

# TEST REPORT

**Applicant Name :** ENCARDIO-RITE ELECTRONICS PVT. LTD.  
**Address :** A-7, INDUSTRIAL ESTATE, TALKATORA ROAD, LUCKNOW,  
 UP-226011, INDIA  
**Report Number :** SZ1220419-15136E-EM  
**FCC ID:** 2AU85ESDL-30

**Test Standard (s)**  
 FCC Part 15 Subpart B

### Sample Description

**Product Type:** ESDL-30 Datalogger  
**Model No.:** ESDL-30-12V-4GUS  
**Multiple Model:** ESDL-30-7V2-4GUS, ESDL-30-3V0-4GUS  
**Trade Mark:** Encardio-rite Logo  
**Date Received:** 2022-04-20  
**Date of Test:** 2022-05-18 to 2022-05-23  
**Report Date:** 2022-05-23

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

**Prepared and Checked By:**



Amy Cao  
 EMC Engineer

**Approved By:**



Candy Li  
 EMC Engineer

**Note:** This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk “★”.

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## TABLE OF CONTENTS

<b>1. TEST RESULTS SUMMARY .....</b>	<b>4</b>
<b>2. GENERAL INFORMATION .....</b>	<b>5</b>
2.1. Description of Device (EUT) .....	5
2.2. Test mode .....	5
2.3. General disclaimer .....	5
2.4. Accessory and Auxiliary Equipment and Cables .....	6
2.5. Description of Test Facility .....	6
2.6. Measurement Uncertainty .....	6
<b>3. MEASURING DEVICE AND TEST EQUIPMENT .....</b>	<b>7</b>
3.1. For Conducted Emission Test .....	7
3.2. For Radiated Emission Measurement .....	7
<b>4. CONDUCTED EMISSION MEASUREMENT .....</b>	<b>8</b>
4.1. Block Diagram of Test Setup .....	8
4.2. Power Line Conducted Emission Measurement Limits (Class B) .....	9
4.3. Test mode description .....	9
4.4. Manufacturer .....	9
4.5. Operating Condition of EUT .....	9
4.6. Test Procedure .....	10
4.7. Data Explain .....	10
4.8. Power Line Conducted Emission Measurement Results .....	10
<b>5. RADIATED EMISSION MEASUREMENT .....</b>	<b>15</b>
5.1. Block Diagram of Test Setup .....	15
5.2. Radiated Emission Limit (Class B) .....	17
5.3. Manufacturer .....	17
5.4. Operating Condition of EUT .....	17
5.5. Test Procedure .....	18
5.6. Data Sample .....	18
5.7. Radiated Emission Measurement Result .....	18

## Test Report Declaration

Applicant : ENCARDIO-RITE ELECTRONICS PVT. LTD.  
Manufacturer : ENCARDIO-RITE ELECTRONICS PVT. LTD.  
Product : ESDL-30 Datalogger  
Model No. : ESDL-30-12V-4GUS  
Multiple Model : ESDL-30-7V2-4GUS, ESDL-30-3V0-4GUS  
Trade Mark : Encardio-rite Logo

Measurement Procedure Used:

### **FCC Rules and Regulations Part 15 Subpart B ANSI C63.4-2014**

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

## 1. TEST RESULTS SUMMARY

Test Items	Test Standard	Test Results
Conducted Emission (150kHz-30MHz)	FCC Part 15 Subpart B, Section 15.107	Pass
Radiated Emission (30-1000MHz)	FCC Part 15 Subpart B, Section 15.109	Pass
Radiated Emission (Above 1GHz)	FCC Part 15 Subpart B, Section 15.109	Pass

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

Product : ESDL-30 Datalogger

Model No. : ESDL-30-12V-4GUS

Multiple Model : ESDL-30-7V2-4GUS, ESDL-30-3V0-4GUS

Model Differences : Please refer to the Dos letter  
Rating : DC 12 V, DC 3 V, DC 7.2 V

Remark(s) : The EUT's highest operating frequency is 1990 MHz, the radiated emission measurement was made up to 18GHz.

Applicant : ENCARDIO-RITE ELECTRONICS PVT. LTD.

Address : A-7, INDUSTRIAL ESTATE, TALKATORA ROAD, LUCKNOW, UP-226011, INDIA

Manufacturer : ENCARDIO-RITE ELECTRONICS PVT. LTD.

Address : A-7, INDUSTRIAL ESTATE, TALKATORA ROAD, LUCKNOW, UP-226011, INDIA

Sample Number : SZ1220419-15136E-EM-S1,  
SZ1220419-15136E-EM-S2,  
SZ1220419-15136E-EM-S3

### 2.2. Test mode

Test mode 1: System operation (USB)

Test mode 2: System operation (RS232)

### 2.3. General disclaimer

1. Each test item follows test standard and with no deviation.
2. The test results presented in this report relate only to the object tested. The information supplied by the customer can affect the validity of results.

## 2.4. Accessory and Auxiliary Equipment and Cables

RS232 signal line -EUT	:	20CM
RS232 signal line-PC	:	140CM
USB signal line	:	175CM
SENSOR*3	:	Model: EAN-93M-B Series No:1#: G196975    2#:G194953    3#:G191356 Manufacturer: ENCAROIO RITE
DC 1.5V*2 BATTERY	:	Model: R20P Manufacturer: Fujian Nanping Nanfu Battery Co., LTD
DC 3.6V*2 BATTERY	:	Model: ER34615 Manufacturer: Ahead Cell Technology Co., Ltd
DC 12V BATTERY	:	Model: 6-QW-60 Manufacturer: CHENGDU CHUANXISTORAGE BATTERY(GROUP) Co., Ltd
Desktop PC	:	Model: N01-F130rcn Manufacturer: HP Inc
Display	:	Model: E178FPc Manufacturer: Dell Inc.
Keyboard	:	Model: L100 Manufacturer: Dell Inc.
Mouse	:	Model: MS116c Manufacturer: Dell Inc.

## 2.5. Description of Test Facility

EMC Lab.	
Name of Firm	: Shenzhen Accurate Technology Co., Ltd.
Site Location	: 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

## 2.6. Measurement Uncertainty

Radiated Emission Expanded Uncertainty (30MHz-1000MHz)	:	$U=4.28dB, k=2$
Radiated Emission Expanded Uncertainty (1GHz -18GHz)	:	$U=4.98dB, k=2$
AC Power Lines Conducted Emissions Expanded Uncertainty (0.15MHz-30MHz)	:	$U=2.72dB, k=2$

### 3. MEASURING DEVICE AND TEST EQUIPMENT

#### 3.1. For Conducted Emission Test

Item	Manufacturer	Equipment	Model No.	Serial No.	Calibration Date	Calibration Due Date
1.	Rohde & Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12
2.	Rohde & Schwarz	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12
3.	Rohde & Schwarz	L.I.S.N. (Auxiliary)	ESH3-Z5	100305	2021/12/13	2022/12/12
4.	Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2021/12/13	2022/12/12
5.	Unknown	RF Coaxial Cable	No.17	N0350	2021/12/14	2022/12/13
6.	Conducted Emission Test Software: e3 19821b (V9)					

#### 3.2. For Radiated Emission Measurement

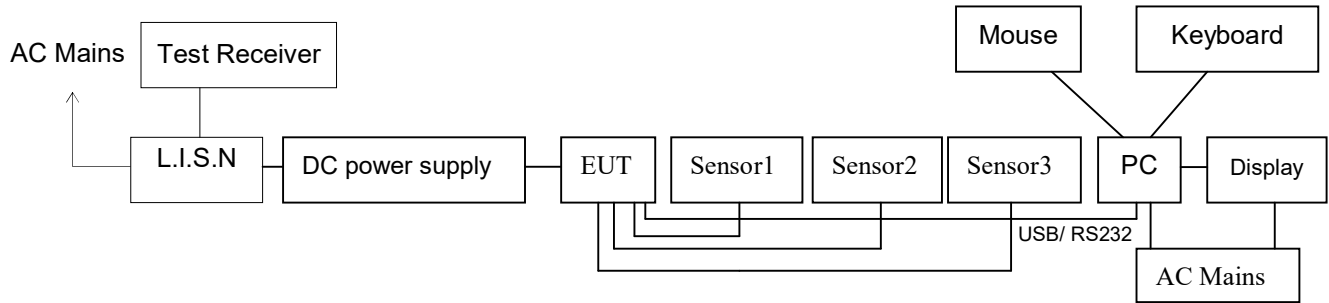
Item	Manufacturer	Equipment	Model No.	Serial No.	Calibration Date	Calibration Due Date
1.	Rohde & Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
2.	Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
3.	SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
4.	A.H. Systems, inc.	Preamplifier	PAM-0118 P	135	2021/11/09	2022/11/08
5.	Schwarzbeck	Bilog Antenna	VULB916 3	9163-323	2021/07/06	2024/07/05
6.	Schwarzbeck	Horn Antenna	BBHA912 0D	9120D-10 67	2020/01/05	2023/01/04
7.	Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
8.	Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
9.	Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
10.	Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
11.	Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
12.	Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2021/12/13	2022/12/12
13.	Radiated Emission Test Software: e3 19821b (V9)					

## 4. CONDUCTED EMISSION MEASUREMENT

### 4.1. Block Diagram of Test Setup

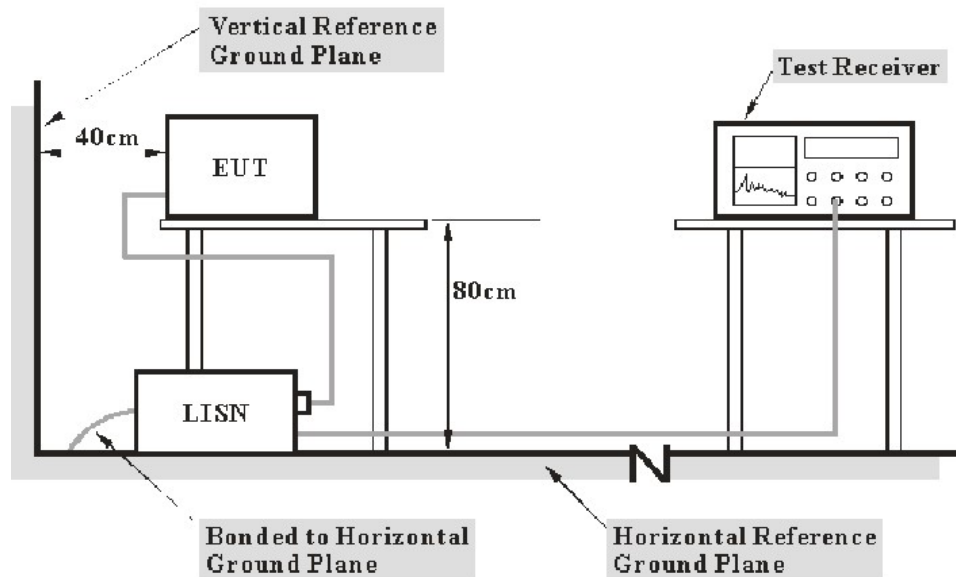
#### 4.1.1. Block diagram of connection between the EUT and simulators

DC12V:



(EUT: ESDL-30-12V-4GUS)

#### 4.1.2. Test System Setup



- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.



