE:

PORPUSE : EVALUATION TEST OF NEW TYPE
 APPLIED STD. : INTERNAL STD.

TEST ITEMS	NO.	TEST NO.	JUDGMENT	REMARK
VIBRATION	4	PVM- 2056	QUALIFIED	
SHOCK	4	PSM- 2056	QUALIFIED	
HIGH TEMPERATURE	4	SEM- 2056	QUALIFIED	
LOW TEMPERATUTRE	4	SDM- 2056	QUALIFIED	
TEMPERATURE CYCLE	4	TCM- 2056	QUALIFIED	
HUMIDITY	4	RHM- 2056	QUALIFIED	
ESD MEASUREMENT	4	NDM- 2056	—	
EMI MEASUREMENT	4	MIM- 2056	—	

REMARKS:

V I B R A T I O N T E S T

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-2-8	TEST NO	PVM-2002

TEST CONDITION:

FREQUENCY RANGE : 10 - 55 HZ
 SWEEP TIME : 1 MIN
 DISPLACEMENT : 1.0mm (CONSTANT)
 DIRECTION : X, Y, Z THREE DIRECTIONS
 APPLYING TIME : 30 MINUTES FOR EACH DIRECTION
 OPERATING CONDITION : NO OPERATING (NO POWER)

INSPECT ITEMS	JUDGMENT	REMARKS
LUMINANCE (UNEVEN, DIM)	QUALIFIED	
APPEARANCE (CRACK, AIR LEAK)	QUALIFIED	
OPERATION (FUNCTIONS)	QUALIFIED	

JUDGMENT	<input checked="" type="checkbox"/> QUALIFIED	<input type="checkbox"/> UNQUALIFIED
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SHOCK TEST

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-2-7	TEST NO	PSM-2002

TEST CONDITION:

PEAK VALUE : 392m/s² {40G}
 DURATION : HALF SINE, 9ms
 DIRECTION : X, Y, Z THREE DIRECTIONS
 NUMBER OF SHOCKS : 3 TIMES FOR EACH DIRECTION
 OPERATING CONDITION : NO OPERATING (NO POWER)

INSPECT ITEMS	JUDGMENT	REMARKS
LUMINANCE (UNEVEN, DIM)	QUALIFIED	
APPEARANCE (CRACK, AIR LEAK)	QUALIFIED	
OPERATION (FUNCTIONS)	QUALIFIED	

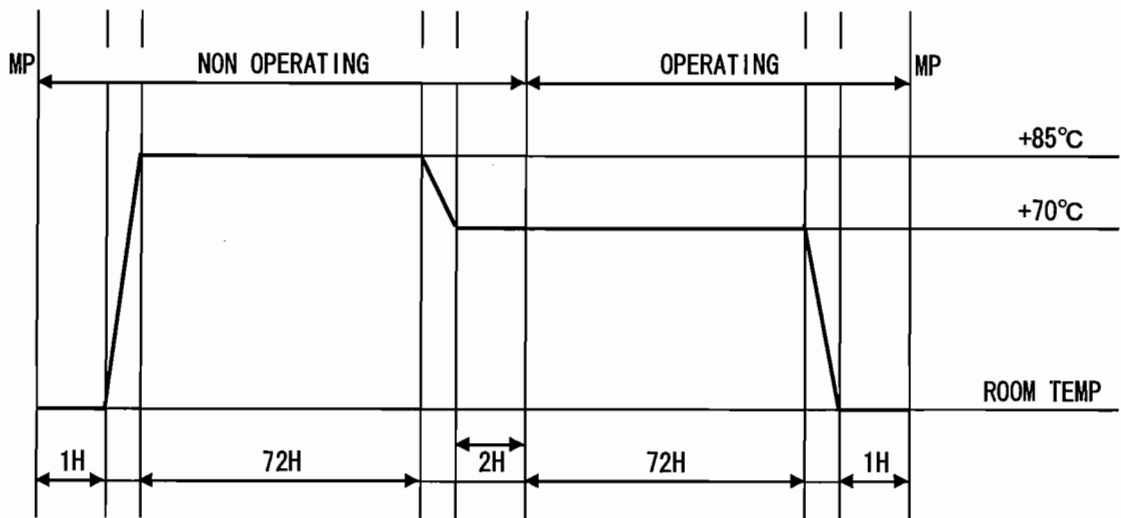
JUDGMENT	<input checked="" type="checkbox"/> QUALIFIED	<input type="checkbox"/> UNQUALIFIED
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HIGH TEMPERATURE TEST

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-2-22~28	TEST NO	SEM-2002

TEST CONDITION:

SPECIFICATION : SEE ATTACHED TEMPERATURE PROFILE
 OPERATING CONDITION : TEST MODE OPERATING
 SUPPLY VOLTAGE : Vcc1=+5.0V
 : Vcc2=+24.0V
 FINAL MEASUREMENT : UNDER ROOM TEMP CONDITION



MP : MEASUREMENT POINT

INSPECT ITEMS	JUDGMENT	REMARKS
LUMINANCE (UNEVEN, DIM)	QUALIFIED	
APPEARANCE (CRACK, AIR LEAK)	QUALIFIED	
OPERATION (FUNCTIONS)	QUALIFIED	

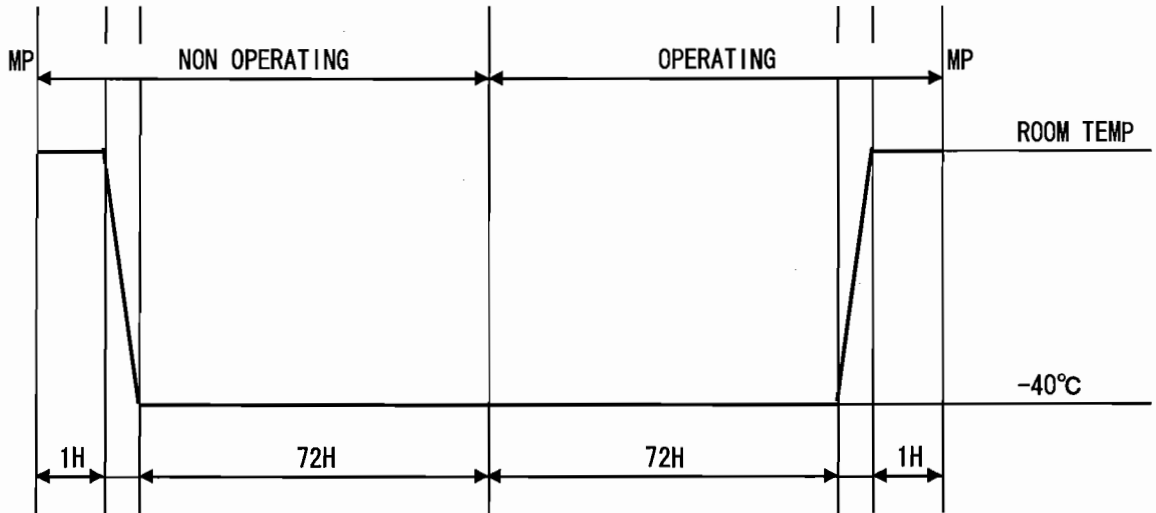
JUDGMENT QUALIFIED UNQUALIFIED

LOW TEMPERATURE TEST

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-1-15~21	TEST NO	SDM-2002

TEST CONDITION:

SPECIFICATION : SEE ATTACHED TEMPERATURE PROFILE
 OPERATING CONDITION : TEST MODE OPERATING
 SUPPLY VOLTAGE : Vcc1=+5.0V
 : Vcc2=+24.0V
 FINAL MEASUREMENT : UNDER ROOM TEMP CONDITION



