



TEST REPORT

Reference No...... : WTS19S02008902E

Applicant..... : Portable Multimedia Ltd

Address..... : Unit 2, Caerphilly Business Park, Van Road, Caerphilly. CF83 3ED.
United Kingdom

Manufacturer : Shenzhen Samoon Technology Co., Ltd

Address..... : Floor5-6&9, Building 7, Zhongyuntai Ind. Park, Yingrenshi Road
Crossing, Shiyantown, Bao'an District, Shenzhen, Guangdong,
China. Post code: 518108.

Product..... : Dash Cam

Model(s) : NBDVR222, FE-NBDVR222, NBDVR222-WHT, FE-NBDVR222-WHT,
VYDVR222, FE-VYDVR222, NBDVR223, FE-NBDVR223,
NBDVR224, FE-NBDVR224, NBDVR222L, FE-NBDVR222L

Standards..... : FCC PART15 SUBPART B: 2017

Date of Receipt sample : 2019-02-25

Date of Test : 2019-02-25 to 2019-02-26

Date of Issue..... : 2019-03-20

Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Services (Shenzhen) Co., Ltd.

Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China

Tel :+86-755-83551033

Fax:+86-755-83552400

Compiled by:

Billy Li / Project Engineer

Approved by:



Philo Zhong / Manager



1 Laboratories Introduction

Waltek Services (Shenzhen) Co., Ltd is a professional third-party testing and certification laboratory with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by ILAC (International Laboratory Accreditation Cooperation) member. A2LA (American Association for Laboratory Accreditation, the certification number is 4243.01) of USA, CNAS (China National Accreditation Service for Conformity Assessment, the registration number is L3110) of China. Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC (The Federal Communications Commission), CEC (California energy efficiency), ISED (Innovation, Science and Economic Development Canada). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as Intertek (ETL-SEMKO), TÜV Rheinland, TÜV SÜD, etc.



Waltek Services (Shenzhen) Co., Ltd is one of the largest and the most comprehensive third party testing laboratory in China. Our test capability covered four large fields: safety test. Electro Magnetic Compatibility (EMC), and energy performance, wireless radio. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.



1.1 Test Facility

A. Accreditations for Conformity Assessment (International)

Country/Region	Scope Covered By	Scope	Note
USA	ISO/IEC 17025	FCC ID \ SDOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R	-
Europe		EMCD \ RED	-
Taiwan		NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
India		WPC	-
Thailand		NTC	-
Singapore		IDA	-
Note:			
1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476.			
2. ISED CAB identifier: CN0013			

B.TCBs and Notify Bodies Recognized Testing Laboratory.

Recognized Testing Laboratory of ...	Notify body number
TUV Rheinland	Optional.
Intertek	
TUV SUD	
SGS	
Phoenix Testlab GmbH	0700
Element Materials Technology Warwick Ltd	0891
Timco Engineering, Inc.	1177
Eurofins Product Service GmbH	0681



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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS19S02008902E	2019-02-25	2019-02-25 to 2019-02-26	2019-03-20	Original	-	Valid



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4 General Information

4.1 General Description of E.U.T.

Product..... : Dash Cam

Model(s) : NBDVR222, FE-NBDVR222, NBDVR222-WHT, FE-NBDVR222-WHT, VYDVR222, FE-VYDVR222, NBDVR223, FE-NBDVR223, NBDVR224, FE-NBDVR224, NBDVR222L, FE-NBDVR222L

Model Difference..... : Only the exterior color is different

Remark..... : Model NBDVR222 was tested in this report.

4.2 Details of E.U.T.

Ratings..... : Input: 12Vdc-24Vdc
Output: 5Vdc, 1.5A

4.3 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

Yes No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

4.4 Abnormalities from Standard Conditions

None.

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5 Test Summary

Test Item	Test Requirement	Test Result
AC Power Line Conducted Emission (150kHz to 30MHz)	FCC PART 15, SUBPART B	N/A
Disturbance voltage at the antenna terminals (30MHz to 2150MHz)	FCC PART 15, SUBPART B	N/A
Radiated Emission (30MHz to 1GHz)	FCC PART 15, SUBPART B	Pass
Radiated Emission (Above 1GHz)	FCC PART 15, SUBPART B	Pass

Remark:

Pass Test item meets the requirement

Fail Test item does not meet the requirement

N/A Test case does not apply to the test object

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6 Equipment Used during Test