## 4.2. Power Line Conducted Emission Measurement Limits (Class B)

Frequency (MHz)	Limit dB( $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.  
NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

## 4.3. Test mode description

Test mode 1: System operation (USB)

Test mode 2: System operation (RS232)

### 4.3.1. Environmental Conditions

Temperature : 23 °C

Relative Humidity : 50%

ATM Pressure : 101 kPa

The testing was performed by Jason Liu on 2022-05-23.

## 4.4. Manufacturer

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

### 4.4.1. ESDL-30 Datalogger (EUT)

Model Number : ESDL-30-12V-4GUS

Manufacturer : ENCADIO-RITE ELECTRONICS PVT. LTD.

## 4.5. Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 4.1.

4.5.2. Turn on the power of all equipments.

4.5.3. Let the EUT work in test mode and measure it.

#### 4.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

#### 4.7. Data Explain

Over limit = Level (dB $\mu$ V) - Limit (dB $\mu$ V)

#### 4.8. Power Line Conducted Emission Measurement Results

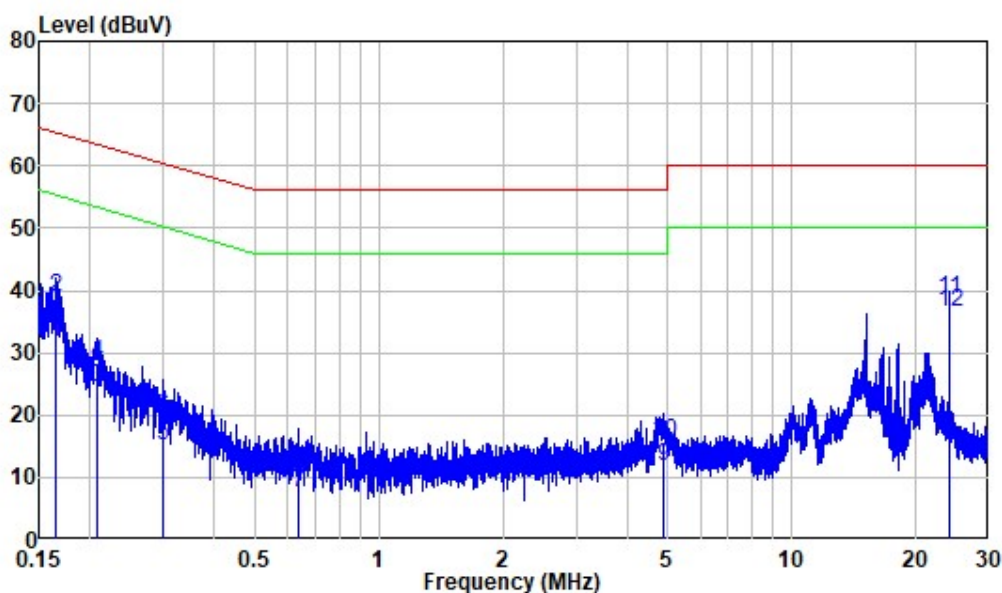
**PASS.**

The frequency range from 150kHz to 30MHz is checked.

All data was recorded in the Quasi-peak and average detection mode.

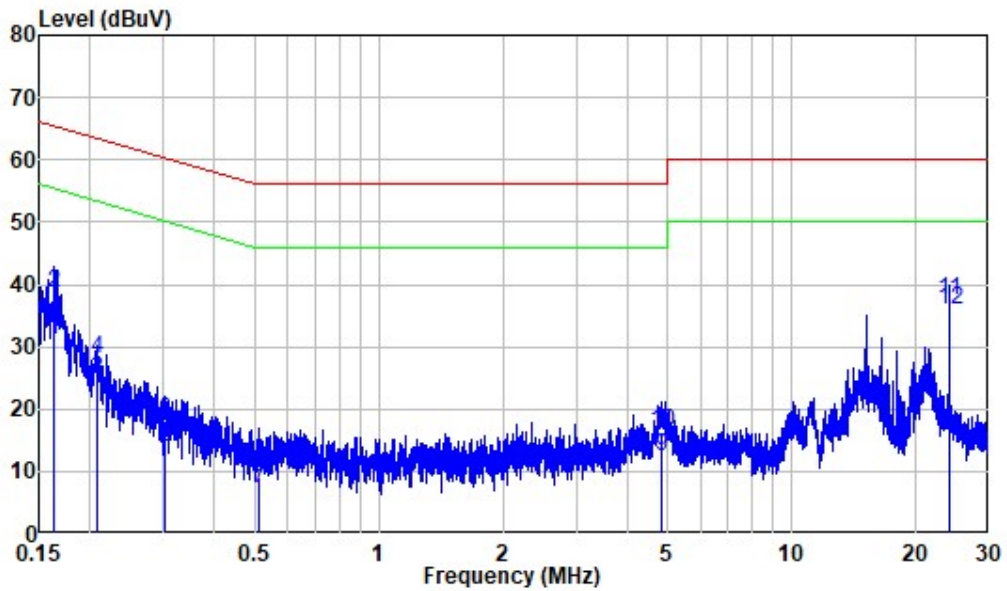
The spectral diagrams are attached as below.

Test mode 1:



Site : Shielding Room  
 Condition: Line  
 Job No. : SZ1220419-15136E-EM  
 Mode : System operation  
 Note : USB

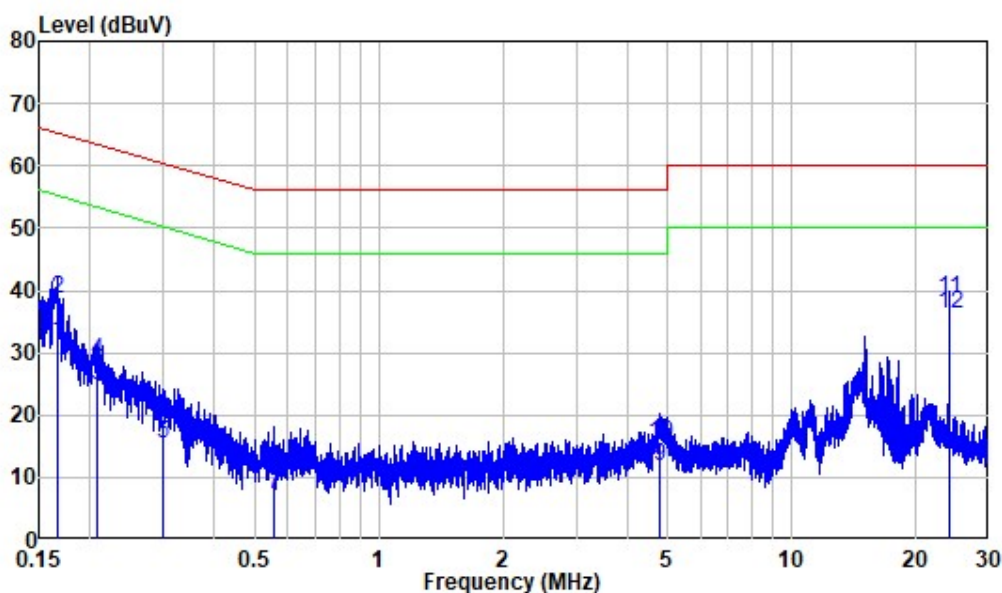
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.164	9.80	21.99	31.79	55.24	-23.45	Average
2	0.164	9.80	29.14	38.94	65.24	-26.30	QP
3	0.209	9.80	14.66	24.46	53.26	-28.80	Average
4	0.209	9.80	18.51	28.31	63.26	-34.95	QP
5	0.301	9.80	5.23	15.03	50.21	-35.18	Average
6	0.301	9.80	9.87	19.67	60.21	-40.54	QP
7	0.637	9.81	-2.24	7.57	46.00	-38.43	Average
8	0.637	9.81	-0.09	9.72	56.00	-46.28	QP
9	4.883	9.85	1.99	11.84	46.00	-34.16	Average
10	4.883	9.85	5.93	15.78	56.00	-40.22	QP
11	23.999	10.04	28.58	38.62	50.00	-11.38	Average
12	23.999	10.04	26.39	36.43	60.00	-23.57	QP



Site : Shielding Room  
 Condition: Neutral  
 Job No. : SZ1220419-15136E-EM  
 Mode : System operation  
 Note : USB

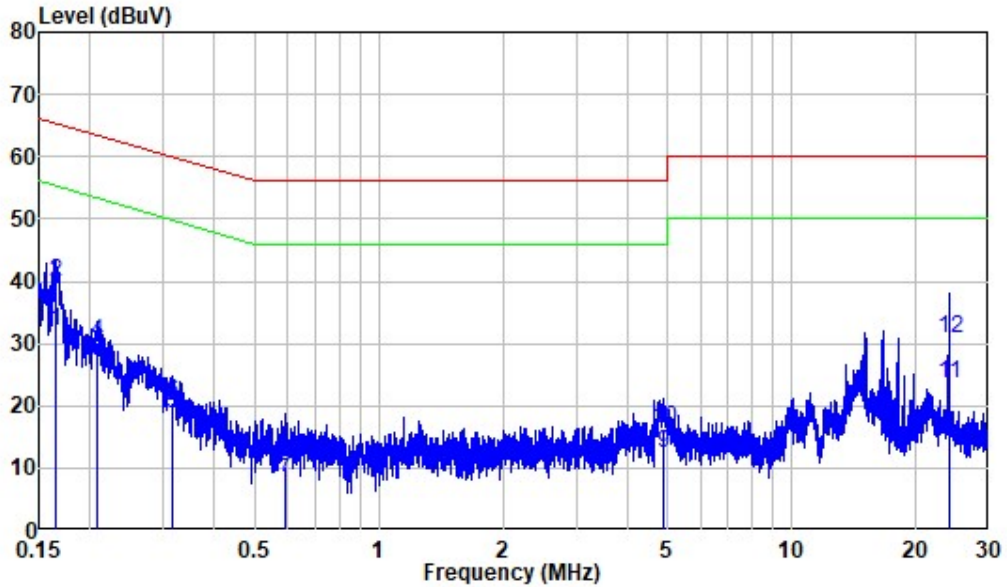
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.163	9.80	21.15	30.95	55.28	-24.33	Average
2	0.163	9.80	28.70	38.50	65.28	-26.78	QP
3	0.208	9.80	14.88	24.68	53.30	-28.62	Average
4	0.208	9.80	18.23	28.03	63.30	-35.27	QP
5	0.303	9.80	4.18	13.98	50.16	-36.18	Average
6	0.303	9.80	8.21	18.01	60.16	-42.15	QP
7	0.510	9.81	-2.65	7.16	46.00	-38.84	Average
8	0.510	9.81	-0.62	9.19	56.00	-46.81	QP
9	4.858	9.88	2.60	12.48	46.00	-33.52	Average
10	4.858	9.88	6.34	16.22	56.00	-39.78	QP
11	23.999	10.14	27.23	37.37	50.00	-12.63	Average
12	23.999	10.14	25.73	35.87	60.00	-24.13	QP

Test mode 2:



Site : Shielding Room  
 Condition: Line  
 Job No. : SZ1220419-15136E-EM  
 Mode : System operation  
 Note : RS232

