EMC Test Report

Product Name: CDMA 1X Digital Mobile Phone

Model Number: HUAWEI M750

Report No: SYBHZ (R) E007082010EB-1
FCC ID:QISM750

Reliability Laboratory of Huawei Technologies Co., Ltd.

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Notice 1

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2. The laboratory has obtained the accreditation of THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA), and Accreditation Council Certificate Number: 2174.01.
3. The laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 97456.
4. The laboratory has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 6369A-1.
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Notice 2

Modification Information:

Modification Information

Modification Information	1	
	2	
	3	Not Applicable!
	4	
	5	
	6	
	7	

REPORT ON	**EMC Test of CDMA 1X Digital Mobile Phone**
	M/N: HUAWEI M750
REGULATION	**FCC CFR47 Part 15: Subpart B;**
START OF TEST	**Aug. 02, 2010**
END OF TEST	**Aug. 09, 2010**
Final Judgement:	**Pass**

Approver	**2010-08-24**	张兴海	
	Date	**Name**	**Signature**
Operator	**2010-08-24**	温剑锋	
	Date	**Name**	**Signature**

REPORT BODY CONTENT

1 Status

1.1 Product Information

CLIENT:	Huawei Technologies Co., Ltd.
ADDRESS:	Bantian Longgang District Shenzhen, P.R. China
MANUFACTURING DESCRIPTION	CDMA1X Digital Mobile Phone
MANUFACTURERS MODEL NUMBER	HUAWEI M750

1.2 Test Site

Site 1:

EMC LABORATORY OF RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD

1.3 Test environment condition

Ambient temperature	20~25°C
Relative humidity	40%~52%
Atmospheric pressure	101kPa

2 Summary of Results

Table 2 below shows a brief summary of the results obtained.

Summary of results

EUT Classification：Wireless Terminal				
Test Items	**Test Configuration &Test Mode**	**Required Performance Criteria**	**Result**	**Site**
Radiated Emissions Enclosure Port	TC1 (TM5-TM8)	N/A	Pass	Site1
Conducted Emissions	TC1 (TM1-TM8)	N/A	Pass	Site1
Note: 1, Measurement taken is within the measurement uncertainty of measurement system. 2, TC = Test configuration				

3 Equipment Specification

3.1 General Description

Huawei CDMA Mobile Phone M750 is subscriber equipment in the CDMA system. The frequency band is US Cellular. The Mobile Phone implements such functions as RF signal receiving / Transmitting, CDMA protocol processing, voice and SMS service etc. The Mobile Phone uses QSC6055 single chipset and Zero-IF technologies.

3.1.1 Main Equipment Technical Data

Description:	CDMA 1X Digital Mobile Phone
Models:	HUAWEI M750
Input Rated Voltage	⎓ 3.7V
Extreme Voltage	3.6V and 4.2V
Rated Power	2W
Dimensions	106.9mm (L) × 57.2 mm (W) × 14.9mm (H)
Weight	<120g (with battery)

Mode		Work Frequency	
		Transmitt Frequency （MHz）	Receive Frequency （MHz）
CDMA	CDMA 800	824-849	869-894
	CDMA 1900	1850-1910	1930-1990
	AWS 1700	1710-1755	2110-2155
Bluetooth		2400-2483.5	

3.2 Sub-Assembly Identity

Sub-Assembly Identity

Board				
Model Name	Qty.		Serial	Description
HC1M750	1		020NJB2091000450	Main board of Mobile Phone
Accessory				
Name	Qty.	Manufacture	Serials number	Description
Adapter	1	BYD(HUIZHOU) Co., Ltd	TPAA42100210	Adapter Model: HS-050040U1 voltage nominal: ~120V Input voltage: ~100-240V ;50/60Hz Output voltage: ⎓ +5.0V，0.4A Rate power: 2W
Adapter	1	Tech-power International Co.,Ltd	BYAA42106608	Adapter Model: HS-050040U1 voltage nominal: ~120V Input voltage: ~100-240V ;50/60Hz Output voltage: ⎓ +5.3V，0.65A Rate power: 4W
Rechargeable Li-ion	1	FMT Electronics Co.,Ltd.	YAC9210HI0302355	Battery Model: HB5A2H Rated capacity: 1150mAh Nominal Voltage: ⎓ +3.7V Charging Voltage: ⎓ +4.2V

4 System Configuration during EMC Test

The Equipment under Test (EUT) was functioning correctly during all tests. The EUT was installed within the test site and was configured to simulate a typical user installation.