MP : MEASUREMENT POINT

INSPECT ITEMS	JUDGMENT	REMARKS
LUMINANCE (UNEVEN, DIM)	QUALIFIED	
APPEARANCE (CRACK, AIR LEAK)	QUALIFIED	
OPERATION (FUNCTIONS)	QUALIFIED	

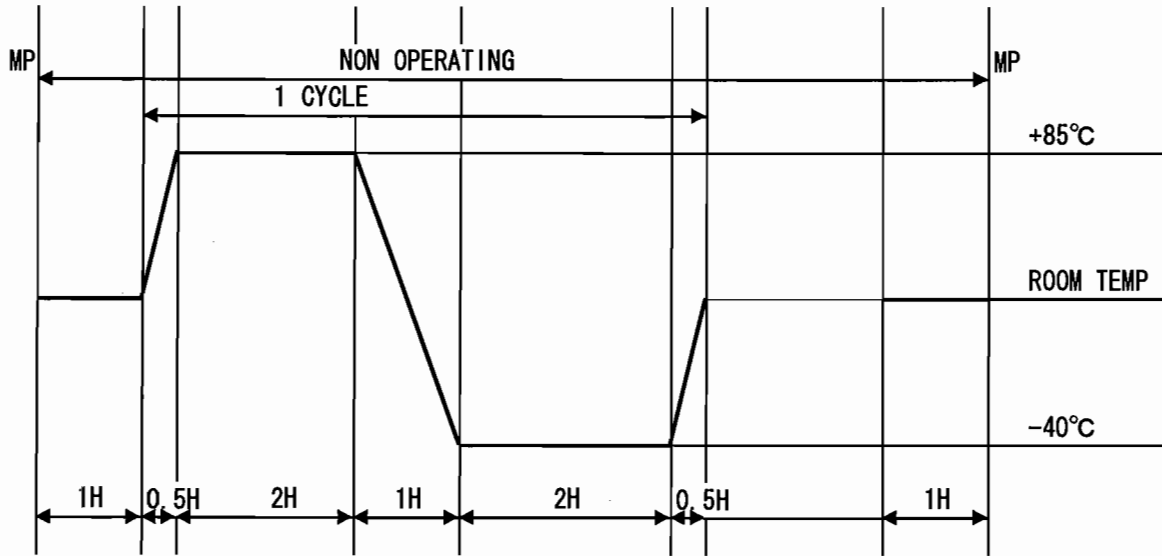
JUDGMENT	<input checked="" type="checkbox"/> QUALIFIED <input type="checkbox"/> UNQUALIFIED
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TEMPERATURE CYCLE

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-1-28~31	TEST NO	TCM-2002

TEST CONDITION:

SPECIFICATION : SEE ATTACHED TEMPERATURE PROFILE
 NUMBER OF CYCLES : 10 CYCLES
 OPERATING CONDITION : NON OPERATING
 FINAL MEASUREMENT : UNDER ROOM TEMP CONDITION



MP: MEASUREMENT POINT

INSPECT ITEMS	JUDGMENT	REMARKS
LUMINANCE (UNEVEN, DIM)	QUALIFIED	
APPEARANCE (CRACK, AIR LEAK)	QUALIFIED	
OPERATION (FUNCTIONS)	QUALIFIED	

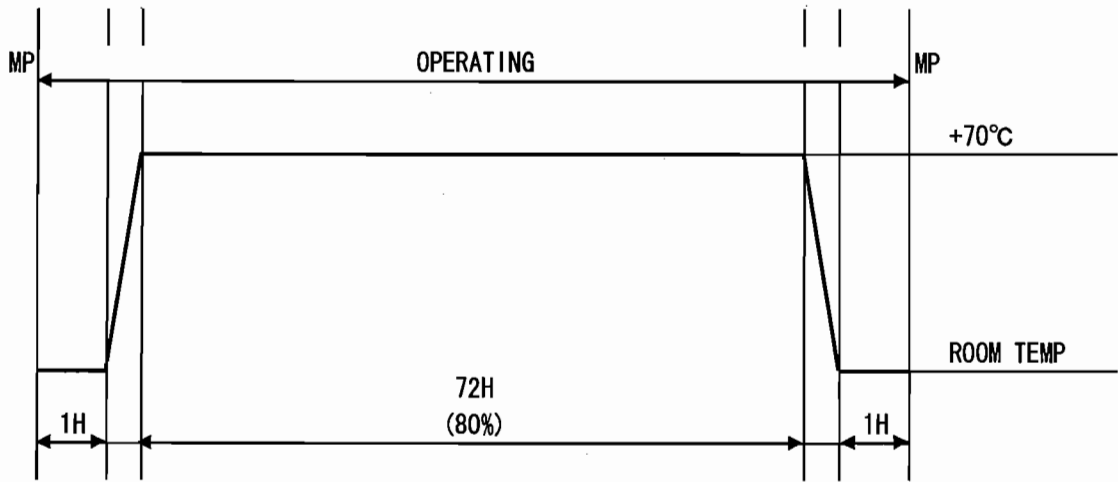
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HUMIDITY TEST

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-2-1~4	TEST NO	RHM-2002

TEST CONDITION:

SPECIFICATION : SEE ATTACHED TEMPERATURE PROFILE
 OPERATING CONDITION : TEST MODE OPERATING
 SUPPLY VOLTAGE : Vcc1=+5.0V
 : Vcc2=+24.0V
 FINAL MEASUREMENT : UNDER ROOM TEMP CONDITION



INSPECT ITEMS	JUDGMENT	REMARKS
LUMINANCE (UNEVEN, DIM)	QUALIFIED	
APPEARANCE (CRACK, AIR LEAK)	QUALIFIED	
OPERATION (FUNCTIONS)	QUALIFIED	

Electro static discharge test

1 Purpose.

This test purpose is to check electro static discharge durability of Vfd module based on IECpub 61000-4-2.
 But Vfd module is not final products, therefore we hope to be used only reference at customer side.

2 Test procedure.

the specimen(Vfd module) is setted at middle of test aluminum plate on woody desk as shown in fig below.
 Drive circuit with cable which length is 30 cm.but at the time of test excecuting, drive circuit is detached from Vfd module.
 The specimen Vfd module display a certain character or graph on screen by the drive circuit.
 Ordinary, electro static discharge is applied to testing points with both contact and air condition.

Testing point : ① and ② & ③

① & ③ is indirect

② is special point of ise electronics,ordinary consider direct point.

because we make its point to similar customer equipment condition.

Test condition: contact discharge & air discharge.

Contact discharge: 10 times /1 minute at each point.

Air discharge: 10 times at each point.

Applying voltage: from 1kV to 15kV step by 1KV at each point.

Condition of sample operating.

Input voltage : According to individual specification.

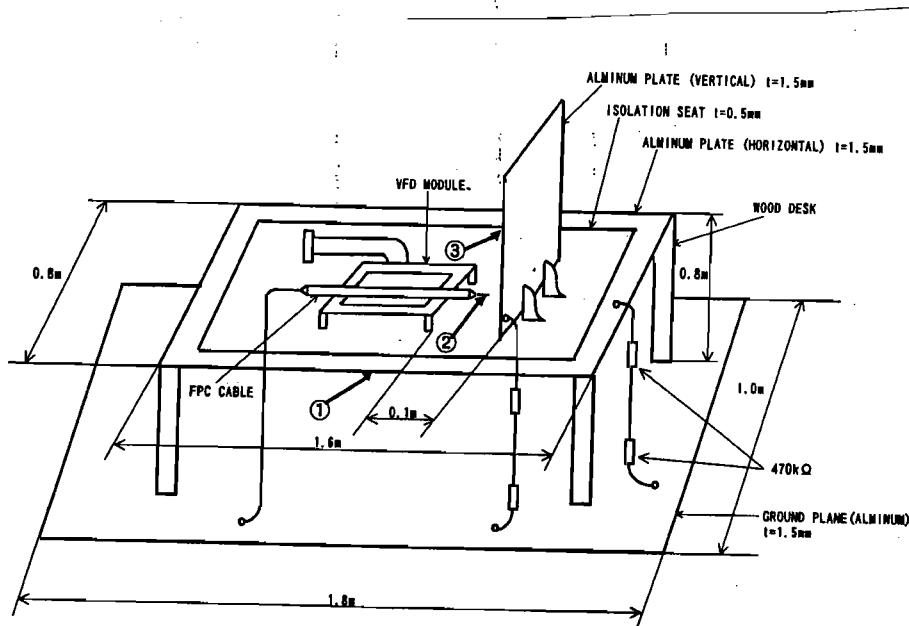
Environmental temperature: Room temp.