6.1 Equipment List

3m Semi-anechoic Chamber for Radiation(TDK)						
Item	Equipment	Manufacturer	Model No.	Serial No	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	2018.04.06	2019.04.05
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2018.04.07	2019.04.06
3	Amplifier	ANRITSU	MH648A	M43381	2018.04.07	2019.04.06
4	Cable	HUBER+SUHNER	CBL2	525178	2018.04.07	2019.04.06
5	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	2018.10.14	2019.10.13
3m Semi-anechoic Chamber for Radiation, Above 1GHz						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSP	100091	2018.04.06	2019.04.05
2	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018.04.07	2019.04.06
3	Broadband Pre-amplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2018.04.07	2019.04.06
4	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	EW02014-7	2018.04.07	2019.04.06

6.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/

6.3 Measurement Uncertainty

Parameter	Uncertainty (Note 1)
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emission (150kHz-30MHz)	±3.64dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~18GHz)	±5.47dB

Note 1: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



6.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave, Tianhe District, Guangzhou, Guangdong, China.

6.5 Test Mode

Test Item	Test Mode	Test Voltage
Radiated Emissions (30MHz-1GHz)	Video mode *	DC 12V DC 24V*
	Photo mode	DC 12V DC 24V
	Playback mode	DC 12V DC 24V
Radiated Emissions (1GHz-6GHz)	Video mode *	DC 12V DC 24V*
	Photo mode	DC 12V DC 24V
	Playback mode	DC 12V DC 24V
** shows the worst case mode which were recorded in this report.		

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7 Emission Test Results

7.1 Radiation Emission, 30MHz to 1000MHz

Test Requirement..... : FCC PART 15, SUBPART B
 Test Method : ANSI C63.4
 Test Result : Pass
 Frequency Range..... : 30MHz to 1000MHz
 Class. : Class B
 Limit..... :

Frequency (MHz)	Distance (Meter)	Limit (dB μ V/m)
		Quasi-peak
30 to 88	3	40
88 to 216	3	43.5
216 to 960	3	46
960 to 1000	3	54

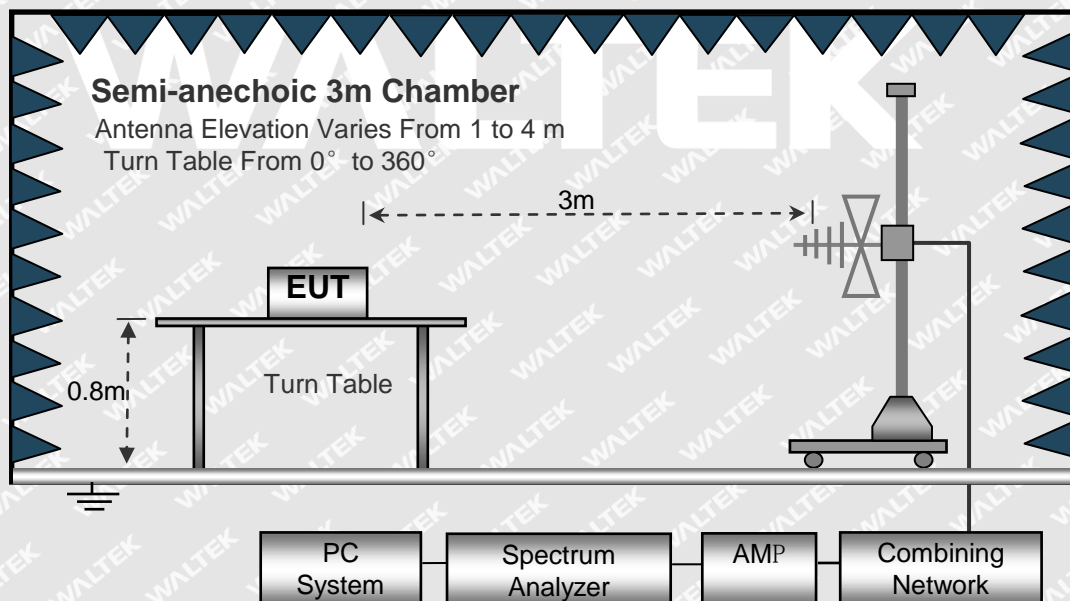
7.1.1 E.U.T. Operation

Operating Environment:

Temperature : 22.5°C
 Humidity : 52.6%RH
 Atmospheric Pressure : 101.8kPa
 EUT Operation..... : Refer to section 6.5.

