FCC PART 15 CLASS B

EMI MEASUREMENT AND TEST REPORT

For

Datascan,LP

2210 Hutton Drive, STE 100, Carrollton, Texas 75006 USA

FCC ID: 2ABDLQPID1000

November 22, 2013

This Report Concerns: Original Report	Equipment Type: QPID
Test Engineer:	Lisa Chen
Report No.:	BSL13071011Y-1ER-30
Receive EUT Date/Test Date:	November 12 / November 12 - November 22, 2013
Reviewed By:	Sky Zhang
Prepared By:	**BSL Testing Co.,LTD.** NO. 24, ZH Park, Nantou, Shenzhen, 518000 China Tel: 86- 755-26508703 Fax: 86- 755-26508703

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. Report information

1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BSL approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BSL in any way guarantees the later performance of the product/equipment.

1.1.2.The sample/s mentioned in this report is/are supplied by Applicant, BSL therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

1.1.3.Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BSL, unless the applicant has authorized BSL in writing to do so.

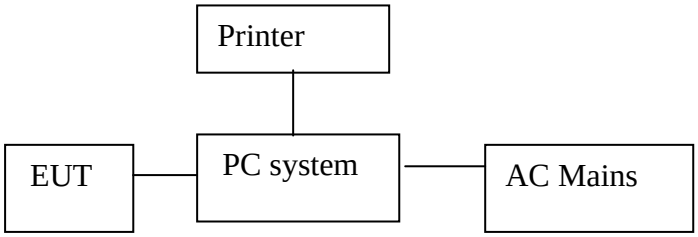
Test Facility -
The test site used to collect the radiated data is located on the address of
BSL Testing Co.,LTD.
(FCC Registered Test Site Number: 191509) on
NO. 24, ZH Park, Nantou, Shenzhen, 518000 China
The Test Site is constructed and calibrated to meet the FCC requirements.

2. PRODUCT DESCRIPTION

2.1. EUT Description

Applicant	:	Datascan,LP
Address	:	2210 Hutton Drive, STE 100, Carrollton, Texas 75006 USA
Manufacturer	:	ABO Electronics (Shen Zhen) Co.,Ltd.
Address	:	B3 Building, Hao Cheng Industry Park, Fu Yuan 1st Road, He Ping, Fu Yong, Bao An, ShenZhen, China
EUT Description	:	QPID
Model Number	:	QPID1000
Power Supply	:	Transmitting:built-in DC 3.7V battery (The new battery is used during the measurement) , charging: DC 5V By Adapter

2.2. Block Diagram of EUT Configuration



2.3. Support Equipment List

Name	Model No	S/N	Manufacturer	Used (Y/N)
PC system	AM1830	N/A	Acer	Y
Printer	HP1020	N/A	HP	Y
Router	PL-R860	N/A	TP-LINK	Y

2.4. Test Conditions

Temperature: 23~27℃

Relative Humidity: 50~63 %

2.5. TEST Results SUmmary

Table 1 Test Results Summary

FCC Part 15 CLASS B : 2012	
Test Items	Test Results
Conducted disturbance	Pass
Radiated disturbance	Pass

Remark: “N/A” means “Not applicable.”