3 record.

The test shall be judged with each voltage with each test point.

Symbol description

- A The information display should not be disturbed flicker display should recover when quit applying ESD.
- B The information display is changed or disturbed ,or cpu is fallen into runaway,however the module will revive by re-entry or reset function.
- C The information display is disturbed or cpu is fallen into runaway, and then the module will not revive to normal.



ESD MEASUREMENT

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-1-25	TEST NO	NDM-2002-1

TEST CONDITION:

TEMPERATURE : ROOM TEMP
 MODULE DRIVING : STANDARD DRIVING
 SUPPLY VOLTAGE : Vcc1=+5.0V
 : Vcc2=+24.0V
 POWER CABLE LENGTH : L=30cm
 APPLYING DURATION : 1 SPARKS/SEC, TOTAL 10 TIMES
 : APPLYING EACH VOLTAGE AND EACH POINT.
 DISCHARGE CONDITION : CONTACT DISCHARGE · AIR DISCHARGE

VOLTAGE (KV)	SAMPLE NO.												REMARKS
	NO. 1						NO. 2						
	CONTACT			AIR			CONTACT			AIR			
	①	②	③	①	②	③	①	②	③	①	②	③	
1	A	A	A	A	A	A	A	A	A	A	A	A	
2	A	A	A	A	B	A	A	A	A	A	B	A	
3	A	B	A	A	B	A	A	B	A	A	B	A	
4	A	B	A	A	B	A	A	B	A	A	B	A	
5	A	B	A	A	B	A	A	B	A	A	B	A	
6	A	B	A	A	B	A	A	B	A	A	B	A	
7	A	B	A	A	B	A	A	B	A	A	B	A	
8	A	B	A	A	B	A	A	B	A	A	B	A	
9	A	B	A	A	B	A	A	B	A	A	B	A	
10	B	B	B	A	B	A	B	B	B	A	B	A	
11	B	B	B	A	B	A	B	B	B	A	B	A	
12	B	B	B	A	B	A	B	B	B	A	B	A	
13	B	B	B	A	B	A	B	B	B	A	B	A	
14	B	B	B	A	B	A	B	B	B	A	B	A	
15	B	B	B	A	B	A	B	B	B	A	B	A	

JUDGMENT	<input type="checkbox"/> QUALIFIED	<input type="checkbox"/> UNQUALIFIED
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ESD MEASUREMENT

ITEM	GU512X32F-3000	SAMPLES	n=4
DATE	2002-1-25	TEST NO	NDM-2002-2

TEST CONDITION:

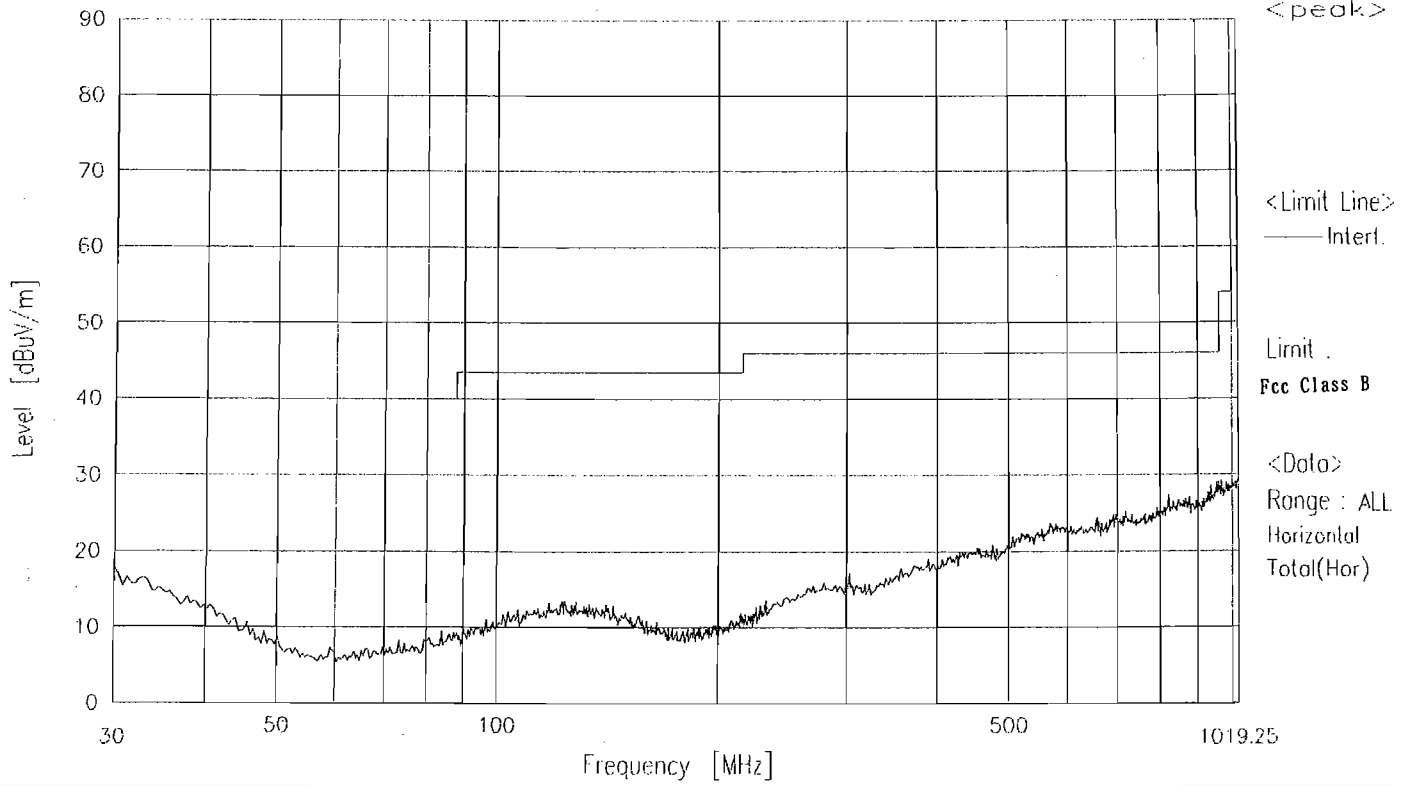
TEMPERATURE : ROOM TEMP
 MODULE DRIVING : STANDARD DRIVING
 SUPPLY VOLTAGE : Vcc1=+5.0V
 : Vcc2=+24.0V
 POWER CABLE LENGTH : L=30cm
 APPLYING DURATION : 1 SPARKS/SEC, TOTAL 10 TIMES
 : APPLYING EACH VOLTAGE AND EACH POINT.
 DISCHARGE CONDITION : CONTACT DISCHARGE · AIR DISCHARGE