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.166	9.80	21.96	31.76	55.16	-23.40	Average
2	0.166	9.80	28.75	38.55	65.16	-26.61	QP
3	0.208	9.80	15.04	24.84	53.28	-28.44	Average
4	0.208	9.80	18.88	28.68	63.28	-34.60	QP
5	0.300	9.80	5.48	15.28	50.25	-34.97	Average
6	0.300	9.80	9.59	19.39	60.25	-40.86	QP
7	0.556	9.81	-2.47	7.34	46.00	-38.66	Average
8	0.556	9.81	-0.39	9.42	56.00	-46.58	QP
9	4.778	9.85	1.95	11.80	46.00	-34.20	Average
10	4.778	9.85	5.60	15.45	56.00	-40.55	QP
11	24.031	10.04	28.67	38.71	50.00	-11.29	Average
12	24.031	10.04	26.24	36.28	60.00	-23.72	QP



Site : Shielding Room  
 Condition: Neutral  
 Job No. : SZ1220419-15136E-EM  
 Mode : System operation  
 Note : RS232

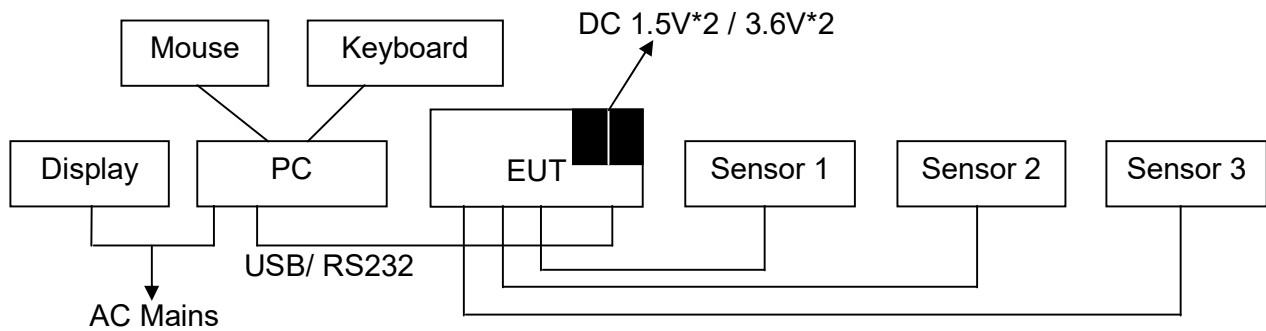
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.164	9.80	22.18	31.98	55.25	-23.27	Average
2	0.164	9.80	29.94	39.74	65.25	-25.51	QP
3	0.208	9.80	17.34	27.14	53.28	-26.14	Average
4	0.208	9.80	20.40	30.20	63.28	-33.08	QP
5	0.316	9.80	9.01	18.81	49.81	-31.00	Average
6	0.316	9.80	10.64	20.44	59.81	-39.37	QP
7	0.596	9.81	-1.46	8.35	46.00	-37.65	Average
8	0.596	9.81	0.35	10.16	56.00	-45.84	QP
9	4.896	9.89	2.63	12.52	46.00	-33.48	Average
10	4.896	9.89	6.34	16.23	56.00	-39.77	QP
11	24.063	10.14	13.36	23.50	50.00	-26.50	Average
12	24.063	10.14	20.80	30.94	60.00	-29.06	QP

## 5. RADIATED EMISSION MEASUREMENT

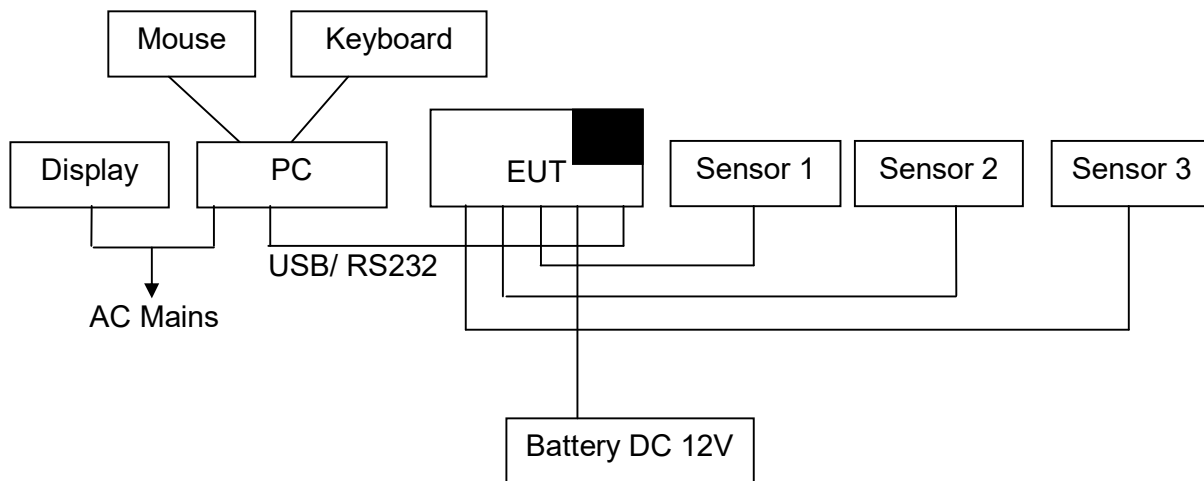
### 5.1. Block Diagram of Test Setup

#### 5.1.1. Block diagram of connection between the EUT and simulators

DC3 V / 7.2 V:

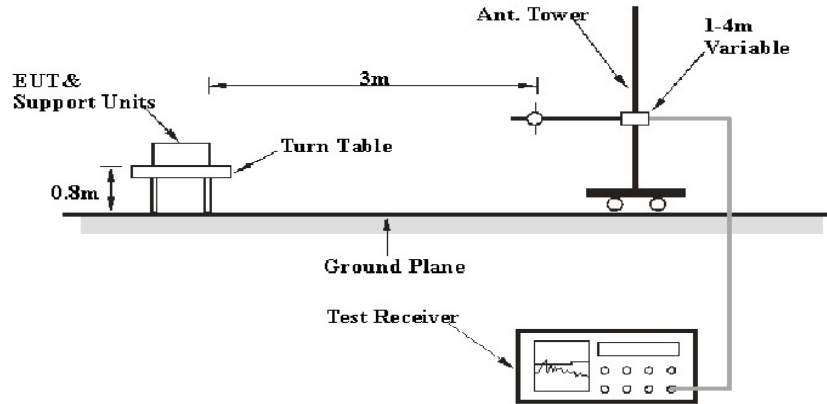


DC 12 V:

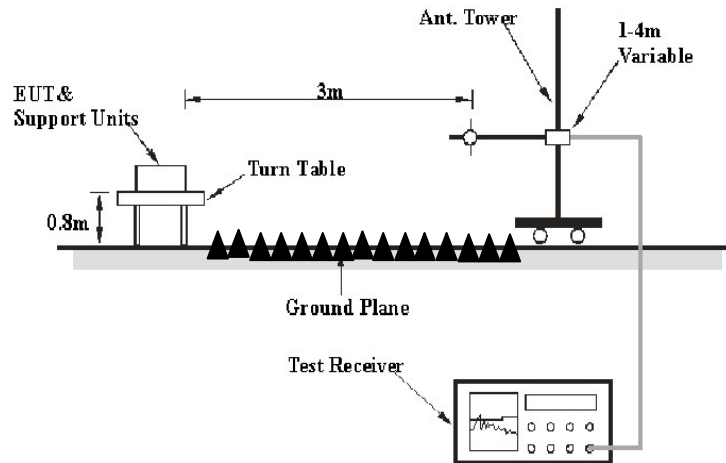


### 5.1.2. Test System Setup

#### Below 1GHz:



#### Above 1GHz:





## 5.2. Radiated Emission Limit (Class B)

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Below 1GHz:

Frequency MHz	Distance Meters	Field Strengths Limit	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V/m})$
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
960-1000	3	500	54.0

Remark:

(1) Emission level  $\text{dB}(\mu\text{V}) = 20 \log$  Emission level  $\mu\text{V/m}$ .

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument antenna and the closest point of any part of the device or system.

## 5.3. Manufacturer

The following equipments are installed on Radiated Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

### 5.3.1. ESDL-30 Datalogger (EUT)

Model Number : ESDL-30-12V-4GUS, ESDL-30-7V2-4GUS ,  
ESDL-30-3V0-4GUS

Manufacturer : ENCADIO-RITE ELECTRONICS PVT. LTD.

## 5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipments.

5.4.3. Let the EUT work in test mode and measure it.

## 5.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 80cm high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth is set at 9kHz in 9kHz-30MHz, 120 kHz in 30-1000MHz, and 1MHz for above 1GHz.

The frequency range from 30MHz to 18GHz is investigated.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705 .....	30.
1.705–108 .....	1000.
108–500 .....	2000.
500–1000 .....	5000.
Above 1000 .....	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

## 5.6. Data Sample

Over Limit (dB) = Level(dB $\mu$ v/m) - Limit (dB $\mu$ v/m)

QP = Quasi-peak Reading

The “Over Limit” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over Limit of -7dB means the emission is 7dB below the limit.

## 5.7. Radiated Emission Measurement Result

**PASS.**

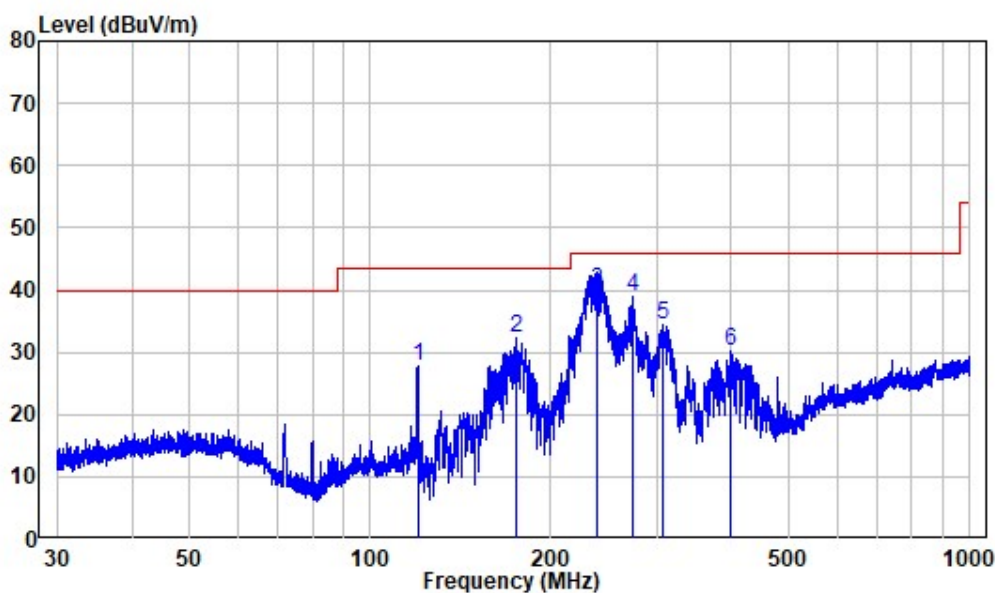
The frequency range from 30MHz to 18GHz is investigated.

The spectral diagrams are attached as below.