4.1 Cables Used during Test

Cable Used during Test

Cable	Quantity	Type of Cable
AC Power Port	1	Unshielded
Earphone	1	Unshielded

4.2 Associated Equipment Used during Test

Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Cal Date	Cal Interval (month)
Radio Communication Tester	CMU200	R&S	3607033573	2010-03-12	12

4.3 Test Configurations and Test Mode

4.3.1 Test Configuration.

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

TC1:EUT powered with an adapter and connected to the test system (Base Station Simulator).

Configuration table

TC1	TM1~TM8

4.3.2 Test Mode

There were 8 test Modes. TM1 and TM8 were shown in the diagrams below:

TM1	operate in traffic mode CDMA 800;
TM2	operate in traffic mode PCS 1900;
TM3	operate in traffic mode AWS 1700;
TM4	operate in traffic mode Bluetooth;
TM5	operate in idle mode CDMA 800;
TM6	operate in idle mode PCS 1900;
TM7	operate in idle mode AWS 1700;
TM8	operate in idle mode Bluetooth;

4.4 Test conditions and test connections

4.4.1 Test Conditions

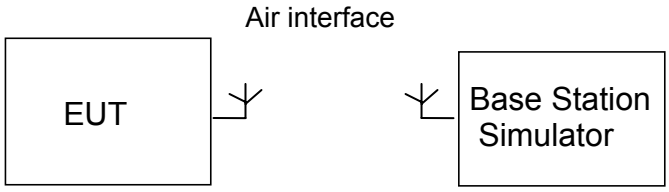
The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

4.4.2 Test connections

Traffic Mode:

The EUT is required to be in the traffic mode, a call is set up according to the generic call set up procedure and enter the EUT into loop back test mode.

For CDMA, the following conditions shall also be met:
- The EUT shall be commanded to operate at maximum transmit power;



: Test Configuration

Idle Mode:

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

The EUT is required to be in the idle mode.
For CDMA, the following conditions shall be met:
- UE shall be camped on a cell;
- UE shall perform Location Registration (LR) before the test, but not during the test;
- UE's neighbour cell list shall be empty;

For Cellular, PCS and AWS, the following conditions shall be met:
When the EUT is required to be in the idle mode, the test system shall simulate a Base Station (BS) with Broadcast Control Channel/Common Control Channel (BCCH/CCCH) on one carrier. The EUT shall be synchronized to the BCCH, listening to the CCCH and able to respond to paging messages. Periodic Location Updating shall be disabled.