VOLTAGE (KV)	SAMPLE NO.												REMARKS
	NO. 3						NO. 4						
	CONTACT			AIR			CONTACT			AIR			
	①	②	③	①	②	③	①	②	③	①	②	③	
1	A	A	A	A	A	A	A	A	A	A	A	A	
2	A	A	A	A	A	A	A	A	A	A	A	A	
3	A	B	A	A	B	A	A	B	A	A	B	A	
4	A	B	A	A	B	A	A	B	A	A	B	A	
5	A	B	A	A	B	A	A	B	A	A	B	A	
6	A	B	A	A	B	A	A	B	A	A	B	A	
7	A	B	A	A	B	A	A	B	A	A	B	A	
8	A	B	A	A	B	A	A	B	A	A	B	A	
9	A	B	A	A	B	A	A	B	A	A	B	A	
10	B	B	B	A	B	A	B	B	B	A	B	A	
11	B	B	B	A	B	A	B	B	B	A	B	A	
12	B	B	B	A	B	A	B	B	B	A	B	A	
13	B	B	B	A	B	A	B	B	B	A	B	A	
14	B	B	B	A	B	A	B	B	B	A	B	A	
15	B	B	B	A	B	A	B	B	B	A	B	A	

JUDGMENT	<input type="checkbox"/> QUALIFIED <input type="checkbox"/> UNQUALIFIED	
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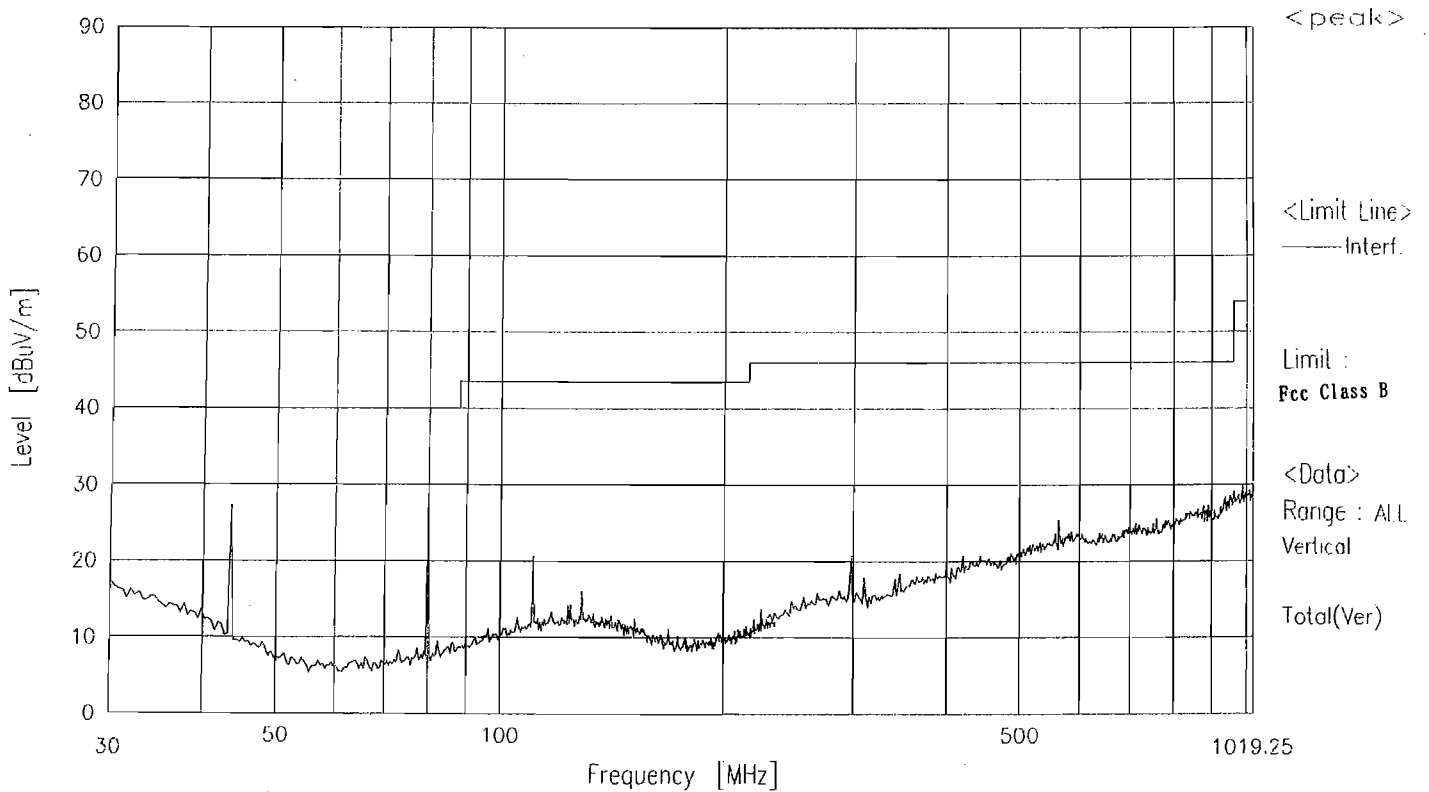
Model : Background
Serial No. : MIM-2002
Remarks :

Standard :
Operator :



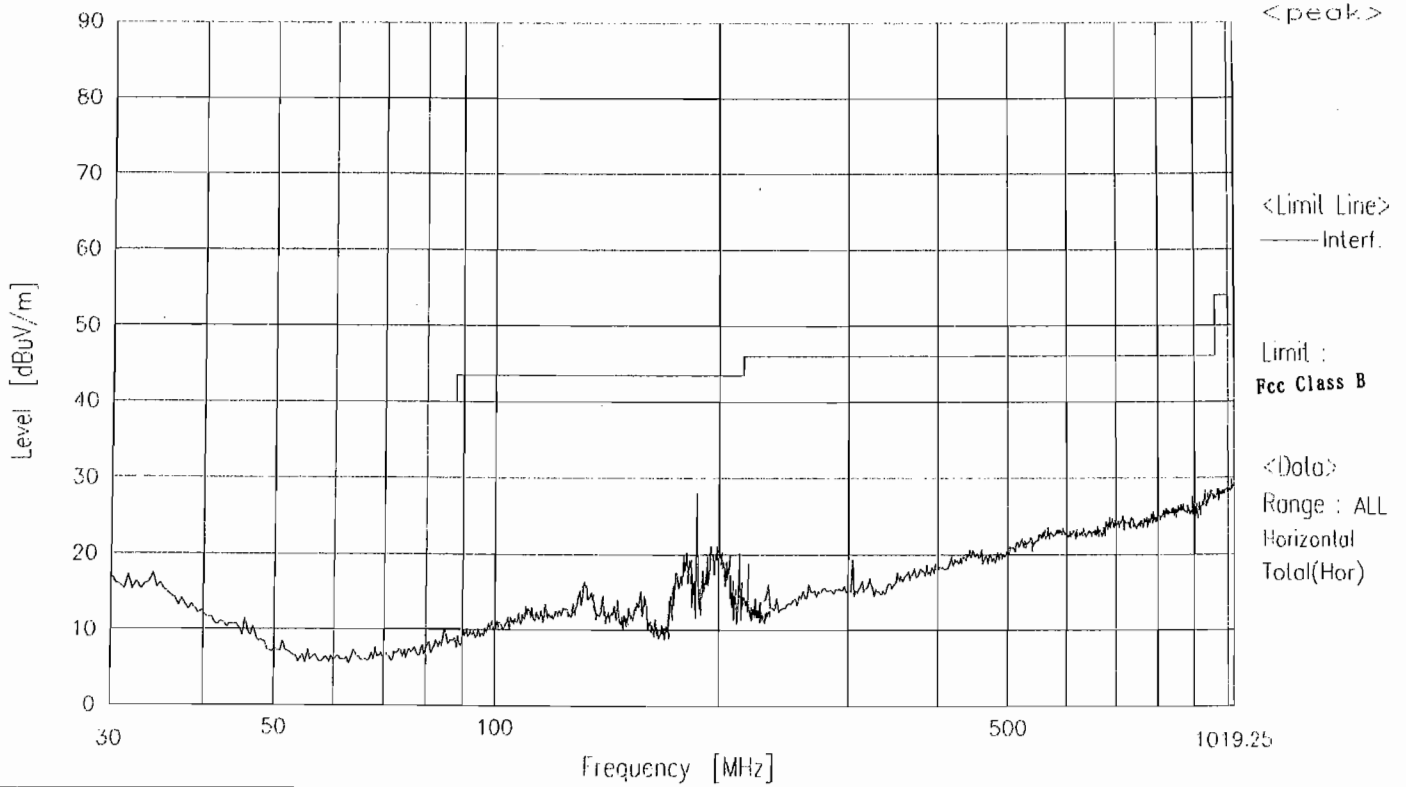
Model : Background
Serial No. : MIM-2002
Remarks :