<b>Job No.:</b>	<b>SZ1220419-15136E-EM</b>	<b>Power:</b>	<b>DC 12/7.2/3V</b>
<b>Test standard:</b>	<b>System operation</b>	<b>Test By:</b>	<b>Nick Fang</b>
<b>EUT:</b>	<b>ESDL-30 Datalogger</b>	<b>Test item:</b>	<b>Radiation Emission</b>
<b>Model No.:</b>	<b>ESDL-30-12V-4GUS,ESDL-30-7V2-4GUS ,</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>24° C</b>
	<b>ESDL-30-3V0-4GUS</b>		<b>63% RH</b>
<b>Applicant:</b>	<b>ENCARDIO-RITE ELECTRONICS PVT. LTD</b>	<b>Date:</b>	<b>2022.5.18</b>

ESDL-30-3V0-4GUS  
USB (Below 1G)

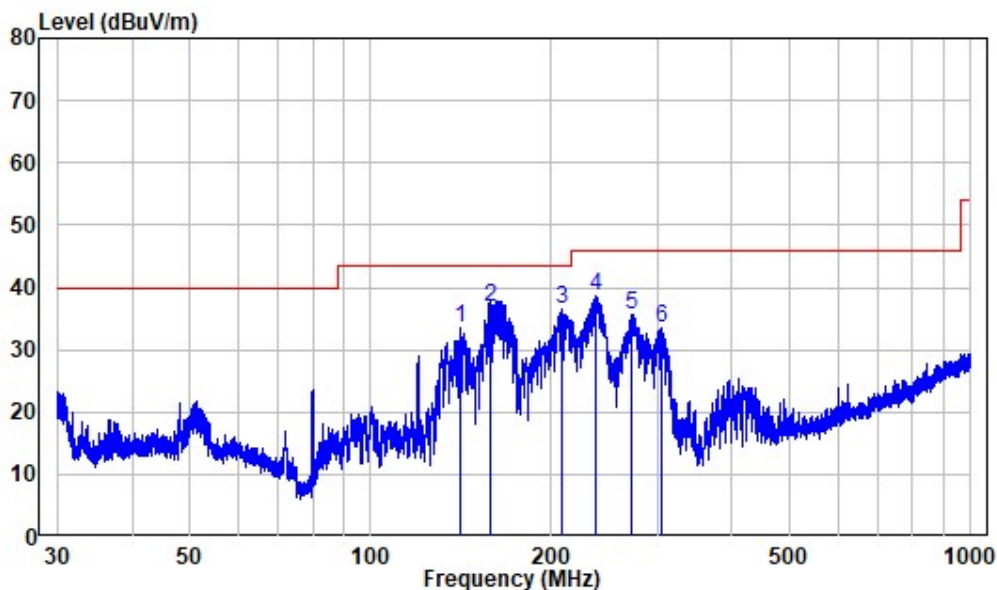
Horizontal



Site : chamber  
Condition: 3m HORIZONTAL  
Job No. : SZ1220419-15136E-EM  
Test Mode: System operation  
Note : USB  
Power : DC 3V

	Freq	Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	119.961	-13.52	41.36	27.84	43.50	-15.66	Peak
2	174.577	-13.14	45.41	32.27	43.50	-11.23	Peak
3	239.672	-10.92	50.69	39.77	46.00	-6.23	QP
4	274.074	-9.97	48.87	38.90	46.00	-7.10	Peak
5	307.427	-8.97	43.44	34.47	46.00	-11.53	Peak
6	398.506	-6.76	36.99	30.23	46.00	-15.77	Peak

Vertical

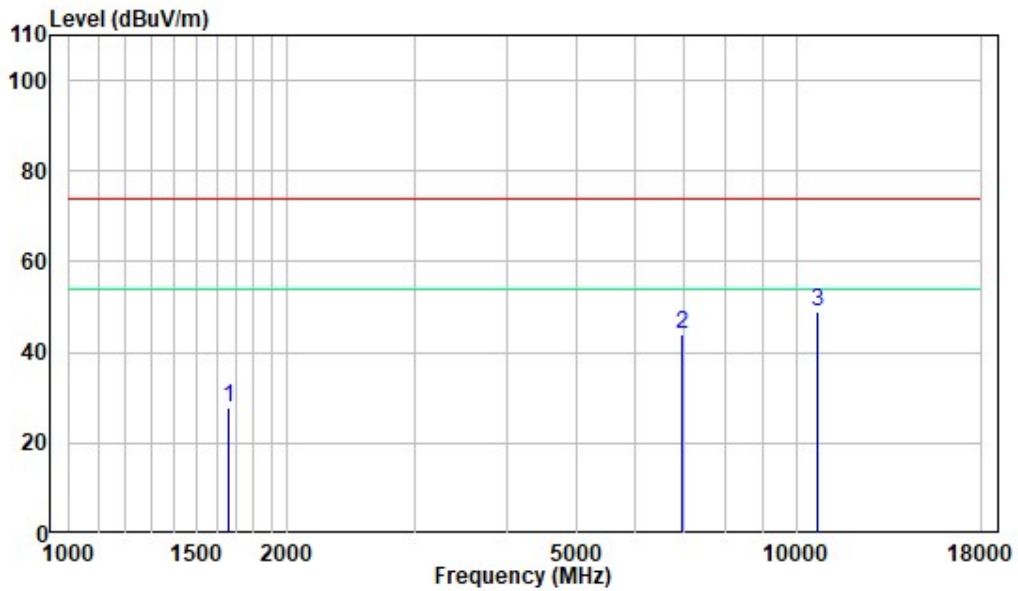


Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 3V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	141.082	-15.49	48.93	33.44	43.50	-10.06	Peak
2	157.766	-14.54	51.46	36.92	43.50	-6.58	QP
3	207.668	-11.84	48.28	36.44	43.50	-7.06	Peak
4	236.749	-10.94	49.48	38.54	46.00	-7.46	Peak
5	271.325	-10.14	45.74	35.60	46.00	-10.40	Peak
6	304.610	-9.08	42.74	33.66	46.00	-12.34	Peak

(Above 1G)

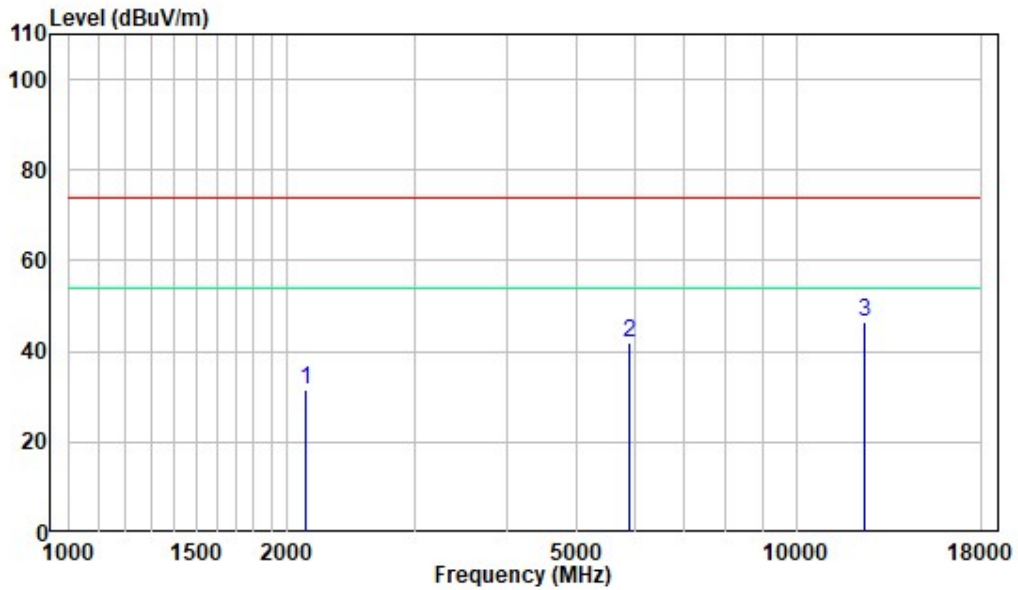
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 3V

	Freq	Factor	Read		Limit	Over	Remark
			Level	Level			
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1658.750	-9.05	36.88	27.83	74.00	-46.17	Peak
2	6956.375	2.15	41.82	43.97	74.00	-30.03	Peak
3	10679.380	9.04	40.07	49.11	74.00	-24.89	Peak

Vertical

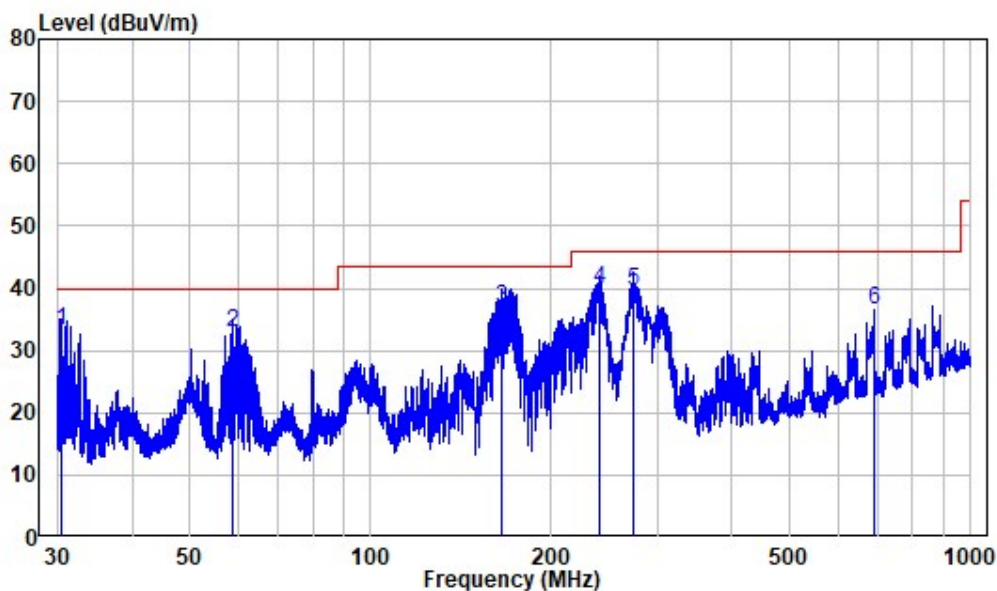


Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 3V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2126.250	-7.22	38.73	31.51	74.00	-42.49	Peak
2	5904.500	-1.85	43.80	41.95	74.00	-32.05	Peak
3	12398.500	6.25	40.40	46.65	74.00	-27.35	Peak

RS232 (Below 1G)

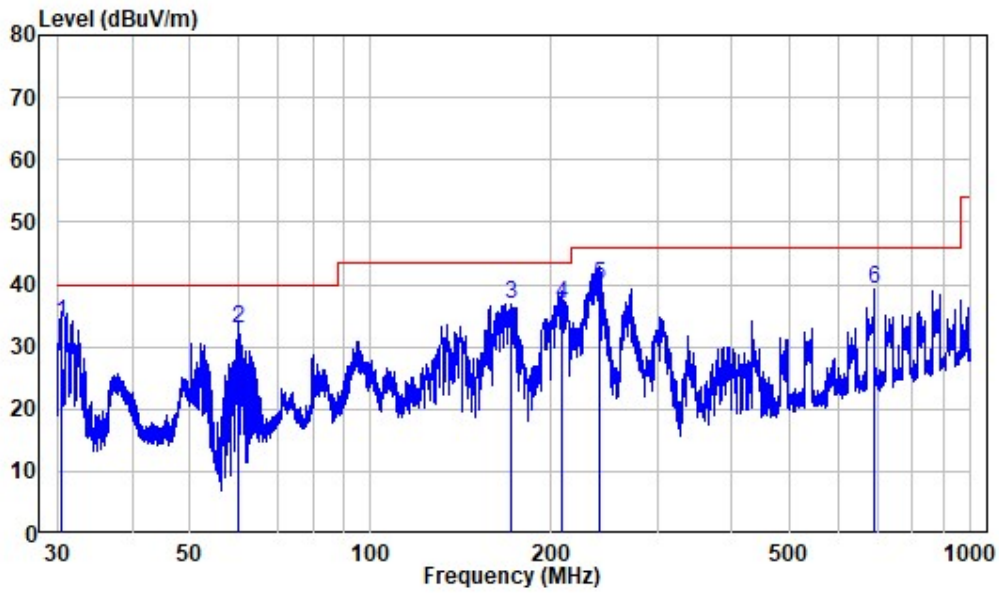
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 3V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.437	-12.35	45.45	33.10	40.00	-6.90	QP
2	58.870	-10.22	43.10	32.88	40.00	-7.12	QP
3	165.125	-14.12	51.07	36.95	43.50	-6.55	QP
4	240.303	-10.89	50.74	39.85	46.00	-6.15	QP
5	273.954	-9.97	49.44	39.47	46.00	-6.53	QP
6	690.775	-1.51	38.16	36.65	46.00	-9.35	Peak