3. TEST EQUIPMENT USED

EQUIPMENT/FACILITIES	MANUFACTURER	MODEL	SERIAL NO.	DATE OF CAL.	CAL. INTERVAL
3m Semi-Anechoic Chamber	Chengyu Electron	9 (L)*6 (W)* 6 (H)	BSL086	Aug. 23 2013	1 Year
EMI Test Receiver	Rohde & Schwarz	ESCI3	BSL001	Sep. 28 2013	1 Year
BiConiLog Antenna	Rohde & Schwarz	HL562	BSL009	Sep. 28 2013	1 Year
Double -ridged waveguide horn	Rohde & Schwarz	9120D	BSL008	Aug. 27 2013	1 Year
Horn Antenna	ETS-LINDGREN	3160	BSL072	Dec. 28 2012	1 Year
Cable	Rohde & Schwarz	N/A	BSL045	Aug. 27 2013	1 Year
Cable	Rohde & Schwarz	N/A	BSL046	Aug. 27 2013	1 Year
Cable	Rohde & Schwarz	N/A	BSL047	Aug. 27 2013	1 Year
Amplifier(100kHz-40GHz)	R&S	SMR40	BSL007	Sep. 28 2013	1 Year
Band filter	Amindeon	82346	BSL049	Aug. 27 2013	1 Year
Active Loop Antenna	EMTES	EM15	BSL011	Sep. 28 2013	1 Year
Power Meter	R&S	NRVS	BSL052	Aug. 3, 2013	1 Year
Power Sensor	R&S	NRV-Z33	BSL053	Aug. 3, 2013	1 Year
Shielding Room	Chengyu Electron	7.0(L)x3.0(W)x3.0(H)	BSL085	Aug. 25 2013	1 Year
EMI Test Receiver	R&S	ESPI13	BSL002	Sep. 28 2013	1 Year
10dB Pulse Limita	R&S	N/A	BSL003	Sep. 28 2013	1 Year
Coaxial Switch	YUANFANG	TA218B	BSL004	Aug. 27 2013	1 Year
LISN	Rohde & Schwarz	ESH3-Y5	BSL005	Sep. 28 2013	1 Year
Coaxial Cable	Rohde & Schwarz	N/A	BSL048	Aug. 27 2013	1 Year
Spectrum analyzer	Rohde & Schwarz	FSP40	BSL049	Sep. 28 2013	1 Year

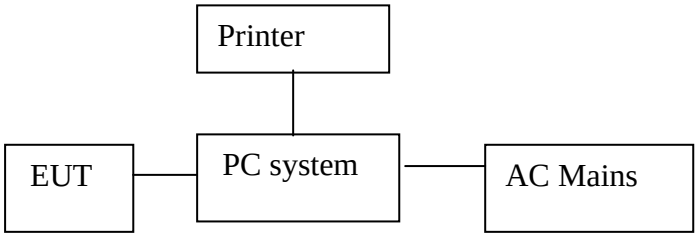
4. CONDUCTED EMISSION TEST

4.1. Measurement Uncertainty

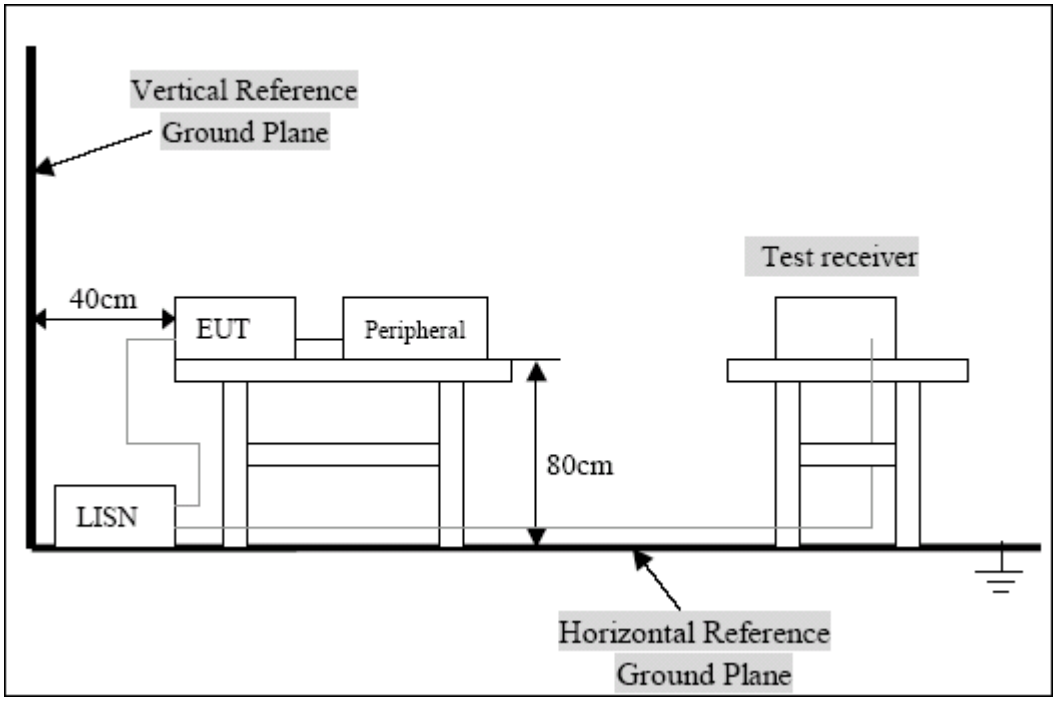
The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is + 2.88 dB.