5 Electromagnetic Interference (EMI)

5.1 Radiated Disturbance 30MHz to 18GHz

5.1.1 Test Procedure

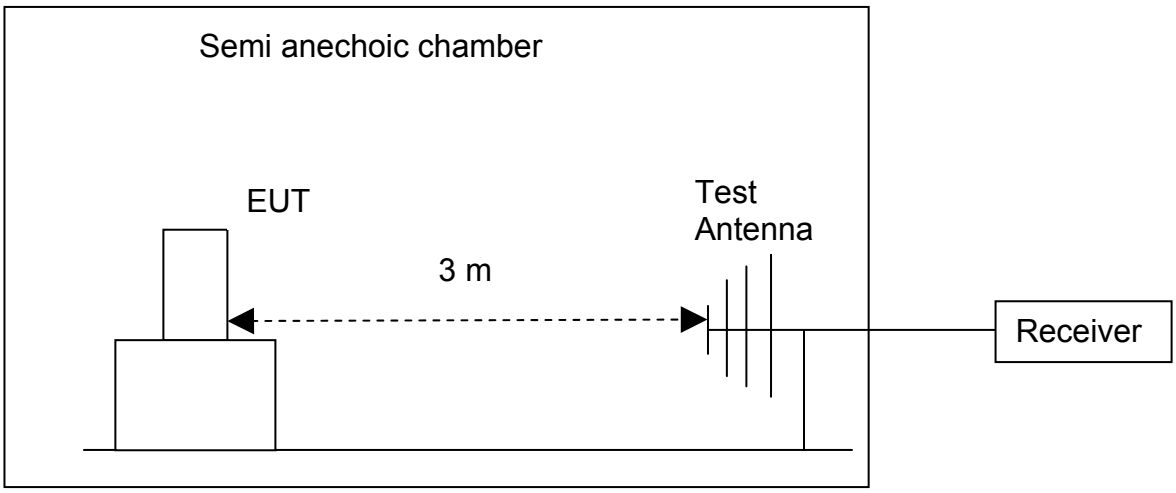
The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4. The test distance was 3m.The set-up and test methods were according to ANSI 63.4.
A preliminary scan and a final scan of the emissions were made from 30 MHz to18 GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0°to 360°, The receive antenna has two polarizations V and H.

EUT was configured in idle mode and the test performed at worst emission state.

Measurement bandwidth: 30 MHz – 1000 MHz: 120 k Hz

Measurement bandwidth: 1GHz – 18GHz: 1MHz

Test set up figure:



Test set up

5.1.2 Test Results

The EUT has met the requirements for Radiated Emission of enclosure port.
The test data is shown in section 8.1 of the report.

Test Limits

Frequency of Emission (MHz)	Radiated Limit	
	Unit(μv/m)	Unit(dBμV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

5.2 Conducted Disturbance 0.15 MHz to 30MHz

5.2.1 Test Procedure

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.4: 2003.

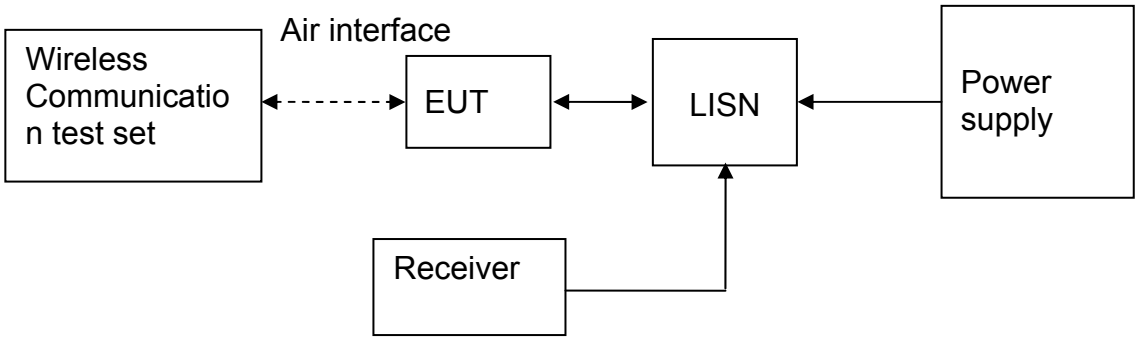
Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.

Huawei Mobile Station was communicated with the BTS simulator through Air interface, the BTS simulator controls the Mobile Station to transmitter the maximum power which defined in specification of product. The Mobile Station operated on the typical channel.

Measurement bandwidth (RBW) for 150kz to 30 MHz: 9 kHz;

Test Set-up figure:

The Mobile Station was setup in the screened chamber and operated under nominal conditions.



Test Set-up

5.2.2 Test Results

The EUT has met requirements for Conducted disturbance of signal lines.
The test data is shown in section 8.2 of the report.