Vertical



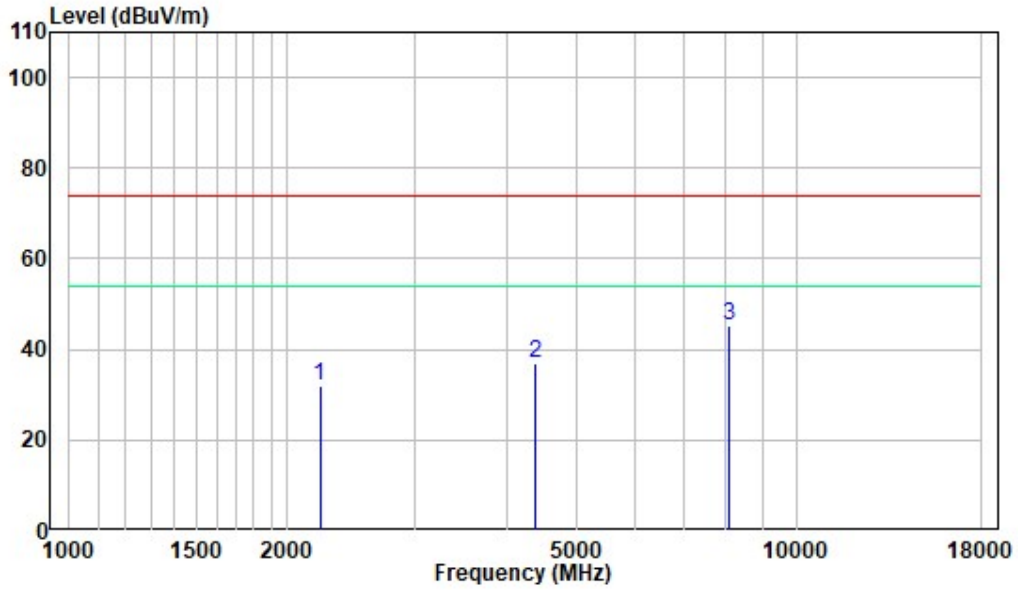
Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 3V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.410	-12.35	46.09	33.74	40.00	-6.26	QP
2	60.307	-10.74	43.77	33.03	40.00	-6.97	QP
3	171.844	-13.40	50.35	36.95	43.50	-6.55	Peak
4	207.668	-11.84	48.69	36.85	43.50	-6.65	QP
5	240.198	-10.90	50.73	39.83	46.00	-6.17	QP
6	691.987	-1.52	40.88	39.36	46.00	-6.64	Peak



(Above 1G)

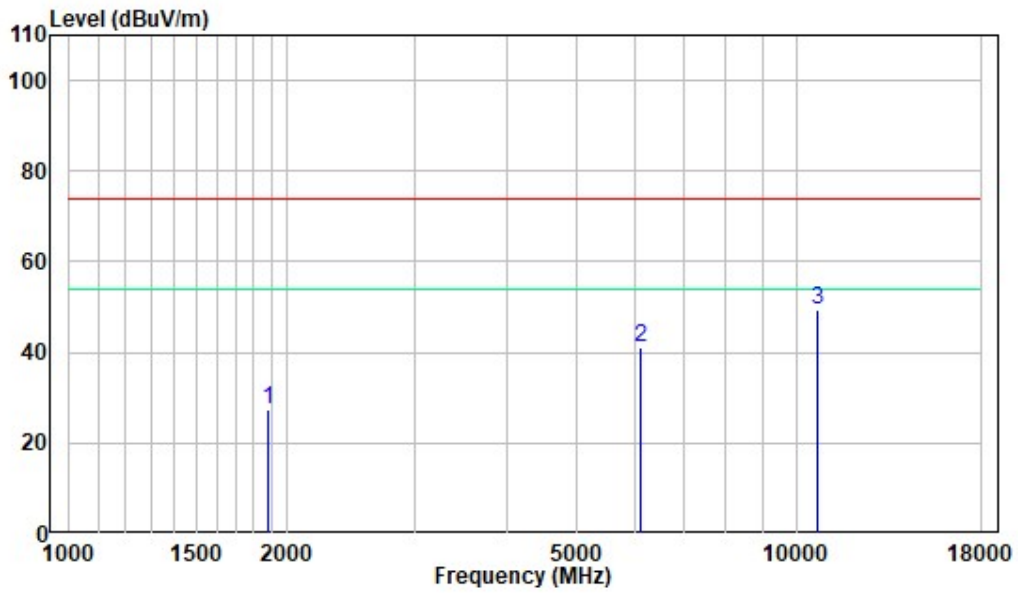
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 3V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2217.625	-7.21	39.28	32.07	74.00	-41.93	Peak
2	4385.125	-4.79	41.69	36.90	74.00	-37.10	Peak
3	8108.125	4.38	40.92	45.30	74.00	-28.70	Peak

Vertical



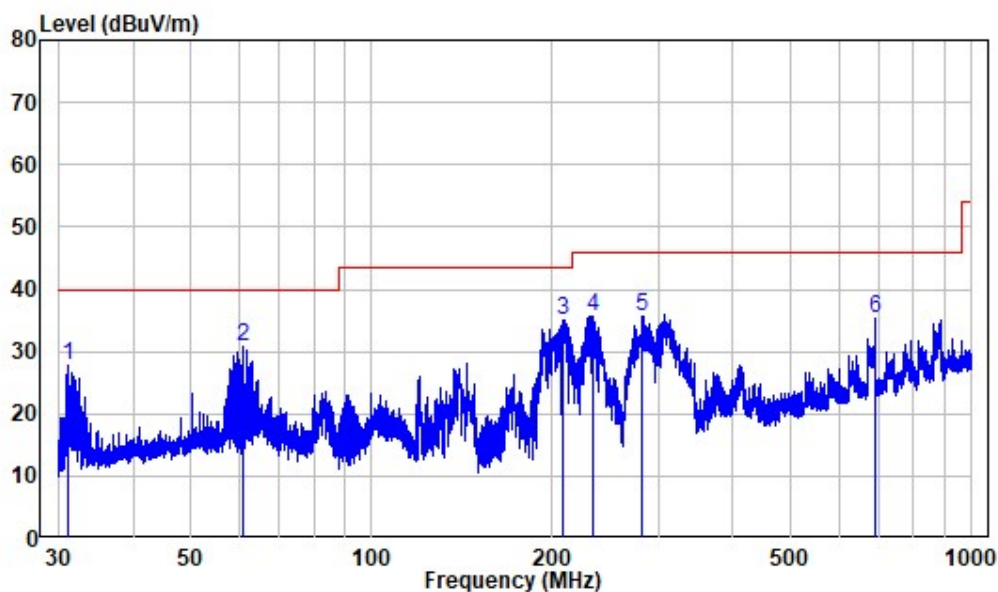
Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 3V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1879.750	-8.17	35.56	27.39	74.00	-46.61	Peak
2	6112.750	-1.16	42.18	41.02	74.00	-32.98	Peak
3	10694.250	9.09	40.40	49.49	74.00	-24.51	Peak

ESDL-30-7V2-4GUS

USB (Below 1G)

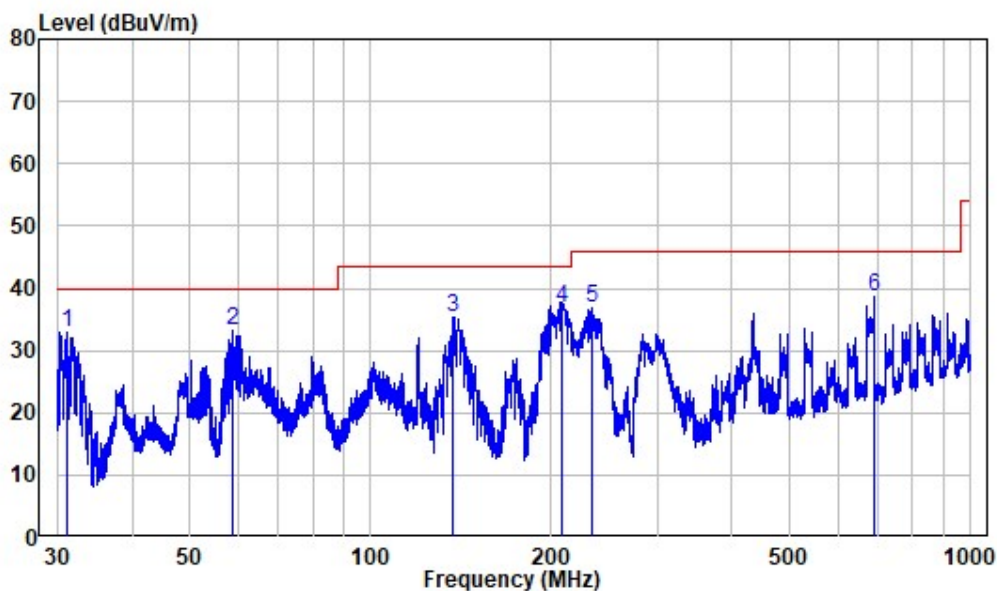
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	31.071	-12.28	39.93	27.65	40.00	-12.35	Peak
2	61.158	-11.09	41.98	30.89	40.00	-9.11	Peak
3	208.032	-11.85	46.82	34.97	43.50	-8.53	Peak
4	233.144	-11.01	46.72	35.71	46.00	-10.29	Peak
5	282.861	-9.50	45.17	35.67	46.00	-10.33	Peak
6	691.683	-1.52	36.72	35.20	46.00	-10.80	Peak