7.1.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.



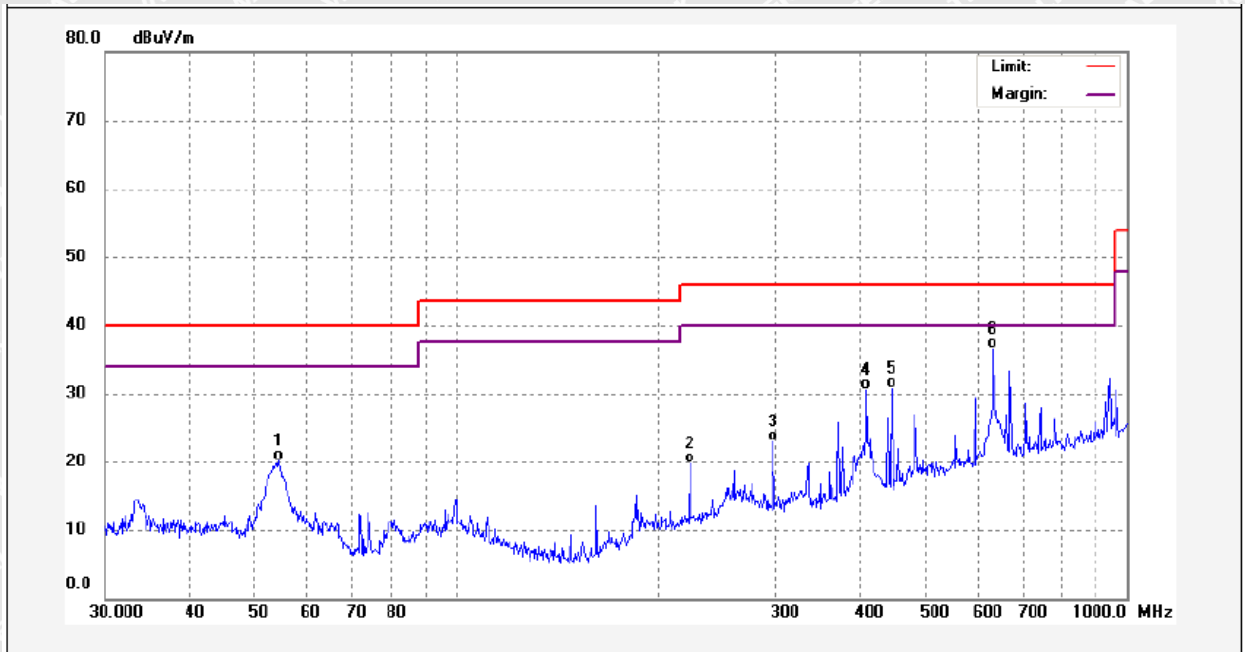


7.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Quasi-peak measurements were performed if peak emissions were within 6dB of the Quasi-peak limit line.