4.2. Block Diagram of Test Setup

4.2.1.Block Diagram of connection between the EUT and the simulators



4.2.2.Test Setup Diagram



4.3. Test Standard

FCC Part 15 CLASS B : 2012

ANSI C63.4 2003

4.4. Conducted Emission Limit(Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

4.5. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC Part 15 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

4.6. Operating Condition of EUT

4.6.1.Setup the EUT and simulators as shown in Section 4.2.

4.6.2.Turn on the power of all equipments.

4.6.3.Let the EUT work in test mode (Connect to a router and the router attached to PC) and test it.

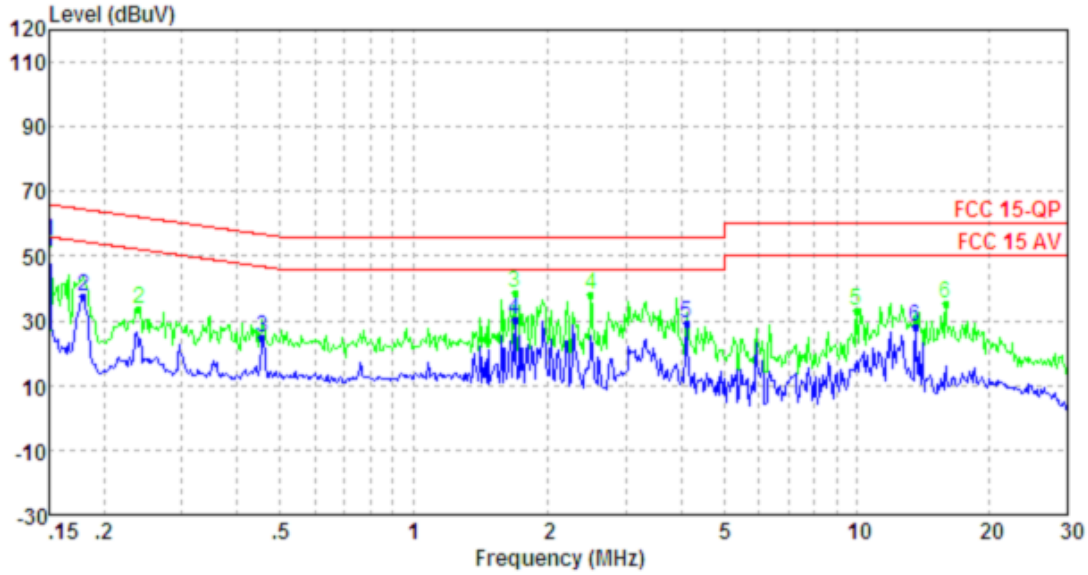
4.7. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