Vertical

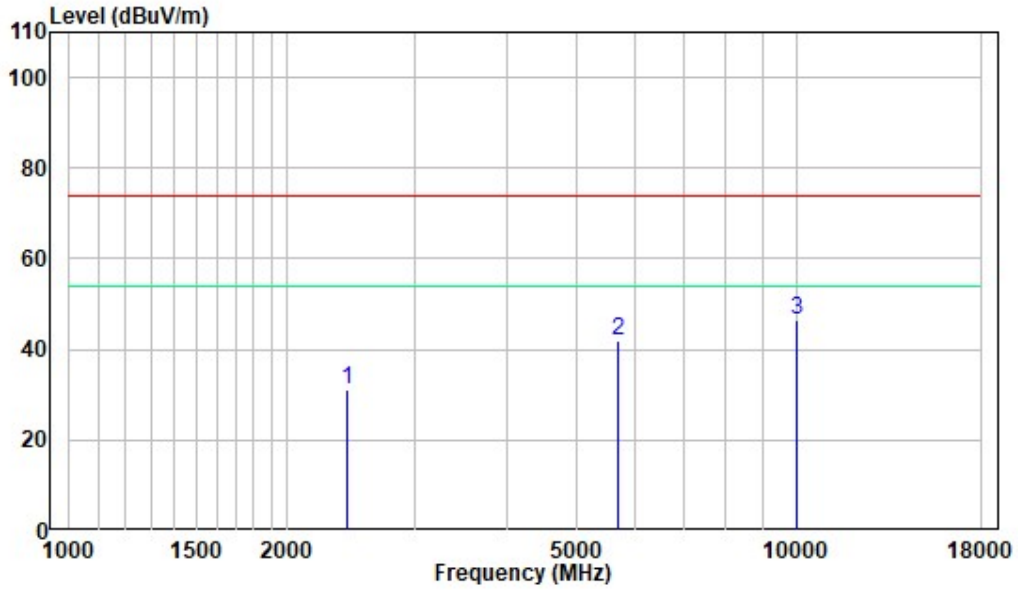


Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	31.112	-12.28	45.17	32.89	40.00	-7.11	Peak
2	58.896	-10.23	43.48	33.25	40.00	-6.75	Peak
3	137.420	-15.27	50.69	35.42	43.50	-8.08	Peak
4	207.668	-11.84	48.54	36.70	43.50	-6.80	QP
5	234.066	-10.99	47.68	36.69	46.00	-9.31	Peak
6	691.987	-1.52	40.08	38.56	46.00	-7.44	Peak

(Above 1G)

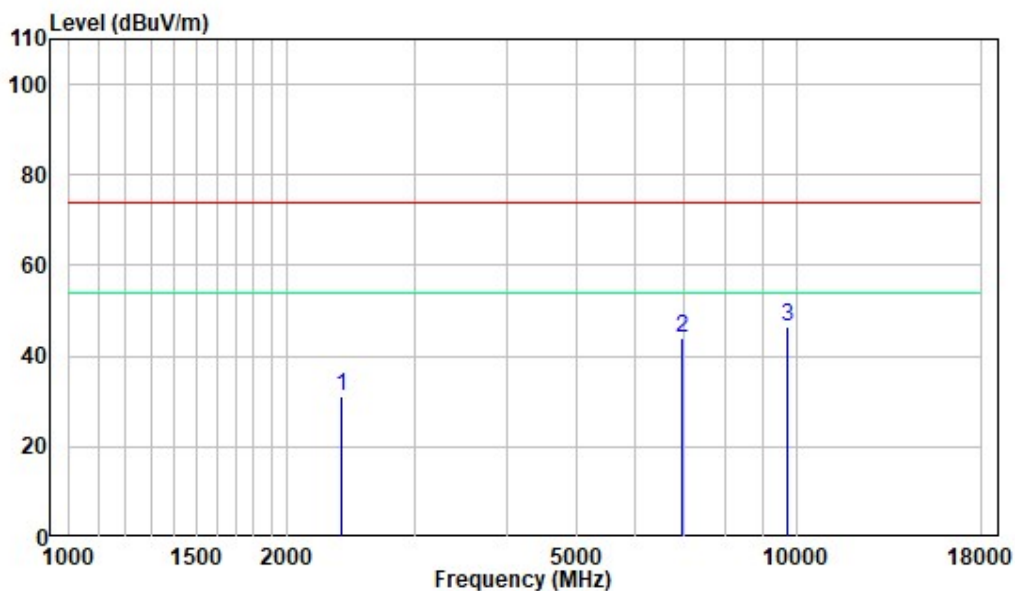
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2415.250	-7.22	38.30	31.08	74.00	-42.92	Peak
2	5704.750	-2.00	43.94	41.94	74.00	-32.06	Peak
3	10022.750	7.14	39.31	46.45	74.00	-27.55	Peak

Vertical

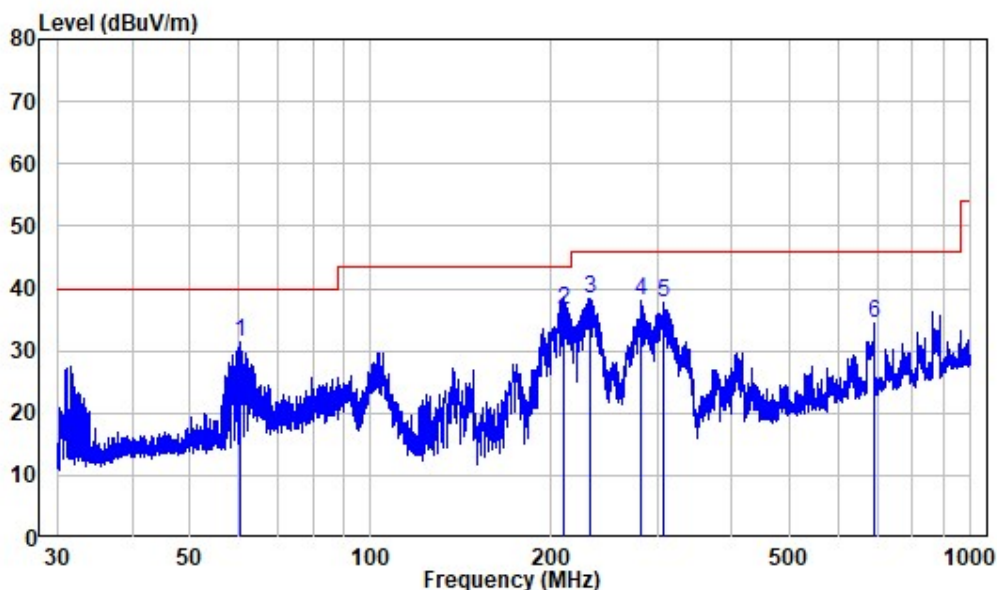


Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2372.750	-7.20	38.36	31.16	74.00	-42.84	Peak
2	6992.500	2.23	41.72	43.95	74.00	-30.05	Peak
3	9757.125	6.79	39.58	46.37	74.00	-27.63	Peak

RS232 (Below 1G)

Horizontal

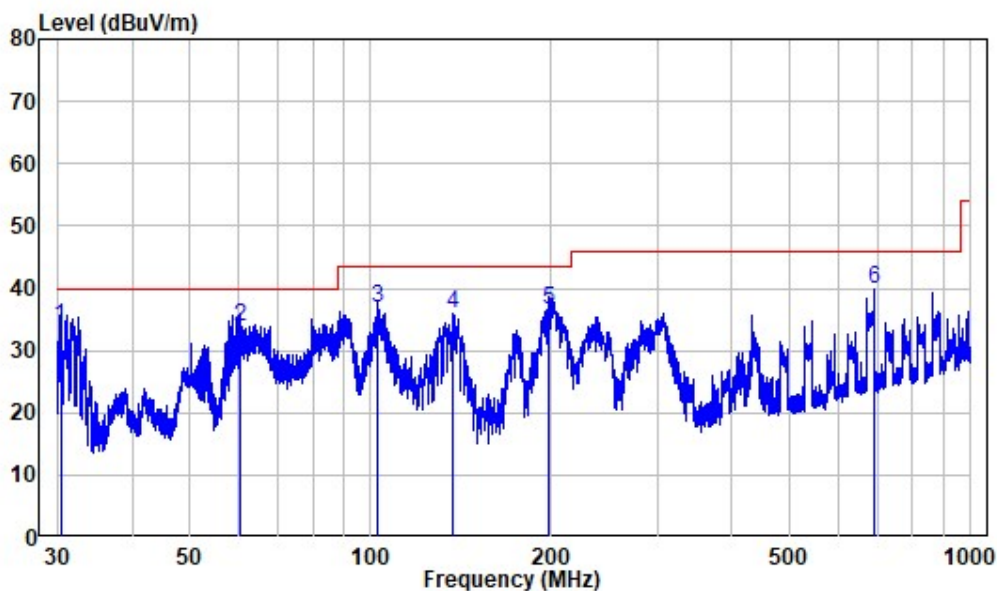


Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	60.386	-10.77	42.09	31.32	40.00	-8.68	Peak
2	209.497	-11.86	48.40	36.54	43.50	-6.96	QP
3	231.515	-11.06	49.40	38.34	46.00	-7.66	Peak
4	282.242	-9.52	47.68	38.16	46.00	-7.84	Peak
5	306.888	-8.99	46.83	37.84	46.00	-8.16	Peak
6	691.987	-1.52	35.81	34.29	46.00	-11.71	Peak



Vertical



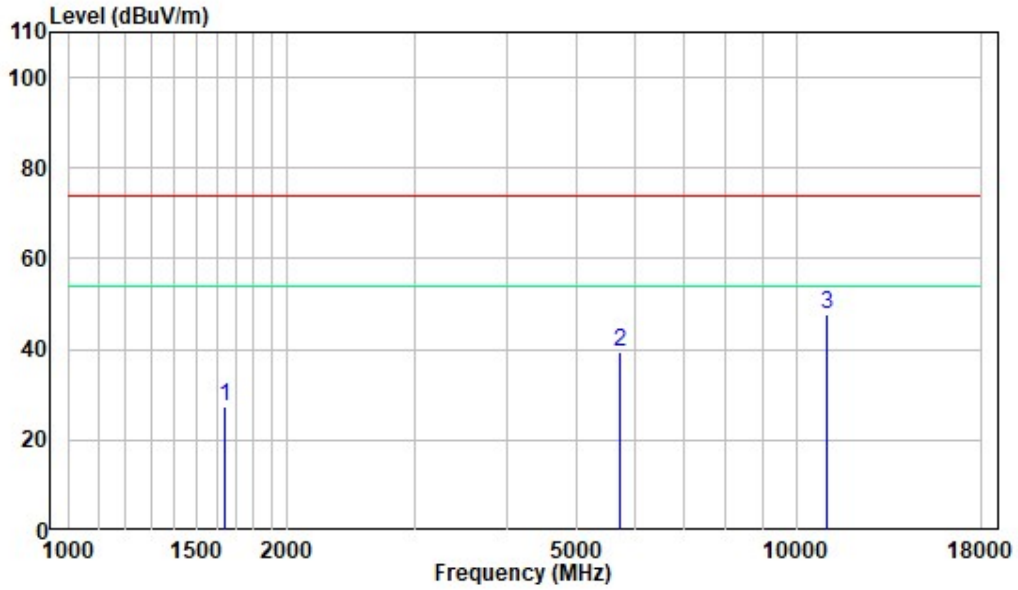
Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.397	-12.35	46.18	33.83	40.00	-6.17	QP
2	60.465	-10.81	44.72	33.91	40.00	-6.09	QP
3	102.854	-11.65	48.52	36.87	43.50	-6.63	QP
4	137.300	-15.25	51.27	36.02	43.50	-7.48	Peak
5	198.675	-11.49	48.06	36.57	43.50	-6.93	QP
6	691.077	-1.51	41.23	39.72	46.00	-6.28	Peak



(Above 1G)