7.1.4 Radiated Emission Test Data, 30MHz to 1000MHz

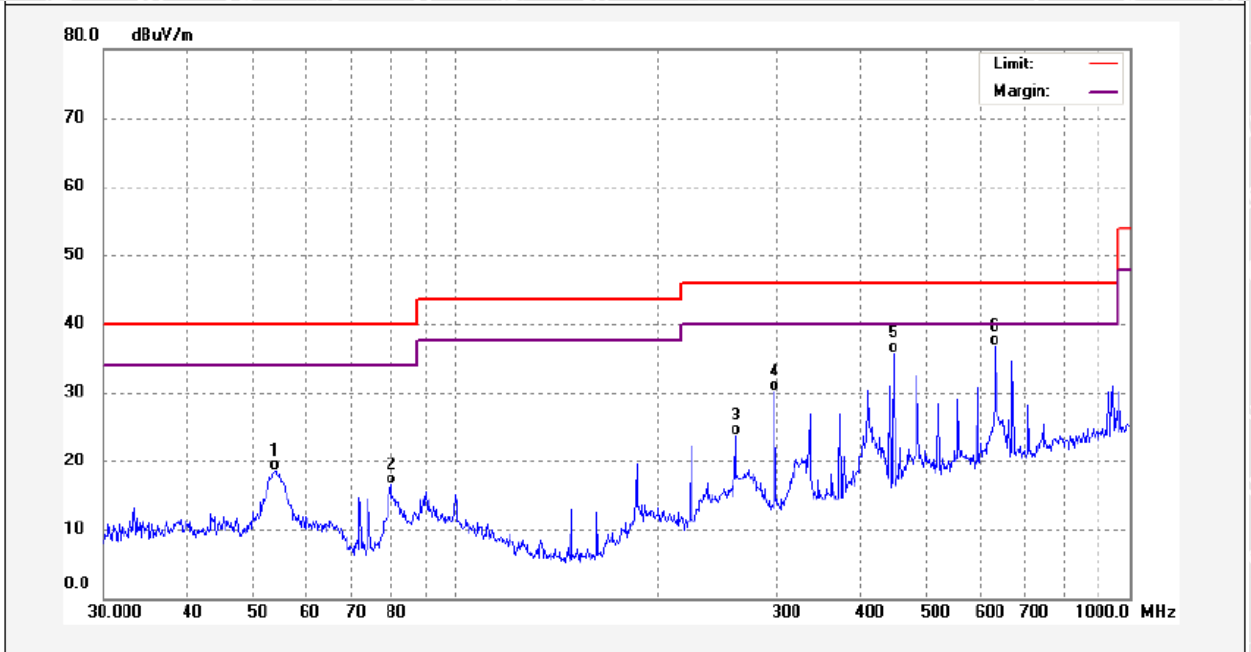
Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	54.4516	37.13	-17.08	20.05	40.00	-19.95	QP	
2	222.9502	35.91	-16.25	19.66	46.00	-26.34	QP	
3	297.2241	37.15	-14.20	22.95	46.00	-23.05	QP	
4	408.9460	42.55	-12.09	30.46	46.00	-15.54	QP	
5	446.4141	42.35	-11.64	30.71	46.00	-15.29	QP	
6	631.6884	44.02	-7.56	36.46	46.00	-9.54	QP	



Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	53.8818	35.44	-17.03	18.41	40.00	-21.59	QP	
2	80.0806	37.53	-21.00	16.53	40.00	-23.47	QP	
3	260.1444	38.88	-15.11	23.77	46.00	-22.23	QP	
4	297.2241	44.23	-14.20	30.03	46.00	-15.97	QP	
5	446.4141	47.36	-11.64	35.72	46.00	-10.28	QP	
6	631.6884	44.19	-7.56	36.63	46.00	-9.37	QP	





7.2 Radiation Emission, Above 1000MHz

Test Requirement	: FCC PART 15, SUBPART B
Test Method	: ANSI C63.4
Test Result	: Pass
Frequency Range	: Above 1GHz
Class	: Class B
Limit	:

Frequency Range (MHz)	Distance (Meter)	Average Limit dB(uV/m)	Peak Limit (dBUV/m)
Above 1GHz	3	54	74

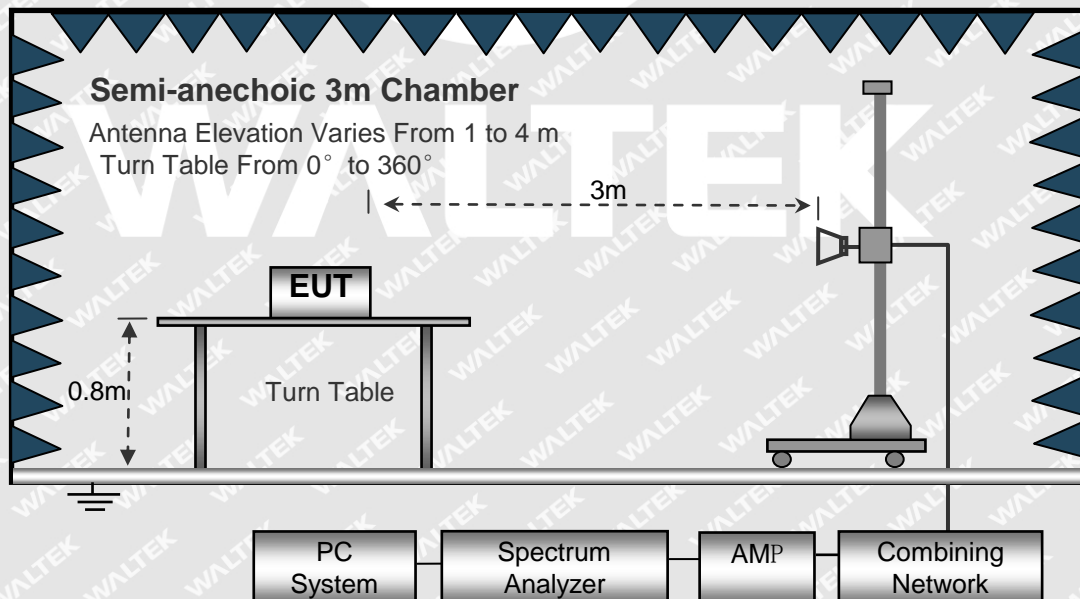
7.2.1 E.U.T. Operation

Operating Environment:

Temperature	: 22.5°C
Humidity	: 52.6%RH
Atmospheric Pressure	: 101.8kPa
EUT Operation	: Refer to section 6.5.