Standard :
Operator :



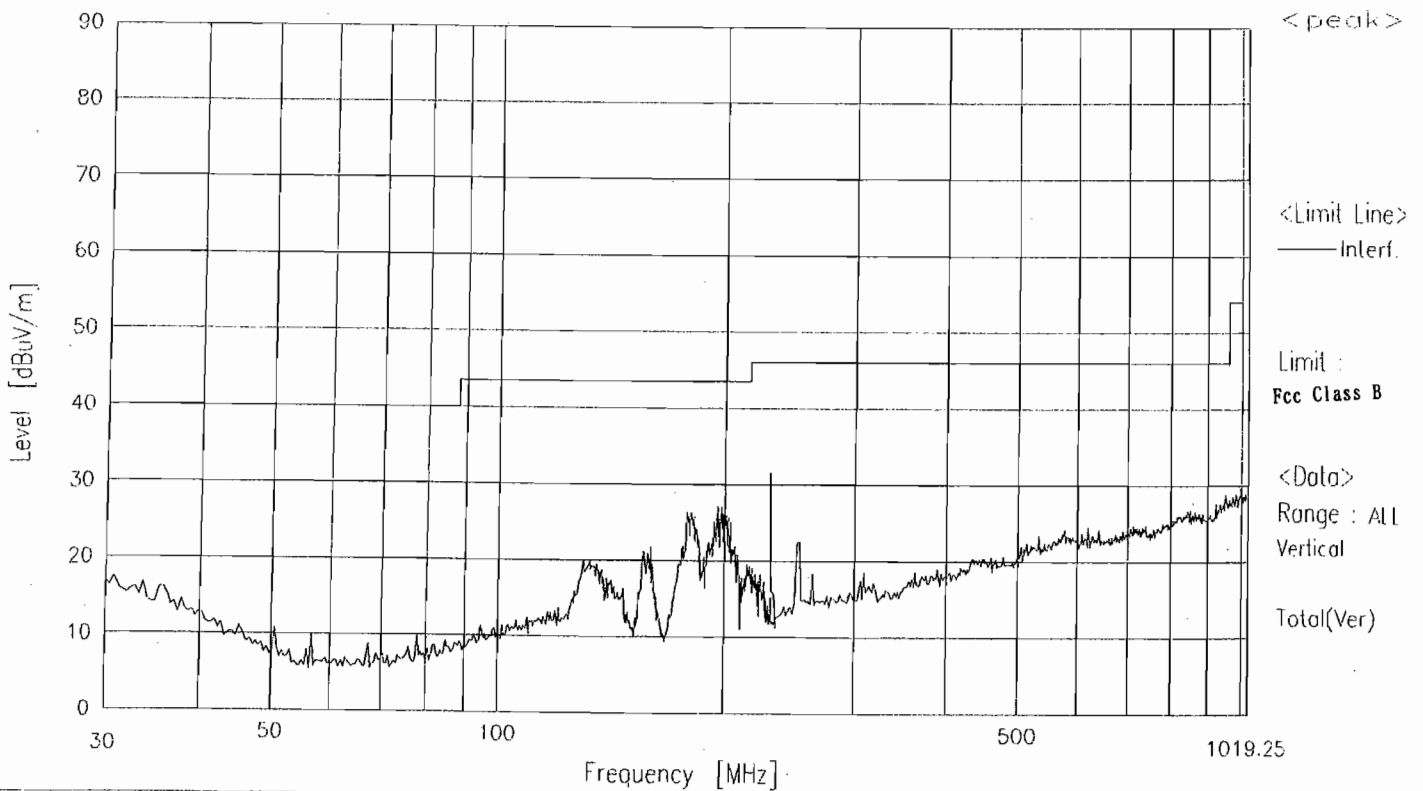
Model : Measuring of drive equipment
Serial No. : (Condition of removed VFD module)
Remarks : MIM-2002

Standard :
Operator :



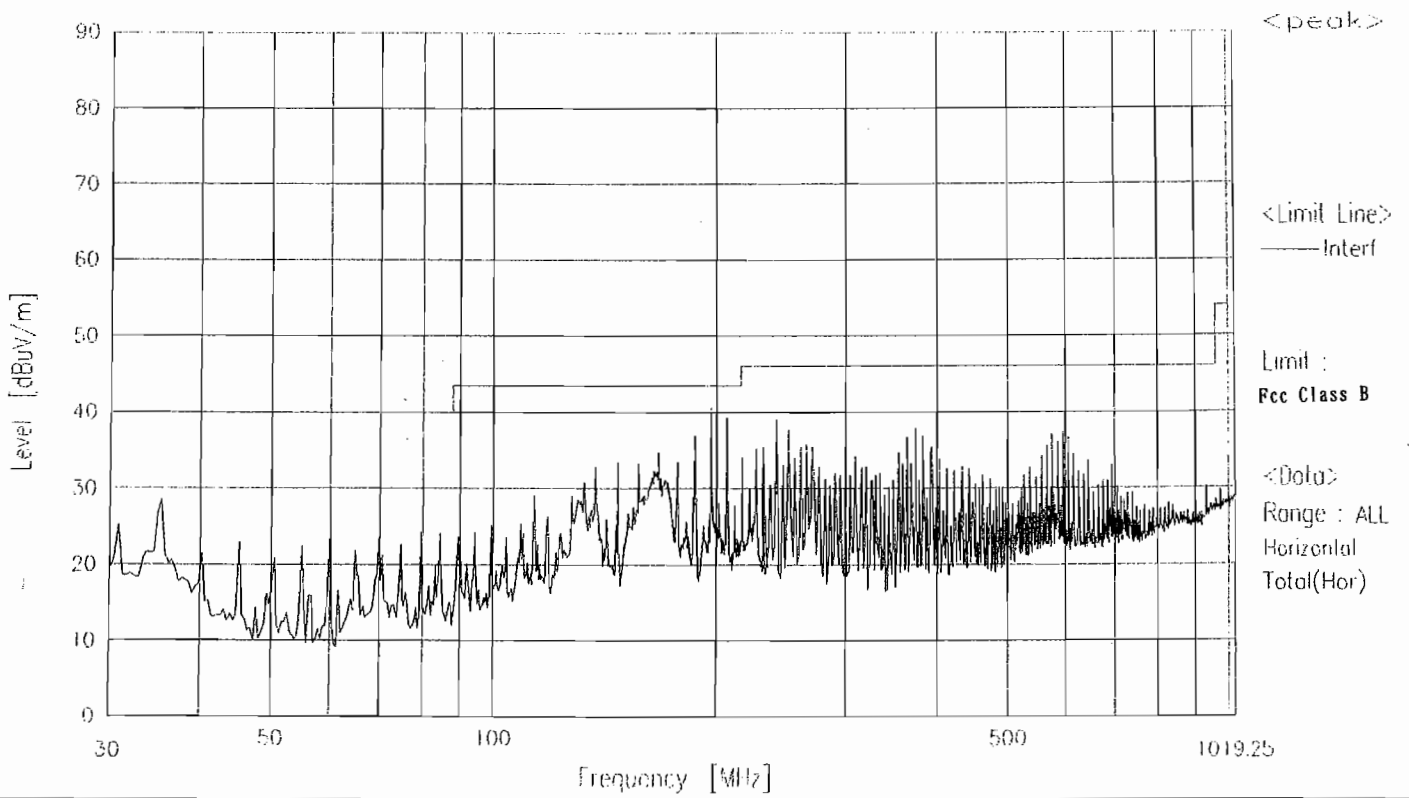
Model : Measuring of drive equipment
Serial No. : (Condition of removed VFD module)
Remarks : MIM-2002