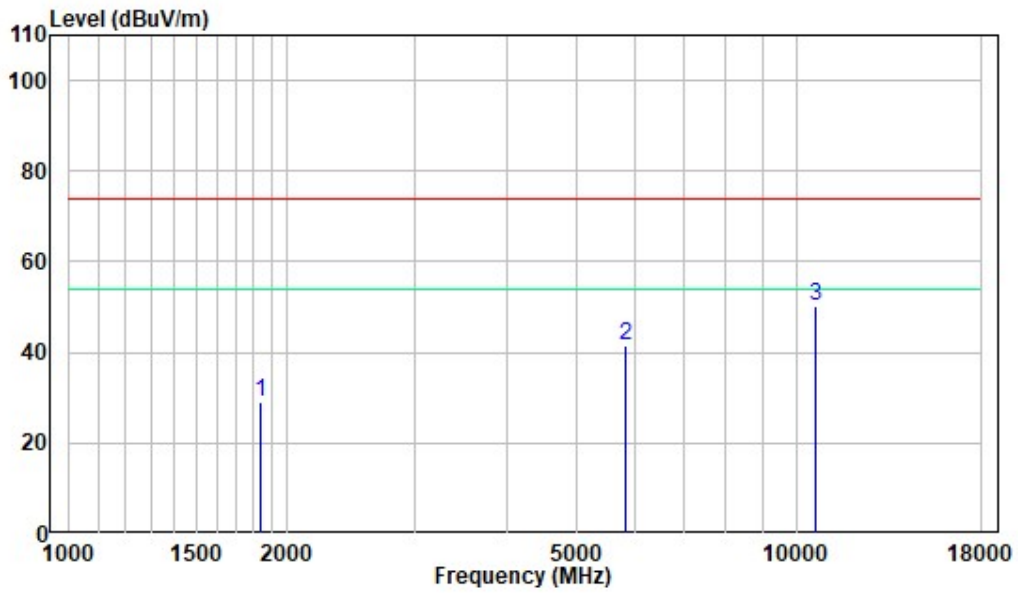
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1643.875	-9.06	36.47	27.41	74.00	-46.59	Peak
2	5747.250	-1.91	41.35	39.44	74.00	-34.56	Peak
3	11044.880	9.45	38.35	47.80	74.00	-26.20	Peak

Vertical



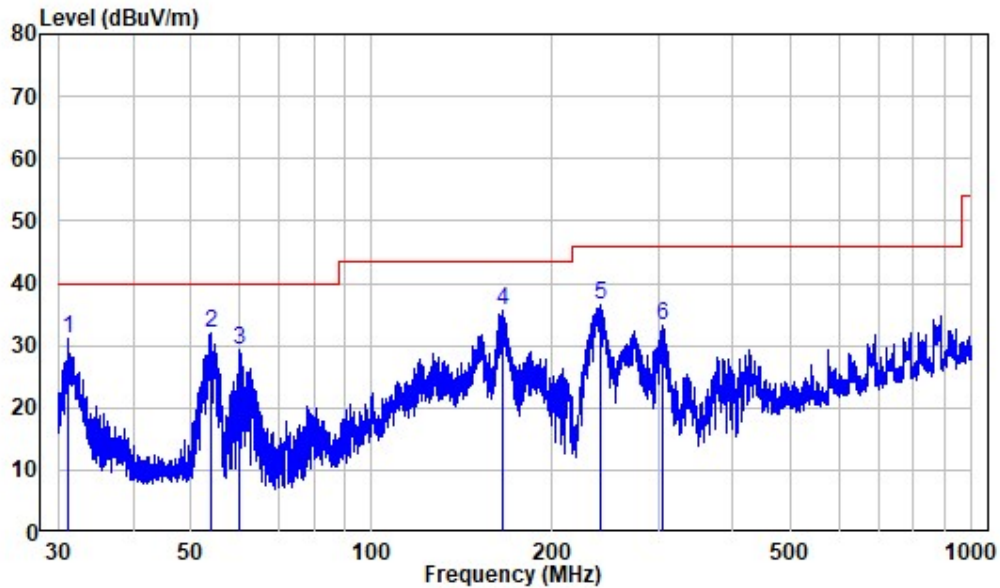
Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 7.2V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1839.375	-8.45	37.62	29.17	74.00	-44.83	Peak
2	5842.875	-1.82	43.44	41.62	74.00	-32.38	Peak
3	10662.380	8.99	41.12	50.11	74.00	-23.89	Peak

ESDL-30-12V-4GUS

USB (Below 1G)

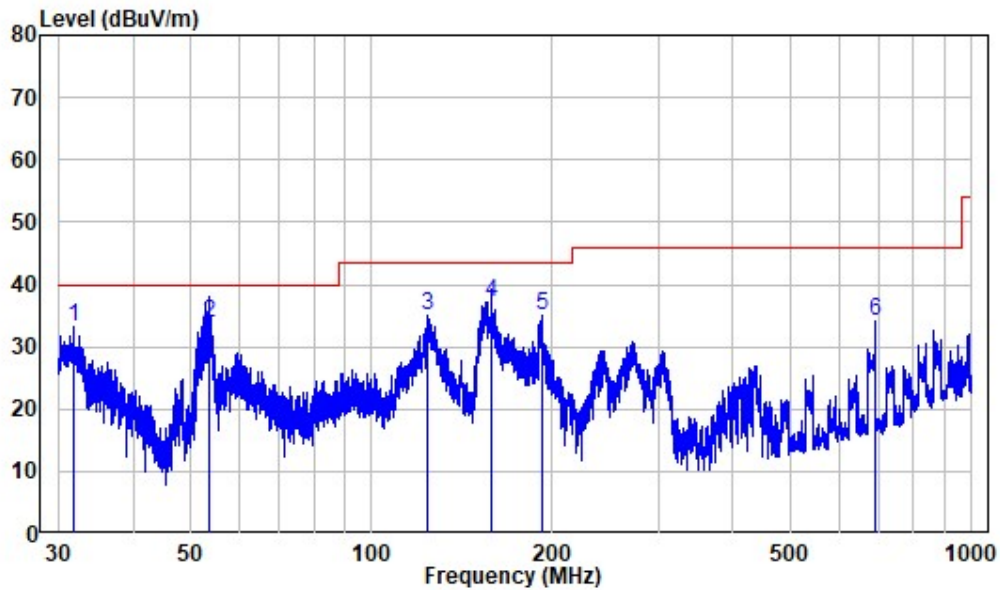
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	31.207	-12.27	43.30	31.03	40.00	-8.97	Peak
2	53.976	-10.35	42.33	31.98	40.00	-8.02	Peak
3	60.333	-10.75	39.98	29.23	40.00	-10.77	Peak
4	165.777	-14.01	49.72	35.71	43.50	-7.79	Peak
5	240.093	-10.90	47.32	36.42	46.00	-9.58	Peak
6	304.477	-9.08	42.38	33.30	46.00	-12.70	Peak

Vertical

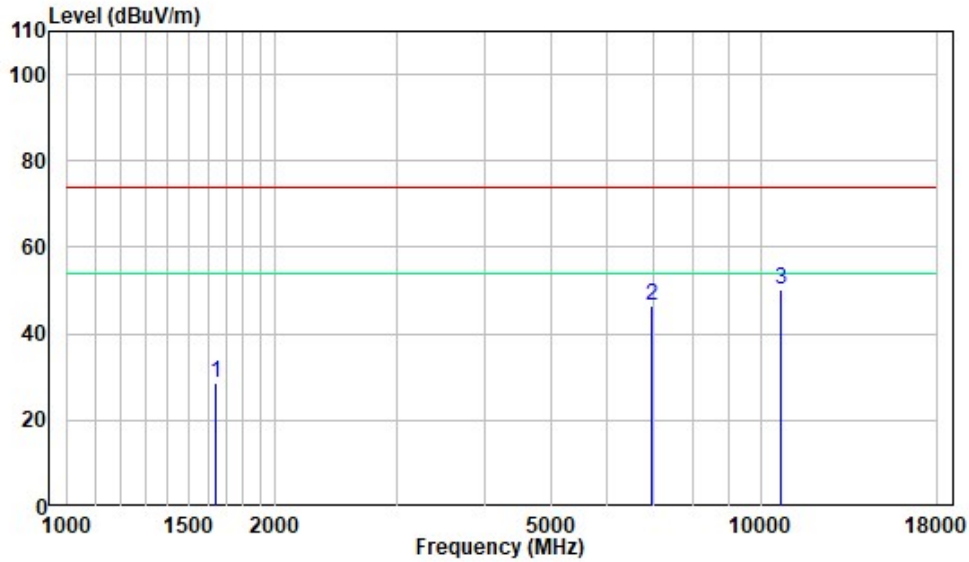


Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	31.787	-12.20	45.27	33.07	40.00	-6.93	Peak
2	53.435	-10.25	44.14	33.89	40.00	-6.11	QP
3	124.187	-14.23	49.36	35.13	43.50	-8.37	Peak
4	157.835	-14.52	51.77	37.25	43.50	-6.25	QP
5	191.745	-11.29	46.33	35.04	43.50	-8.46	Peak
6	691.077	-1.51	35.48	33.97	46.00	-12.03	Peak

(Above 1G)

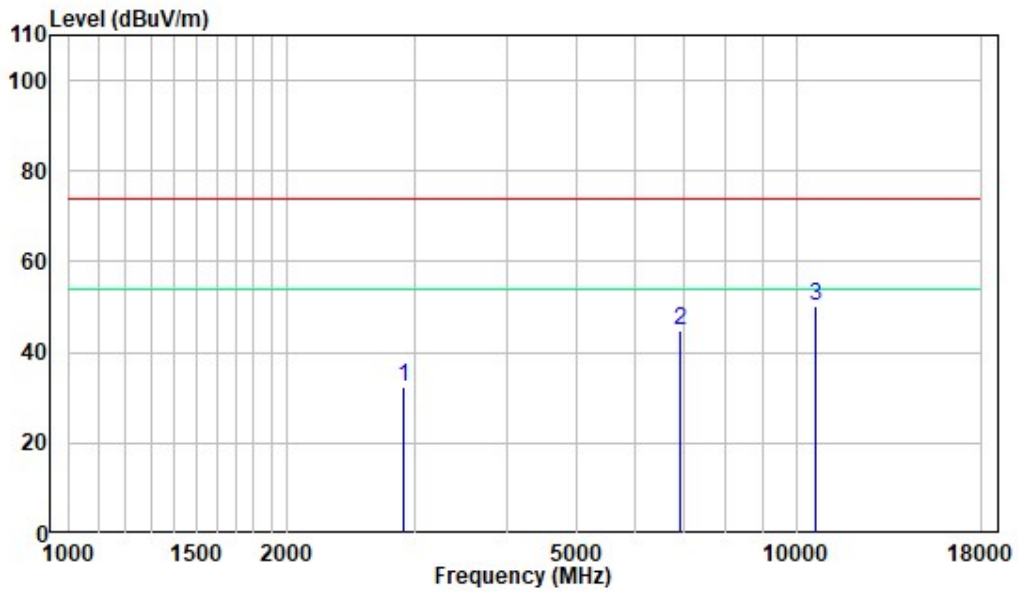
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1643.875	-9.06	37.68	28.62	74.00	-45.38	Peak
2	6973.375	2.20	44.10	46.30	74.00	-27.70	Peak
3	10704.880	9.11	41.05	50.16	74.00	-23.84	Peak