7.2.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.



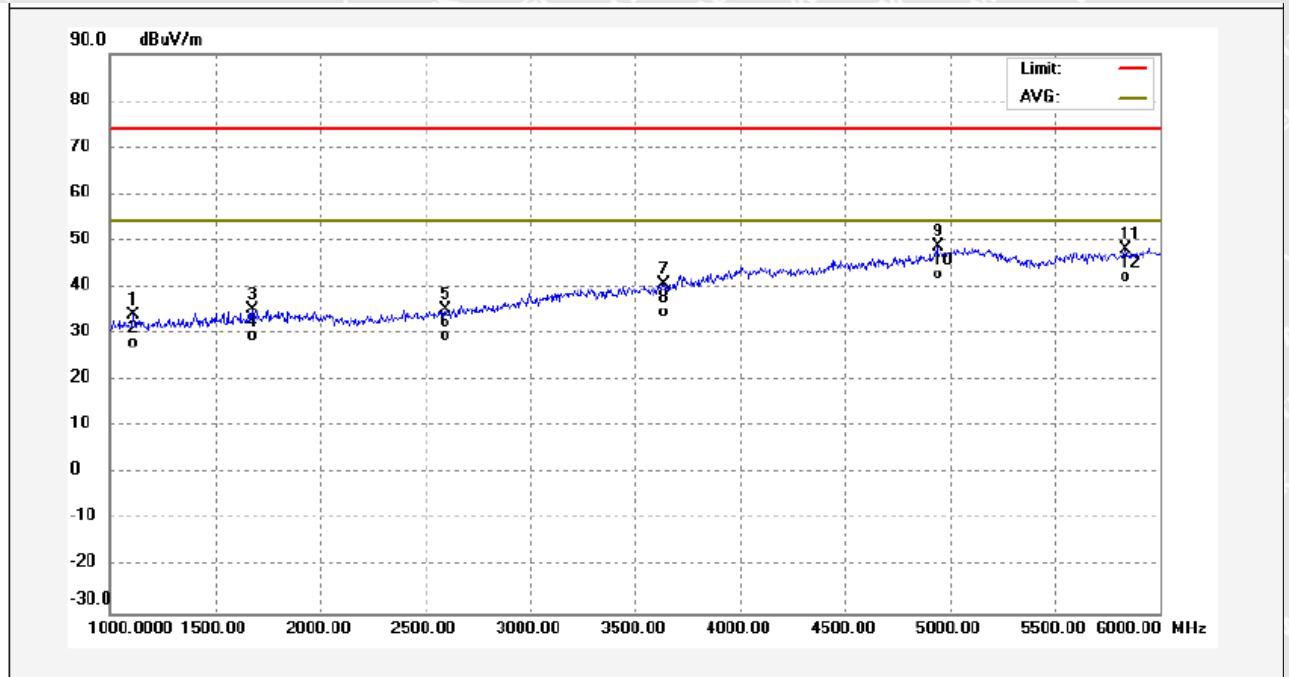
7.2.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Average measurements were performed if peak emissions were within 6dB of the average limit line