Test Limit of DC&AC Power Port

Frequency range	150kHz~ 30MHz	
Classification	Class B	
Limit(Class B)	Voltage limits	
	QP	AV
0.15MHz~0.5MHz	66~56 dBμV	56~46 dBμV
0.5MHz~5MHz	56 dBμV	46 dBμV
5MHz~30MHz	60 dBμV	50 dBμV

6 Main Test Instruments

Main Test Equipments

Test item	Test Instrument	Model	Manufacturer	Cal-Date	Cal Interval (month)
RE&CE	EMI Test receiver	ESU26	R&S	Jun.25, 2010	12
	Broadband Antenna	VULB 9163	SCHWARZBECK	May.15, 2010	12
	Horn Antenna	HF906	R&S	May.15, 2010	12
	LISN	ENV216	R&S	Jun.25.2010	12
Software Information					
Test Item	Software Name	Manufacturer	Version		
RE/CE	ES-K1	R&S	1.7.1		

7 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

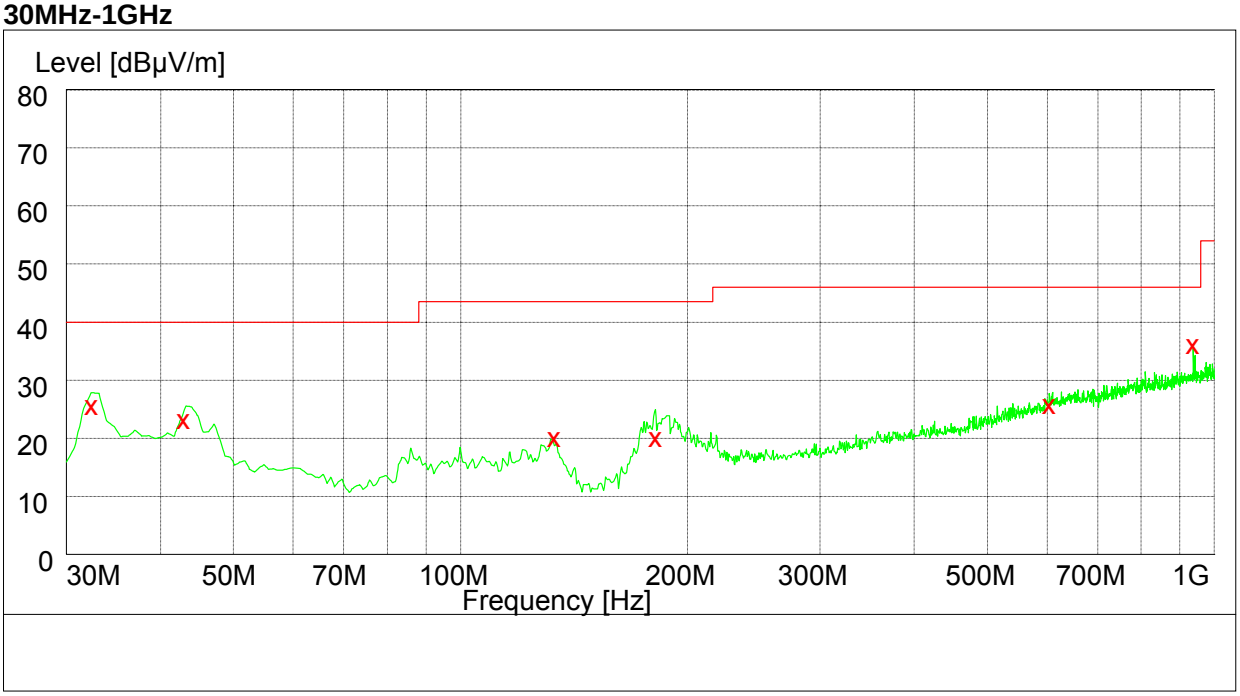
Items		Extended Uncertainty
RE	Field strength （dBμV/m）	U=4.1dB; k=2(30MHz-1GHz) U=4.1dB; k=2(1GHz-18GHz)
CE	Disturbance Voltage（dBμV）	U=3.4dB; k=2

8 Graph and Data of Emission Test

8.1 Radiated Disturbance

This test was carried out in all the test modes, Here only the worst test result was shown.