Standard :
Operator :



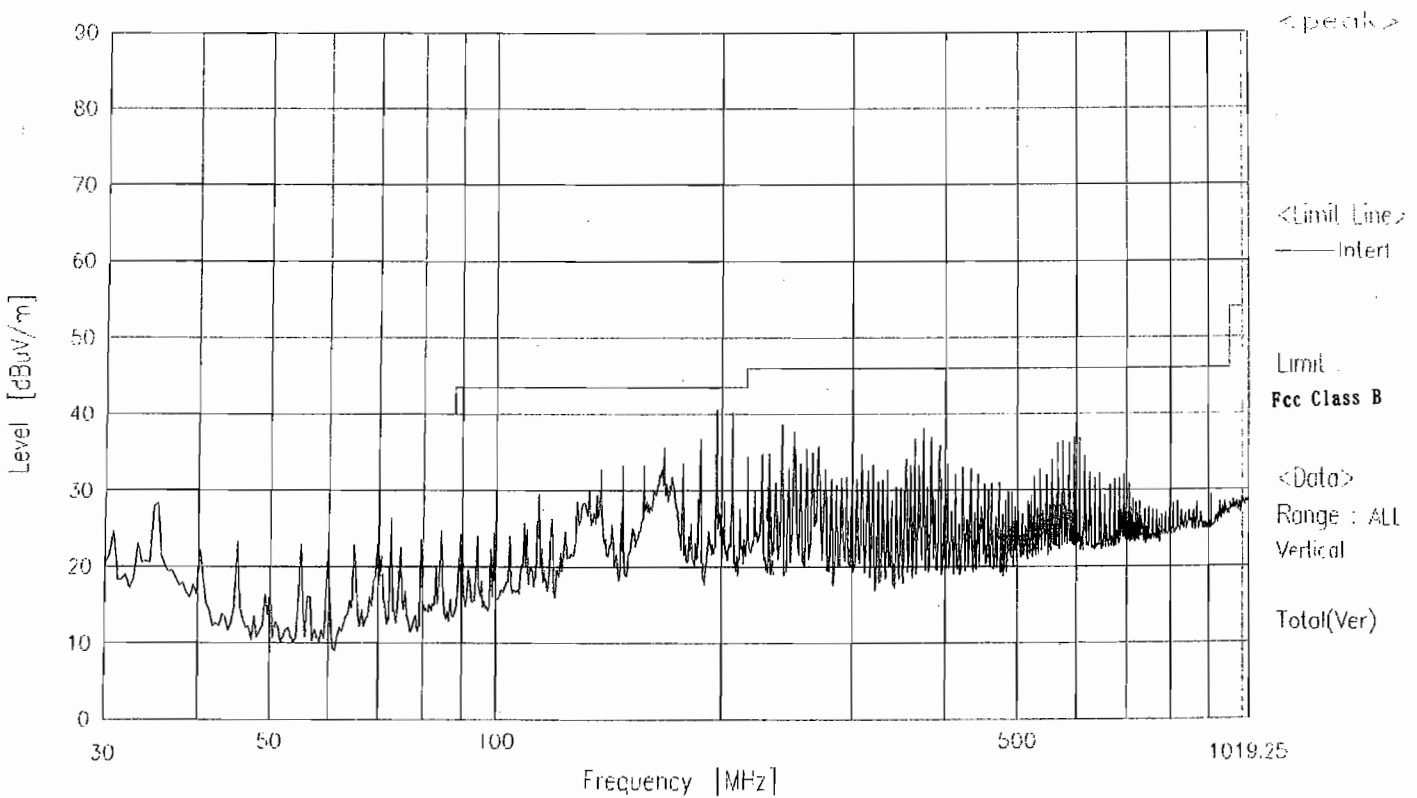
Model : GV512 x 32F-3000 No.1
Serial No. : MIM-2002
Remarks :

Standard :
Operator :



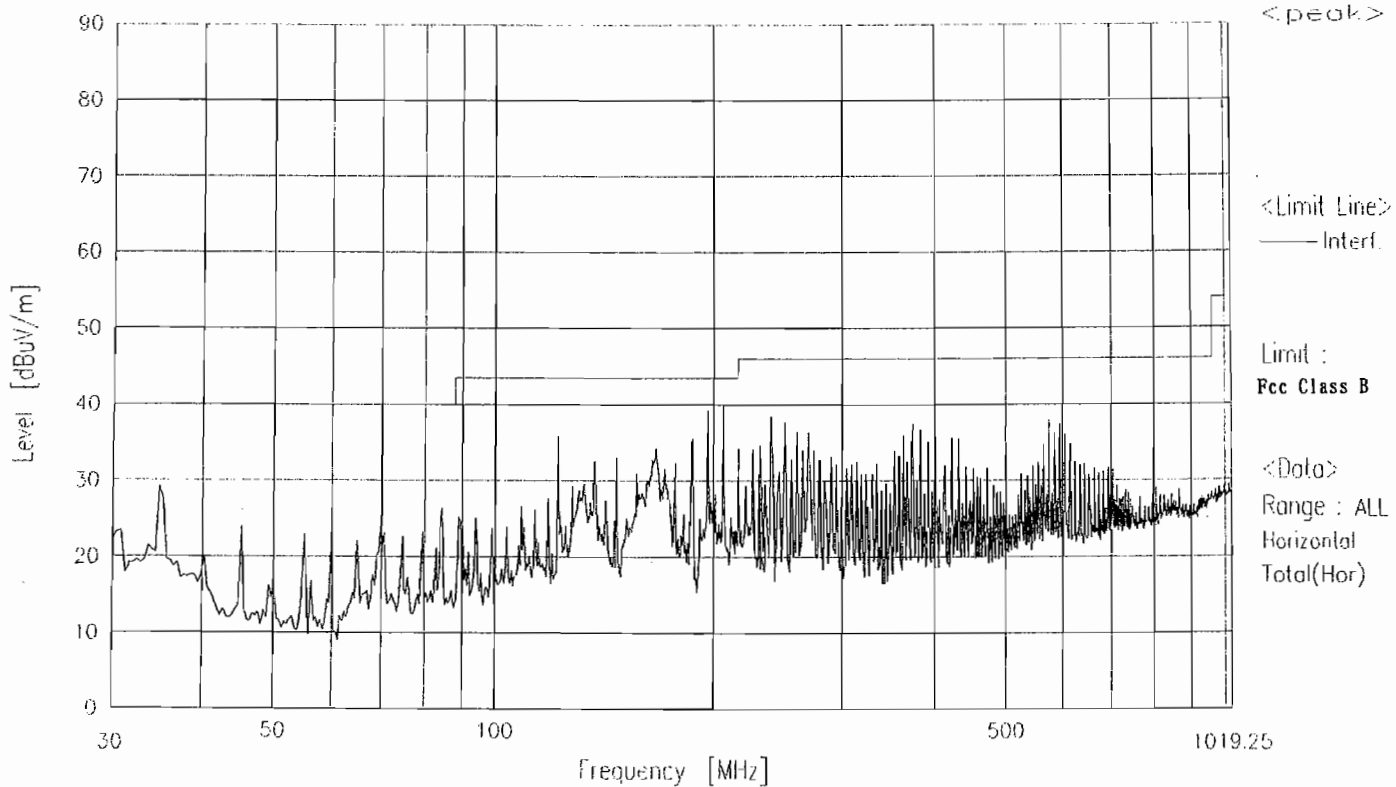
Model : GV512 x 32F-3000 No.1
Serial No. : MIM-2002
Remarks :