4.8. Test Result

Pass

L Line



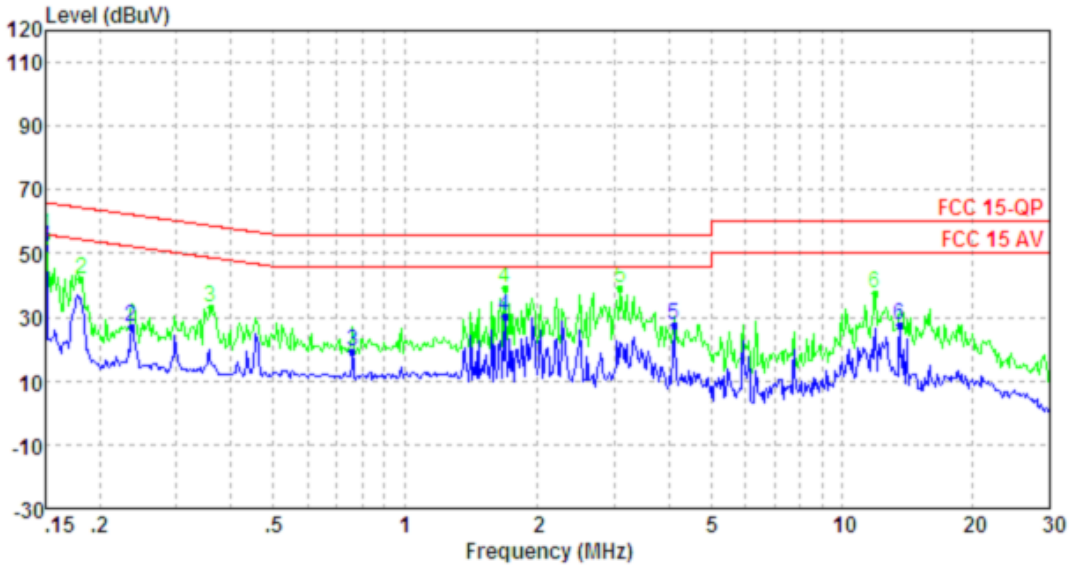
Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1 Max	0.15	54.83	56.00	-1.17	Average	LINE
2	0.18	37.80	54.50	-16.70	Average	LINE
3	0.46	24.66	46.76	-22.10	Average	LINE
4	1.70	30.35	46.00	-15.65	Average	LINE
5	4.11	29.24	46.00	-16.76	Average	LINE
6	13.55	28.18	50.00	-21.82	Average	LINE

Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1 Max	0.15	54.36	66.00	-11.64	QP	LINE
2	0.24	33.80	62.13	-28.33	QP	LINE
3	1.70	38.91	56.00	-17.09	QP	LINE
4	2.50	37.98	56.00	-18.02	QP	LINE
5	9.97	32.91	60.00	-27.09	QP	LINE
6	15.89	35.30	60.00	-24.70	QP	LINE

N Line



Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1 Max	0.15	51.80	56.00	-4.20	Average	NEUTRAL
2	0.24	27.21	52.22	-25.01	Average	NEUTRAL
3	0.76	19.38	46.00	-26.62	Average	NEUTRAL
4	1.70	30.46	46.00	-15.54	Average	NEUTRAL
5	4.11	27.34	46.00	-18.66	Average	NEUTRAL
6	13.55	27.65	50.00	-22.35	Average	NEUTRAL

Condition:
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB		
1 Max	0.15	55.57	65.96	-10.39	QP	NEUTRAL
2	0.18	41.85	64.42	-22.57	QP	NEUTRAL
3	0.36	32.97	58.74	-25.77	QP	NEUTRAL
4	1.70	39.23	56.00	-16.77	QP	NEUTRAL
5	3.11	39.41	56.00	-16.59	QP	NEUTRAL
6	11.93	37.63	60.00	-22.37	QP	NEUTRAL