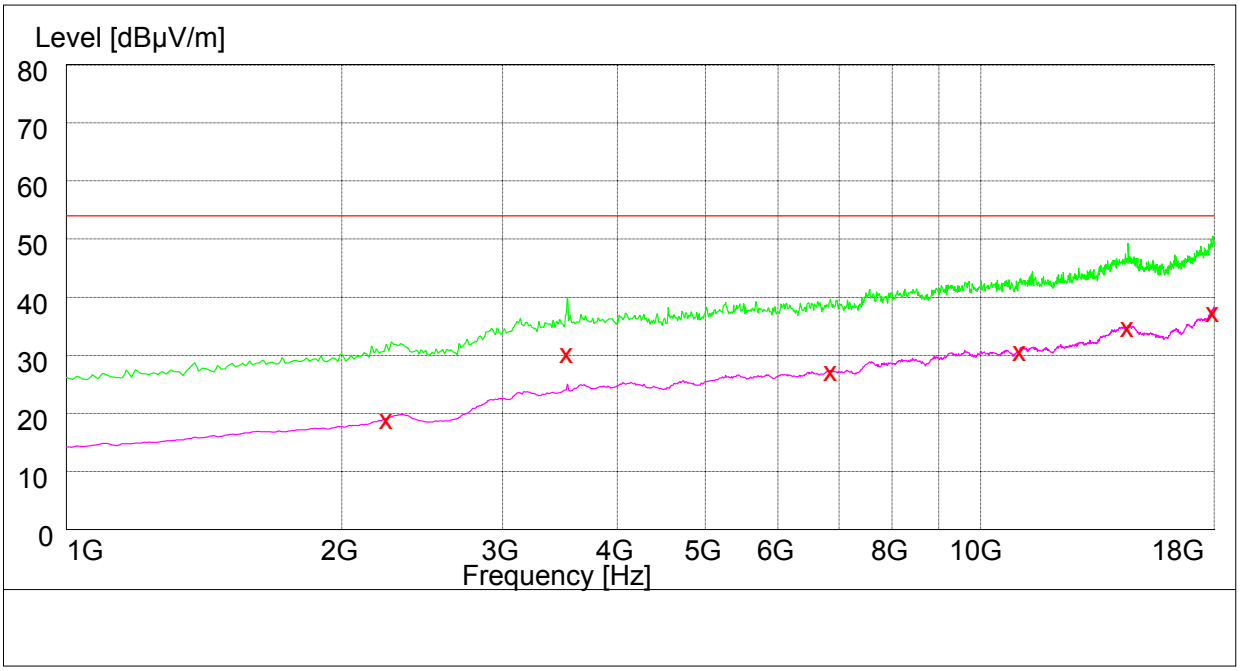
30MHz-1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
32.440000	25.50	11.7	40.0	14.5	135.0	158.00	VERTICAL
43.000000	23.00	13.1	40.0	17.0	109.0	128.00	HORIZONTAL
133.350000	20.00	9.22	43.5	23.5	147.0	33.00	HORIZONTAL
181.740000	20.00	11.1	43.5	23.5	157.0	156.00	VERTICAL
605.000000	25.90	11.1	46.0	20.1	105.0	333.00	HORIZONTAL
938.220000	37.30	26.5	46.0	8.7	225.0	218.00	VERTICAL