Standard :
Operator :



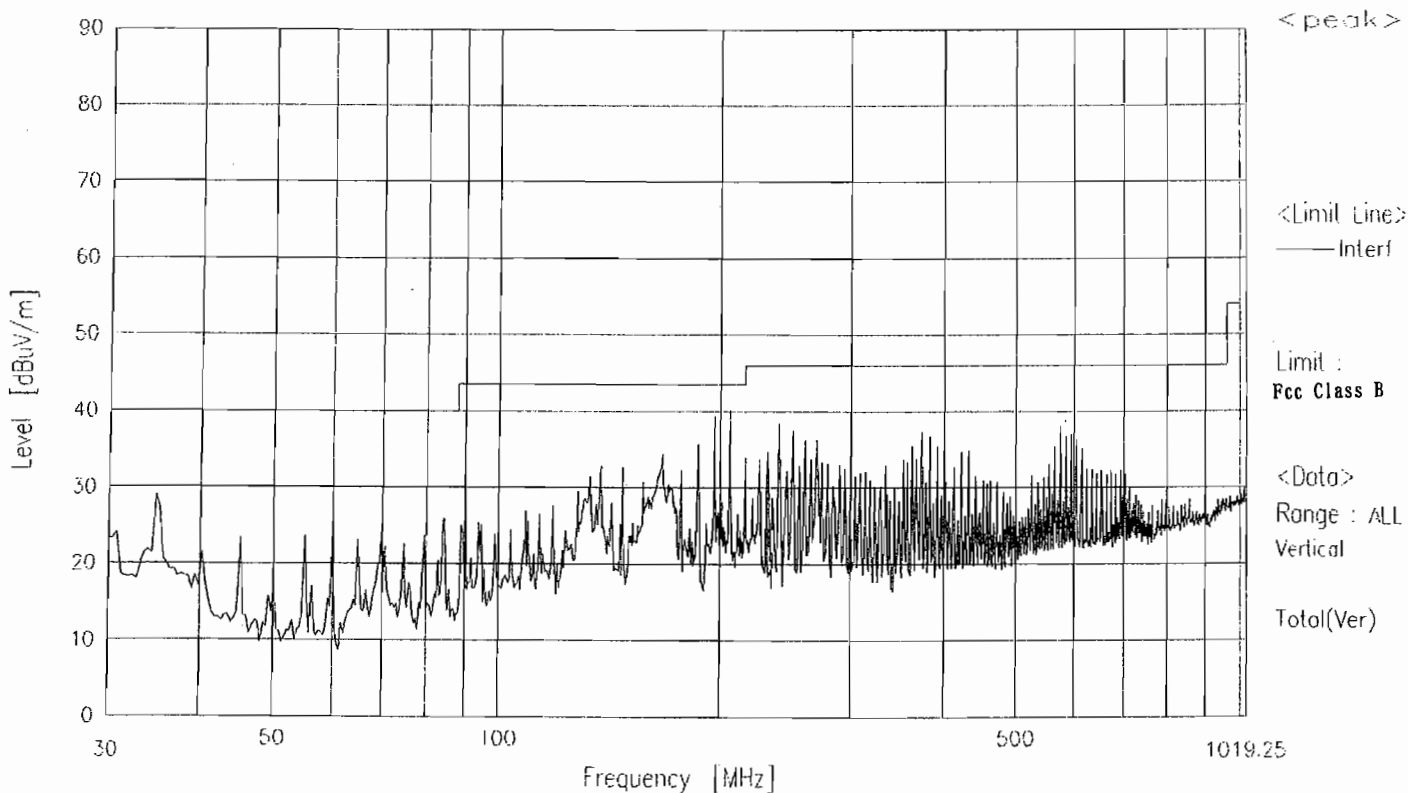
Model : GUS12X32F-3000 No.2
Serial No. :
Remarks : MJM-2002

Standard :
Operator :



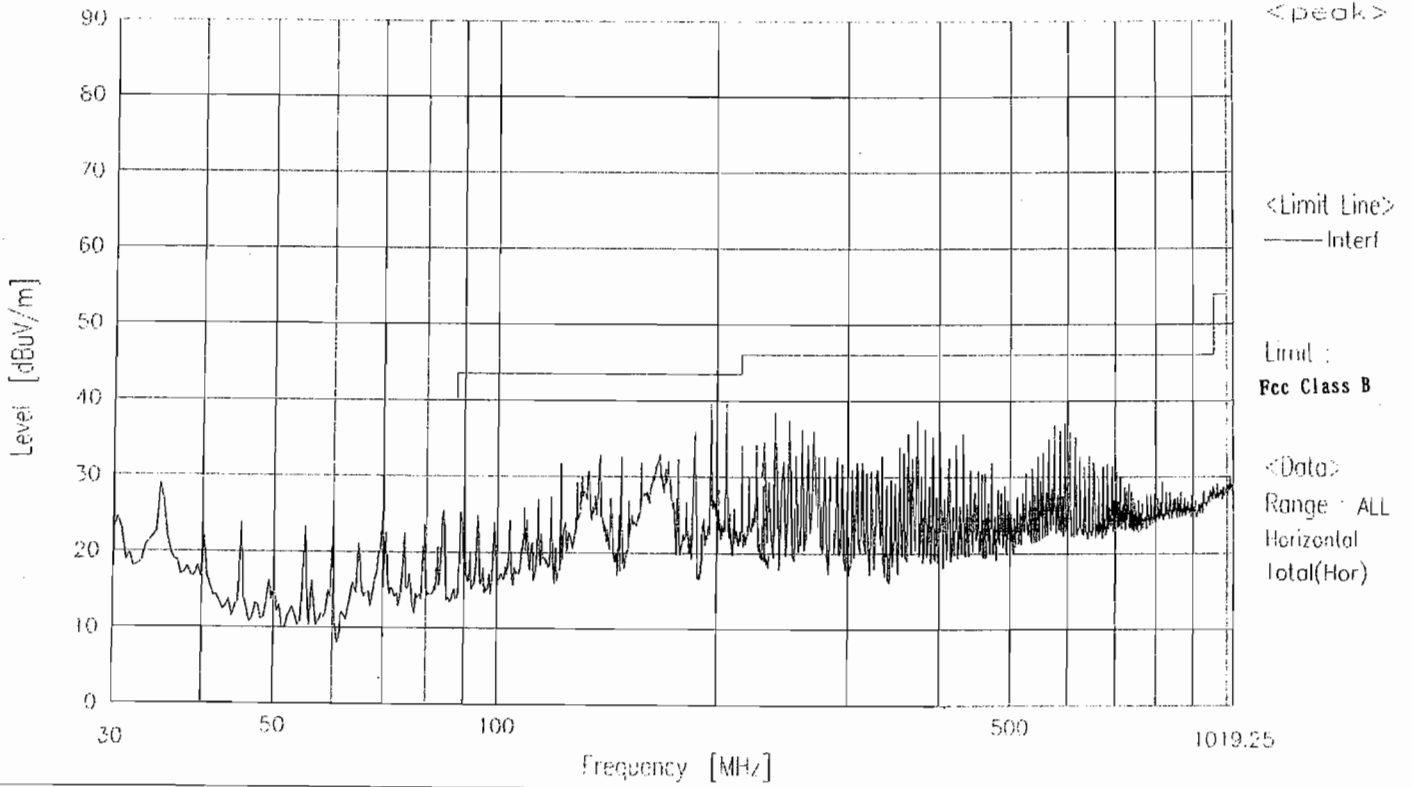
Model : GUS12X32F-3000 No.2
Serial No. :
Remarks : MJM-2002