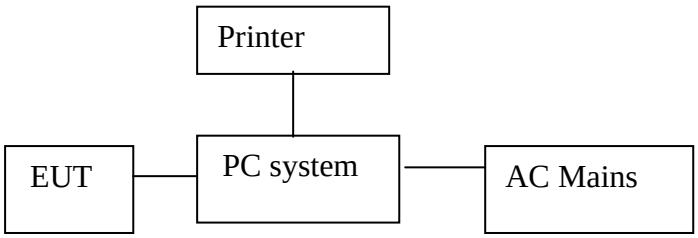
5. RADIATED EMISSION MEASUREMENT

5.1. Measurement Uncertainty

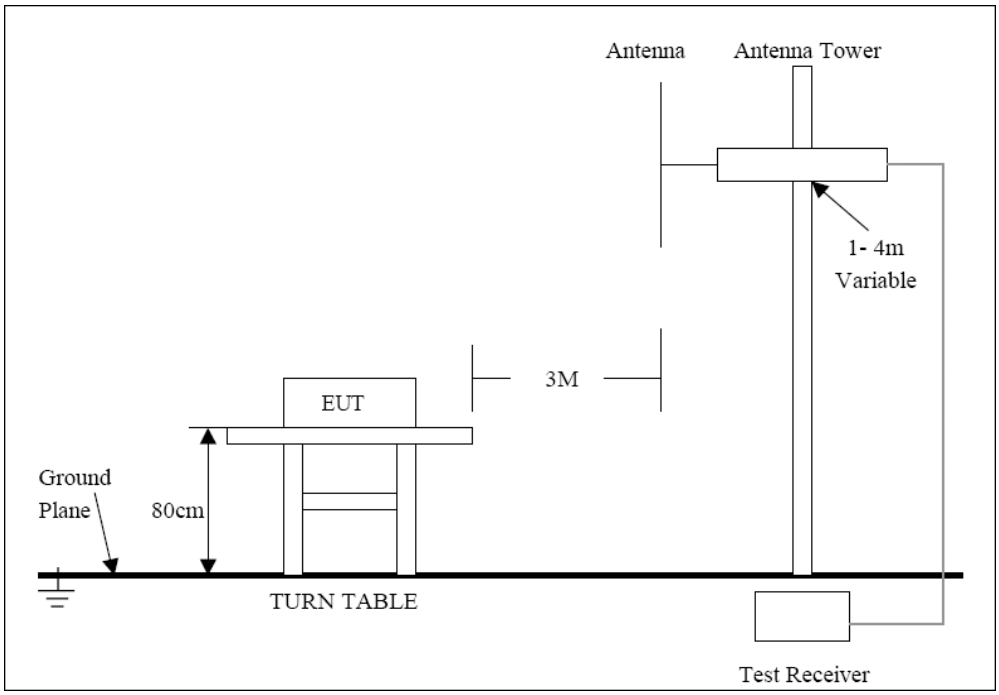
The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is + 5.10 dB.

5.2. Block Diagram of EUT Configuration

5.2.1.Block Diagram of connection between the EUT and the simulators



5.2.2.Semi-anechoic Chamber Test Setup Diagram



5.3. Test Standard

FCC Part 15 CLASS B: 2012
ANSI C63.4 2003

5.4. Radiated Emission Limit(Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
Above 1000	3	54.0

Note**:**(1) The smaller limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT or system.

5.5. EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulations in a manner which tends to maximize Its emission characteristics in normal application.

5.6. Operating Condition of EUT

5.6.1.Setup the EUT as shown on Section 5.2.1

5.6.2.Turn on the power of all equipments.

5.6.3.Let the EUT work in test mode (Connect to a router and the router attached to PC) and test it.

5.7. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter 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. Calibrated Loop antenna is used as receiving antenna for frequencies below 30MHz, Calibrated Bilog antenna is used as receiving antenna for frequencies between 30 MHz and 1 GHz, Calibrated Horn antenna is used as receiving antenna for frequencies above 1000MHz. 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: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz.