1GHz-18GHz



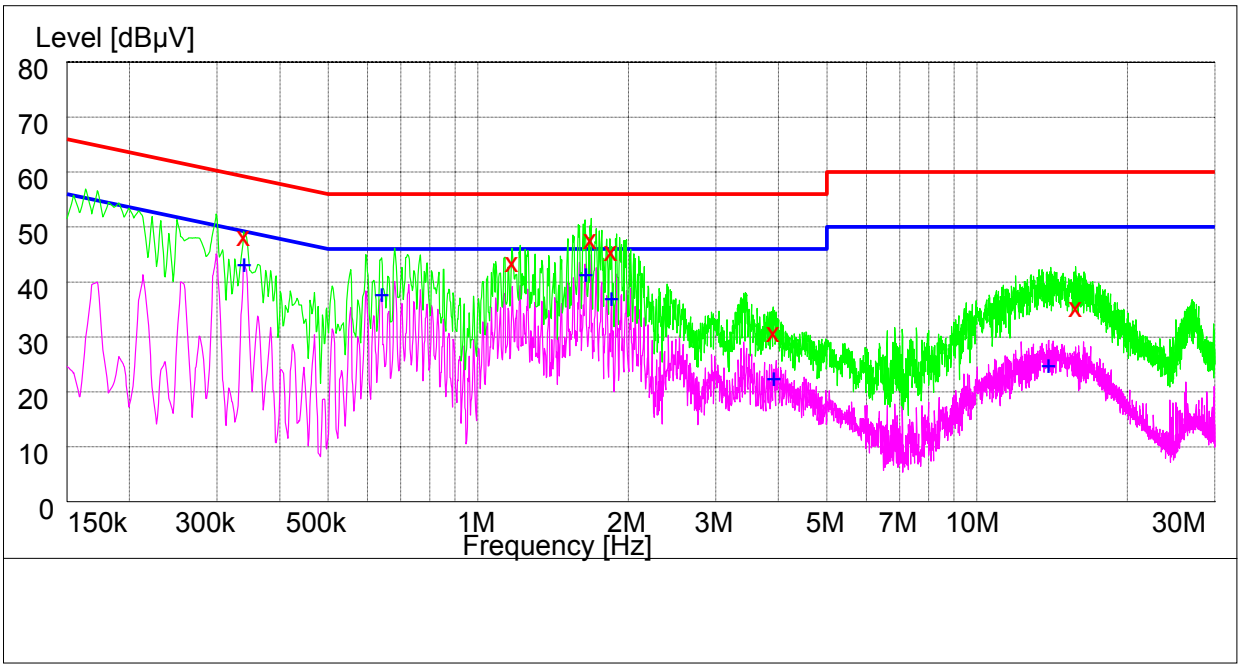
MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2240.500000	18.70	-11.7	54.0	35.3	100.0	300.00	VERTICAL
3529.500000	30.10	-7.3	54.0	23.9	100.0	6.00	VERTICAL
6852.500000	27.00	-0.2	54.0	27.0	137.0	204.00	HORIZONTAL
11040.500000	30.40	6.8	54.0	23.6	124.0	163.00	VERTICAL
14488.500000	34.60	12.4	54.0	19.4	181.0	97.00	HORIZONTAL
17951.500000	37.20	17.0	54.0	16.8	125.0	250.00	VERTICAL

8.2 Conducted Disturbance

8.2.1 AC Port Test Data

This test was carried out in all the test modes, Here only the worst test result was shown.



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level *dBµV*	Transd dB	Limit *dBµV*	Margin dB	Line	PE
0.340000	49.60	10.0	59	9.4	N	FLO
1.172000	44.90	10.1	56	11.1	N	FLO
1.684000	49.00	10.1	56	7.0	N	FLO
1.852000	46.90	10.1	56	9.1	N	FLO
3.918000	32.20	10.2	56	23.8	N	FLO
15.806000	36.70	10.3	60	23.3	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency MHz	Level *dBµV*	Transd dB	Limit *dBµV*	Margin dB	Line	PE
0.340000	44.30	10.0	49	4.7	N	FLO
0.640000	38.90	10.1	46	7.1	N	FLO
1.642000	42.60	10.1	46	3.4	N	FLO
1.854000	38.10	10.1	46	7.9	N	FLO
3.922000	23.70	10.2	46	22.3	N	FLO
13.918000	25.90	10.3	50	24.1	N	FLO

END