7.2.4 Radiated Emission test data, Above 1000MHz

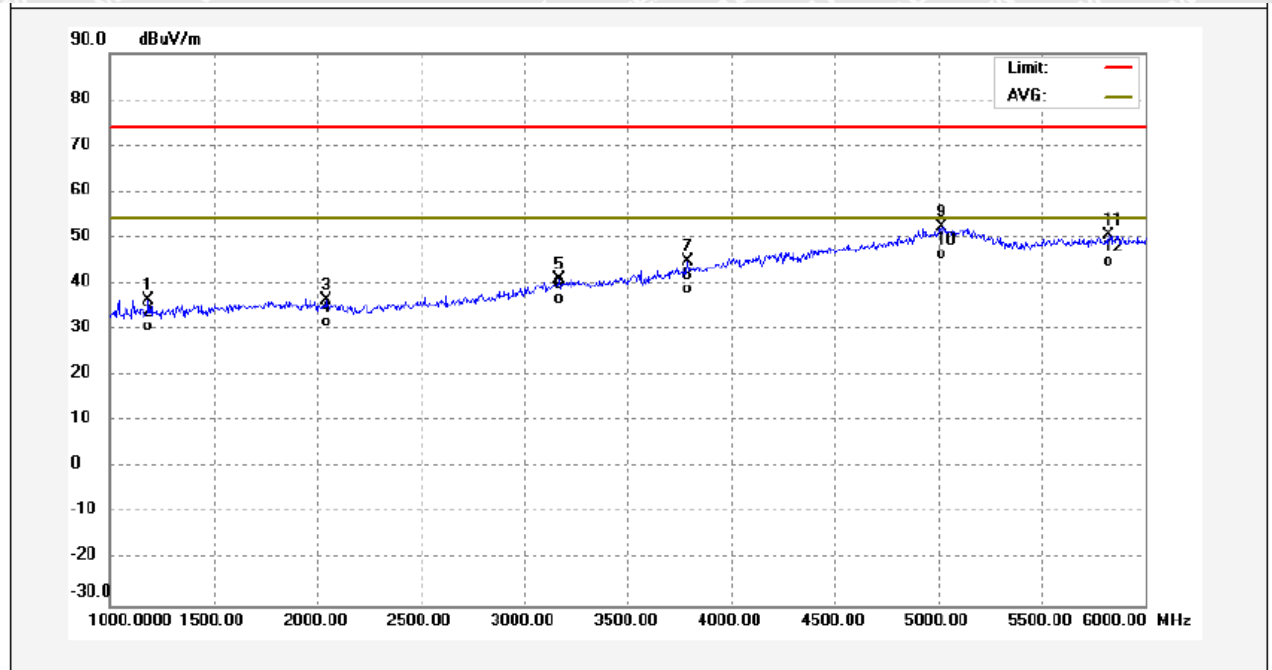
Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1110.000	50.65	-16.70	33.95	74.00	-40.05	peak	
2	1110.000	44.68	-16.70	27.98	54.00	-26.02	AVG	
3	1675.000	49.71	-14.58	35.13	74.00	-38.87	peak	
4	1675.000	44.26	-14.58	29.68	54.00	-24.32	AVG	
5	2595.000	48.71	-13.35	35.36	74.00	-38.64	peak	
6	2595.000	43.05	-13.35	29.70	54.00	-24.30	AVG	
7	3635.000	48.82	-8.09	40.73	74.00	-33.27	peak	
8	3635.000	42.60	-8.09	34.51	54.00	-19.49	AVG	
9	4940.000	49.50	-0.87	48.63	74.00	-25.37	peak	
10	4940.000	43.47	-0.87	42.60	54.00	-11.40	AVG	
11	5835.000	49.06	-1.01	48.05	74.00	-25.95	peak	
12	5835.000	43.31	-1.01	42.30	54.00	-11.70	AVG	



Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1185.000	51.95	-15.40	36.55	74.00	-37.45	peak	
2	1185.000	46.09	-15.40	30.69	54.00	-23.31	AVG	
3	2040.000	49.84	-13.28	36.56	74.00	-37.44	peak	
4	2040.000	45.06	-13.28	31.78	54.00	-22.22	AVG	
5	3170.000	49.87	-8.84	41.03	74.00	-32.97	peak	
6	3170.000	45.54	-8.84	36.70	54.00	-17.30	AVG	
7	3790.000	50.36	-5.65	44.71	74.00	-29.29	peak	
8	3790.000	44.35	-5.65	38.70	54.00	-15.30	AVG	
9	5015.000	49.52	2.95	52.47	74.00	-21.53	peak	
10	5015.000	43.30	2.95	46.25	54.00	-7.75	AVG	
11	5825.000	49.69	0.94	50.63	74.00	-23.37	peak	
12	5825.000	43.86	0.94	44.80	54.00	-9.20	AVG	



8 Photographs – Test Setup

8.1 Photograph – Radiated Emission Test Setup For 30MHz-1000MHz



8.2 Photograph – Radiated Emission Test Setup For Above 1GHz





9 Photographs – Constructional Details

9.1 EUT – Appearance View















====End of Report====