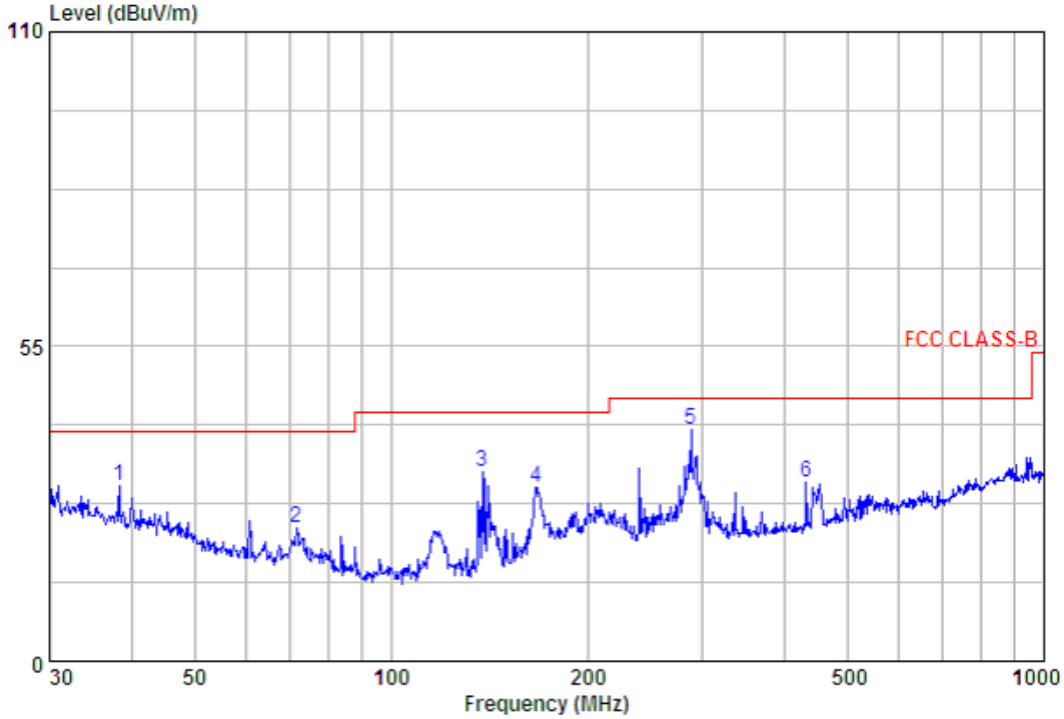
The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The frequency range from 9kHz to 1000MHz is checked. All the test results are listed in Section 6.8. The measurements greater than 20dB below the limit are not report.