Standard :
Operator :



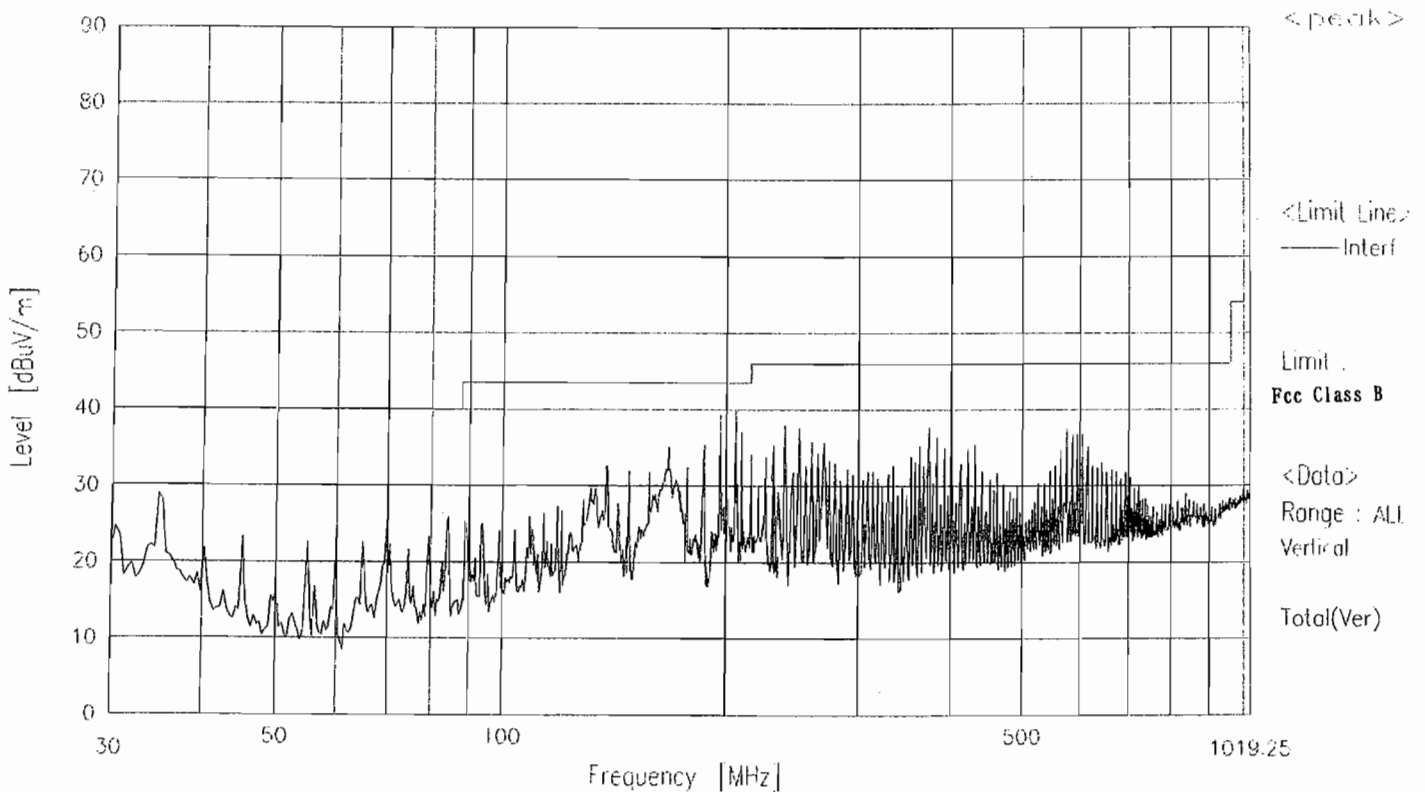
Model : GUS12 X 32F-3000 No.3
Serial No. : MIM-2002
Remarks :

Standard :
Operator :



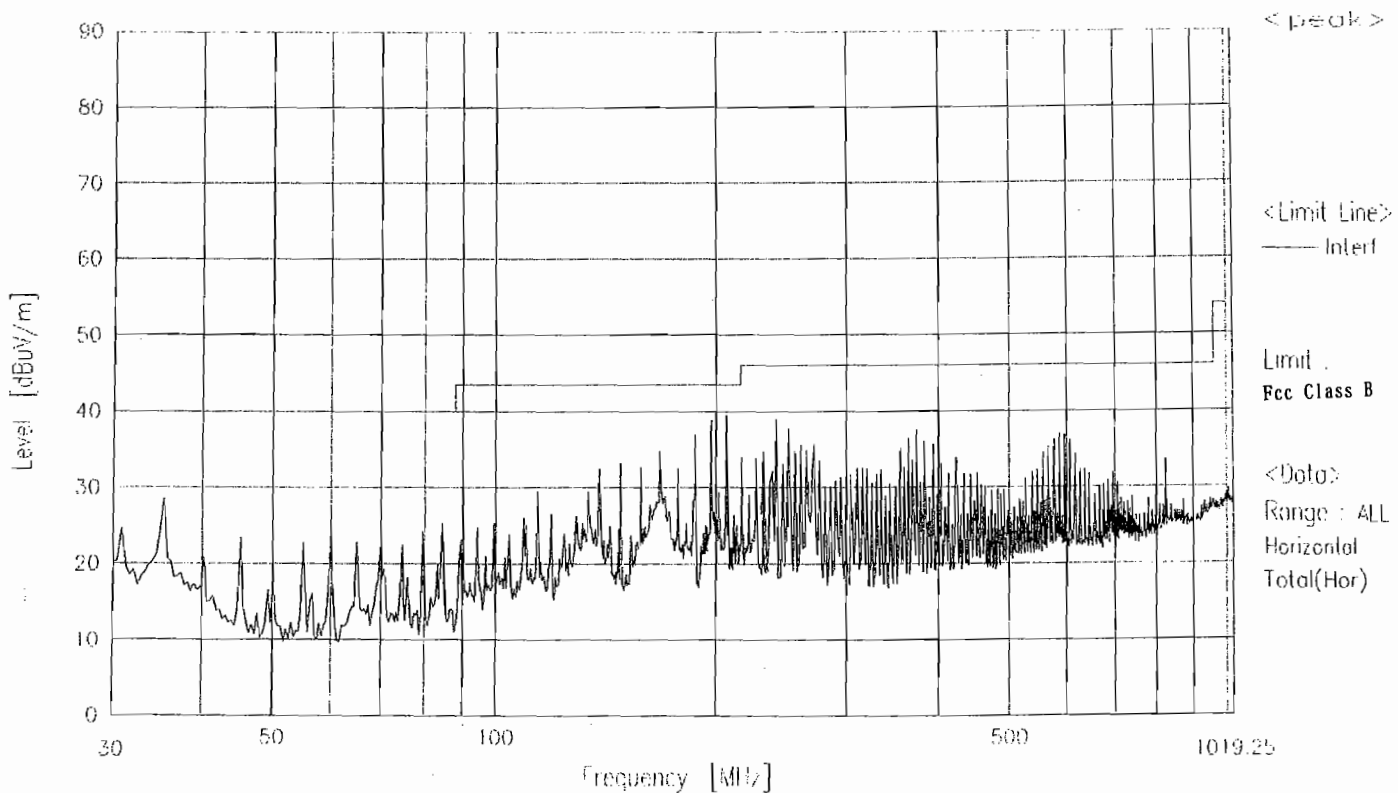
Model : GUS12 X 32F-3000 No.3
Serial No. : MIM-2002
Remarks :

Standard :
Operator :



Model : GU512x32F-3000 No.4
Serial No. :
Remarks : MIM-2002

Standard :
Operator :



Model : GU512x32F-3000 No.4
Serial No. :
Remarks : MIM-2002

Standard :
Operator :