Vertical

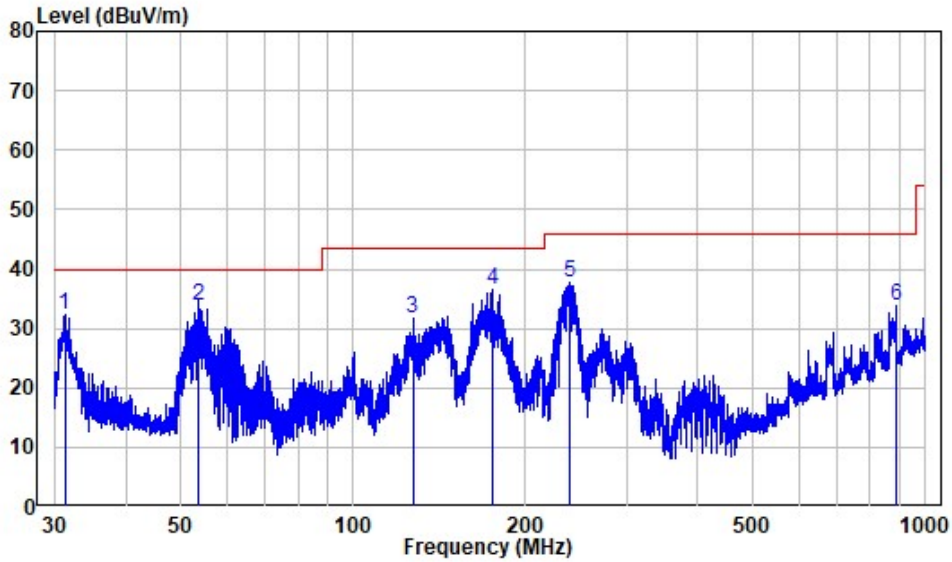


Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : USB  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2895.500	-6.07	38.25	32.18	74.00	-41.82	Peak
2	6939.375	2.10	42.91	45.01	74.00	-28.99	Peak
3	10613.500	8.87	41.17	50.04	74.00	-23.96	Peak

RS232 (Below 1G)

Horizontal

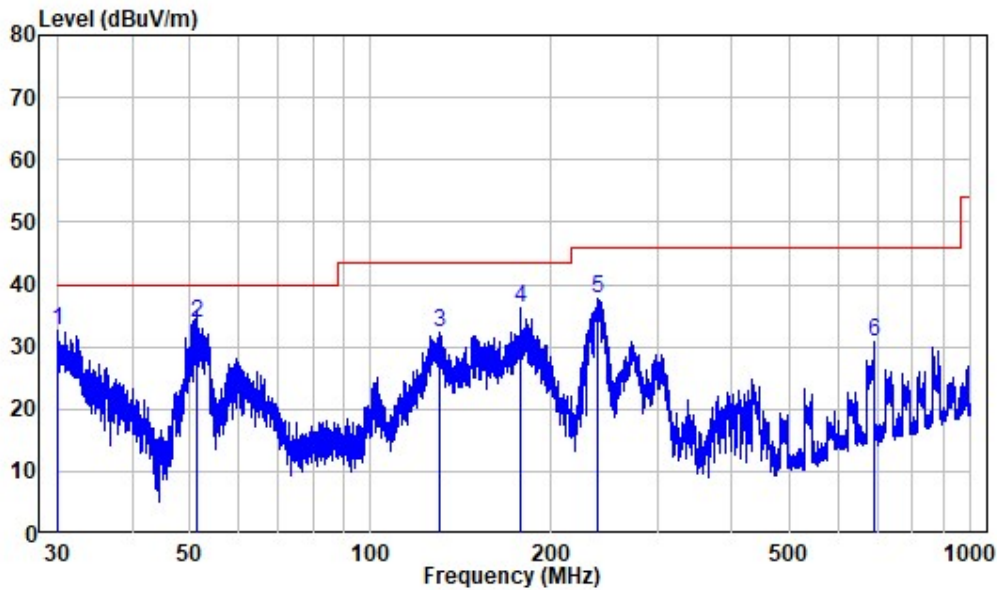


Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	31.289	-12.26	44.47	32.21	40.00	-7.79	Peak
2	53.599	-10.28	43.97	33.69	40.00	-6.31	QP
3	126.995	-14.55	46.39	31.84	43.50	-11.66	Peak
4	174.654	-13.14	49.70	36.56	43.50	-6.94	Peak
5	239.357	-10.91	48.57	37.66	46.00	-8.34	Peak
6	889.947	0.95	32.72	33.67	46.00	-12.33	Peak



Vertical



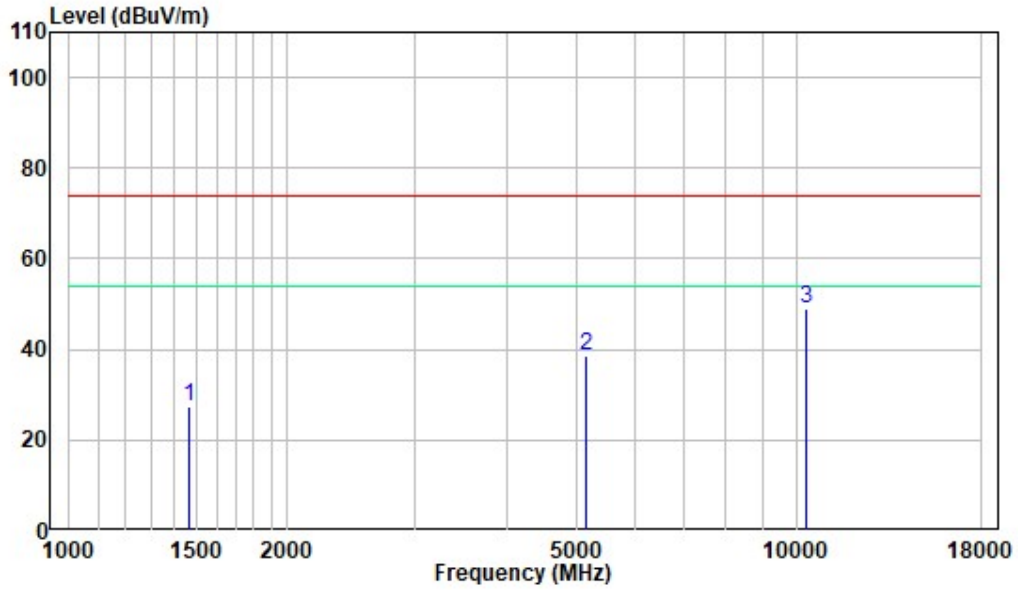
Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.039	-12.40	45.05	32.65	40.00	-7.35	Peak
2	51.301	-9.96	43.64	33.68	40.00	-6.32	QP
3	129.809	-14.88	47.21	32.33	43.50	-11.17	Peak
4	177.743	-12.98	49.25	36.27	43.50	-7.23	Peak
5	239.252	-10.91	48.63	37.72	46.00	-8.28	Peak
6	691.987	-1.52	32.31	30.79	46.00	-15.21	Peak



(Above 1G)

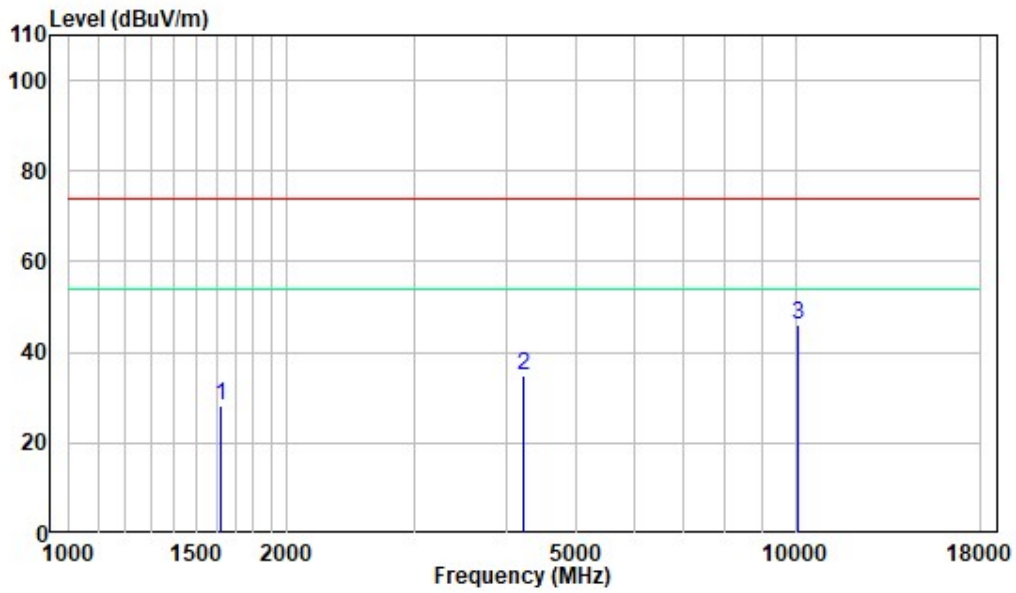
Horizontal



Site : chamber  
 Condition: 3m HORIZONTAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1463.250	-9.69	37.24	27.55	74.00	-46.45	Peak
2	5162.875	-2.69	41.27	38.58	74.00	-35.42	Peak
3	10358.500	8.11	40.97	49.08	74.00	-24.92	Peak

Vertical



Site : chamber  
 Condition: 3m VERTICAL  
 Job No. : SZ1220419-15136E-EM  
 Test Mode: System operation  
 Note : RS232  
 Power : DC 12V

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1622.625	-9.05	37.32	28.27	74.00	-45.73	Peak
2	4238.500	-5.02	39.98	34.96	74.00	-39.04	Peak
3	10073.750	7.17	38.74	45.91	74.00	-28.09	Peak

**Co-location:** System operation + LTE Band2 Low channel (Worse case):

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
	Reading (dB $\mu$ V)	PK/QP/AV		Height (m)	Polar (H/V)				
31.084	39.46	QP	279	2.4	H	-12.28	27.18	40.0	-12.82
30.384	45.58	QP	343	1.8	V	-12.35	33.23	40.0	-6.77
54.907	43.36	QP	35	1.3	H	-10.28	33.08	40.0	-6.92
53.458	43.92	QP	341	1.7	V	-10.25	33.67	40.0	-6.33
158.112	49.08	QP	180	1.3	H	-14.48	34.6	43.50	-8.90
131.873	52.16	QP	17	2	V	-14.97	37.19	43.50	-6.31
162.112	50.85	QP	270	1.8	V	-14.29	36.56	43.50	-6.94
211.805	46.52	QP	56	1.5	H	-11.78	34.74	43.50	-8.76
1839.375	37.62	PK	326	2.2	V	-8.45	29.17	74.0	-44.83
1643.875	36.47	PK	235	1.9	H	-9.06	27.41	74.0	-46.59
5747.250	41.35	PK	283	1.3	H	-1.91	39.44	74.0	-34.56
5842.875	43.44	PK	206	1.5	V	-1.82	41.62	74.0	-32.38
11044.88	38.35	PK	44	2.3	H	9.45	47.8	74.0	-26.2
10662.38	41.12	PK	25	1.6	V	8.99	50.11	74.0	-23.89

Note 1:

Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

The other spurious emission which is in the noise floor level was not recorded.

Note 2: If the maximized peak measured value complies with the limit, then it is unnecessary to perform QP/Average measurement.

----- THE END OF TEST REPORT -----