5.8. Test Result

PASS

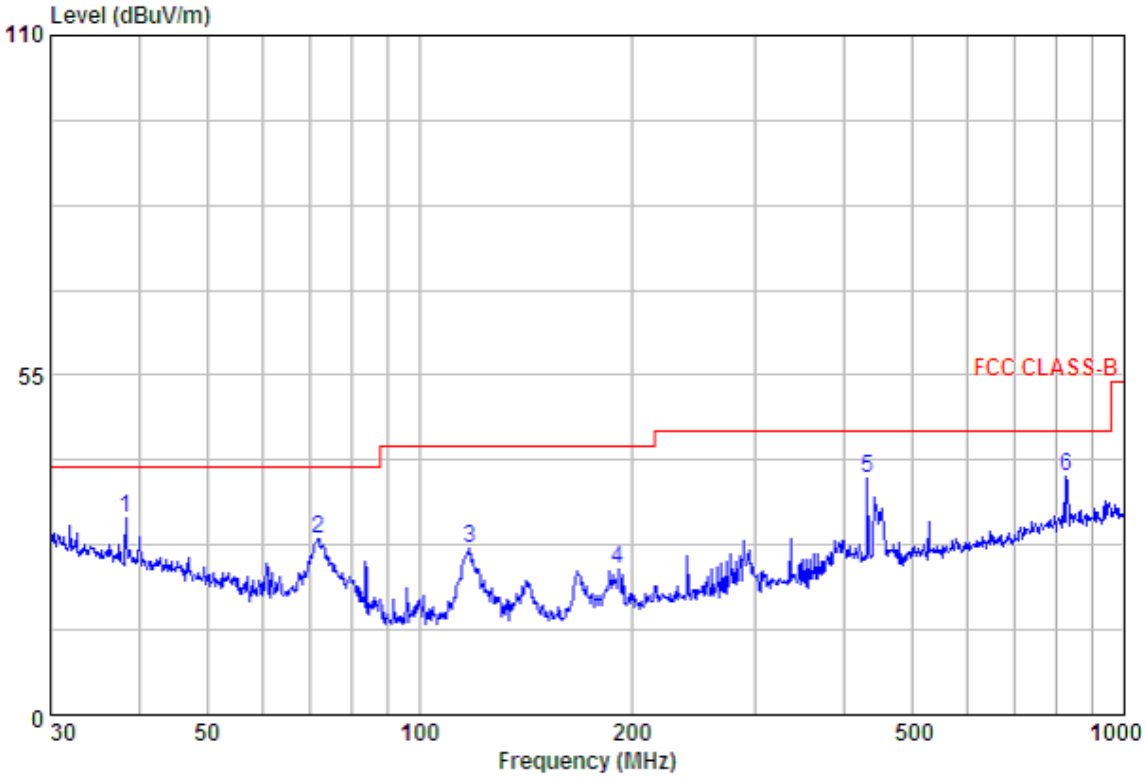
Horizontal



Condition : FCC CLASS-B 3m HORIZONTAL
: RBW:100.000KHz VBW:300.000KHz SWT:Auto

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB		
1	38.35	30.66	40.00	-9.34	QP	HORIZONTAL
2	71.58	23.33	40.00	-16.67	QP	HORIZONTAL
3	137.90	33.03	43.50	-10.47	QP	HORIZONTAL
4	166.65	30.42	43.50	-13.08	QP	HORIZONTAL
5 max	287.99	40.45	46.00	-5.55	QP	HORIZONTAL
6	432.55	31.22	46.00	-14.78	QP	HORIZONTAL

Vertical



Condition : FCC CLASS-B 3m VERTICAL
: RBW:100.000KHz VBW:300.000KHz SWT:Auto

	Freq	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB		
1	38.35	31.85	40.00	-8.15	QP	VERTICAL
2	72.08	28.48	40.00	-11.52	QP	VERTICAL
3	117.77	27.08	43.50	-16.42	QP	VERTICAL
4	191.75	23.45	43.50	-20.05	QP	VERTICAL
5	432.55	38.36	46.00	-7.64	QP	VERTICAL
6 max	827.49	38.61	46.00	-7.39	QP	VERTICAL

1GHz-6G

Frequency (MHz)	Receiver		Turn table Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15.109	
	Reading (dBµV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
1431	27.62	Ave.	166.2	26.94	V	8.68	36.3	54	-17.7
2216	30.71	Ave.	100.2	28.79	V	1.37	32.08	54	-21.92
2841	30.79	Ave.	23.2	29.61	V	3.29	34.08	54	-19.92
4001	26.19	Ave.	27.2	30.85	V	9.95	36.14	54	-17.86
4756	24.7	Ave.	123.2	32.92	V	15.36	40.06	54	-13.94
5431	23.99	Ave.	13.2	33.04	V	16.73	40.72	54	-13.28
1431	37.04	PK	166.2	26.94	V	8.68	45.72	74	-28.28
2216	40.6	PK	23.2	28.79	V	1.37	41.97	74	-32.03
2841	40.67	PK	100.2	29.61	V	3.29	43.96	74	-30.04
4001	36.37	PK	27.2	30.85	V	9.95	46.32	74	-27.68
4756	34.38	PK	123.2	32.92	V	15.36	49.74	74	-24.26
5431	34.6	PK	13.2	33.04	V	16.73	51.33	74	-22.67
1426	27	Ave.	166.2	26.96	H	8.7	35.7	54	-18.3
2271	31	Ave.	100.2	29.23	H	1.98	32.98	54	-21.02
3336	29.71	Ave.	23.2	29.71	H	5.74	35.45	54	-18.55
4156	26.82	Ave.	27.2	31.16	H	11.07	37.89	54	-16.11
5151	25	Ave.	123.2	33.29	H	16.5	41.5	54	-12.5
5771	24.66	Ave.	13.2	33.77	H	17.94	42.6	54	-11.4
1426	37.18	PK	166.2	26.96	H	8.7	45.88	74	-28.12
2271	41.25	PK	23.2	29.23	H	1.98	43.23	74	-30.77
3336	39.41	PK	100.2	29.71	H	5.74	45.15	74	-28.85
4156	36.82	PK	27.2	31.16	H	11.07	47.89	74	-26.11
5151	35.16	PK	123.2	33.29	H	16.5	51.66	74	-22.34
5771	34.21	PK	13.2	33.77	H	17.94	52.15	74	-21.85

******* END OF REPORT *******