



47 CFR PART 15 SUBPART B

TEST REPORT

of

GSM Module

Model Name: ES001
Brand Name: eSky
Report No.: SH10090004E01
FCC ID: YR8ES001

prepared for

eSky wireless Inc.
Room A311, #258 Road Ren'ai, Suzhou, China



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1. TEST CERTIFICATION

Equipment under Test: GPS Vehicle Tracking Device

Brand Name: eSky
 FCC ID: YR8ES001
 Applicant: eSky wireless Inc.
 Room A311, #258 Road Ren'ai, Suzhou, China
 Manufacturer: eSky wireless Inc.
 Room A311, #258 Road Ren'ai, Suzhou, China

Test Standards: 47 CFR Part 15 Subpart B

Test Date(s): Sep,11, 2010 –Oct 26, 2010

Test Result: PASS

* We Hereby Certify That:

The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by: Huangyunlong Dated: 2010.10.26
 Huang yunlong

Reviewed by: Zhang Jun Dated: 2010.10.26
 Zhang Jun

Approved by: Wei Bei Dated: 2010.10.26
 Wei Bei





2. GENERAL INFORMATION

2.1 EUT Description

EUT Type.....: GSM Module
Serial No.....: (n.a., marked #1 by test site)
Hardware Version.....: Pigeon_MB_H103
Software Version.....: 0.46
Modulation Type.....: GMSK

Note 1: A communication link between the EUT and a System Simulator (SS) is established at the start of the test, and maintained during the all test in this report.

Note 2: For a more detailed description, please refer to Specification or User’s Manual supplied by the applicant and/or manufacturer.

2.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.107	Conducted Emission	PASS
2	15.109	Radiated Emission	PASS

2.3 Facilities and Accreditations

2.3.1 Facilities

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Laboratories (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 CHINA. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 2003 and CISPR Publication 22; the FCC registration number is 741109.

2.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	20 - 25
Relative Humidity (%):	40 - 60
Atmospheric Pressure (kPa):	960

3. TEST CONDITIONS SETTING

3.1 Test Mode

During the measurement, the GPRS radio is working. The test modes of the EUT are showed as below:

(1) EUT + PC+DC(direct-current power supply) GPRS Test Mode

The EUT configuration of the emission tests is EUT + PC + DC

A communication link was established between the EUT and a System Simulator (SS). The EUT operated at GPRS 850 mid (190) and maximum output power (level 5). The EUT operated at GPRS 1900 mid (661) and maximum output power (level 0).

(2) EUT + PC +DC(direct-current power supply) GPS Test Mode

The EUT configuration of the emission tests is EUT + PC + DC

EUT operated at GPS mode , search GPS signal.

(3) Idle operating mode

The EUT configuration of the emission tests is EUT + PC + DC

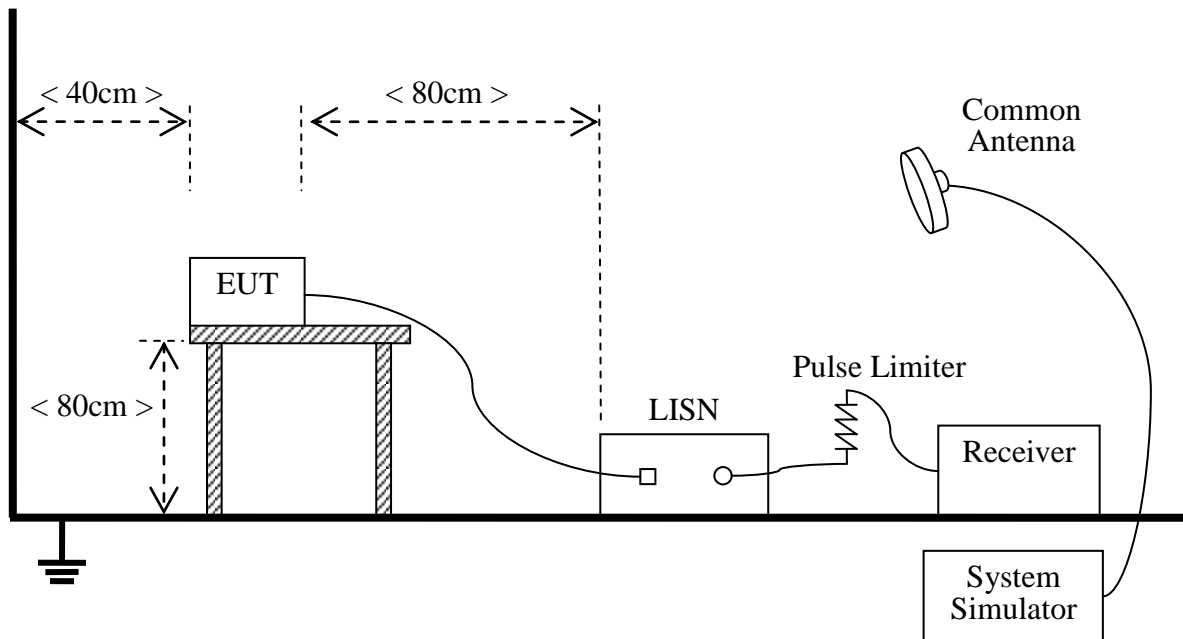
The EUT was registered to the base station simulator but no call was set up.

- 1 All test modes are performed, only the worst cases are recorded in this report.
- 2 In the Conducted Emission, the worst cases are operated at GPRS 850
- 3 In the Radiated Emission, the worst cases are operated at GPRS 850

3.2 Test Setup and Equipments List

3.2.1 Conducted Emission

A. Test Setup:



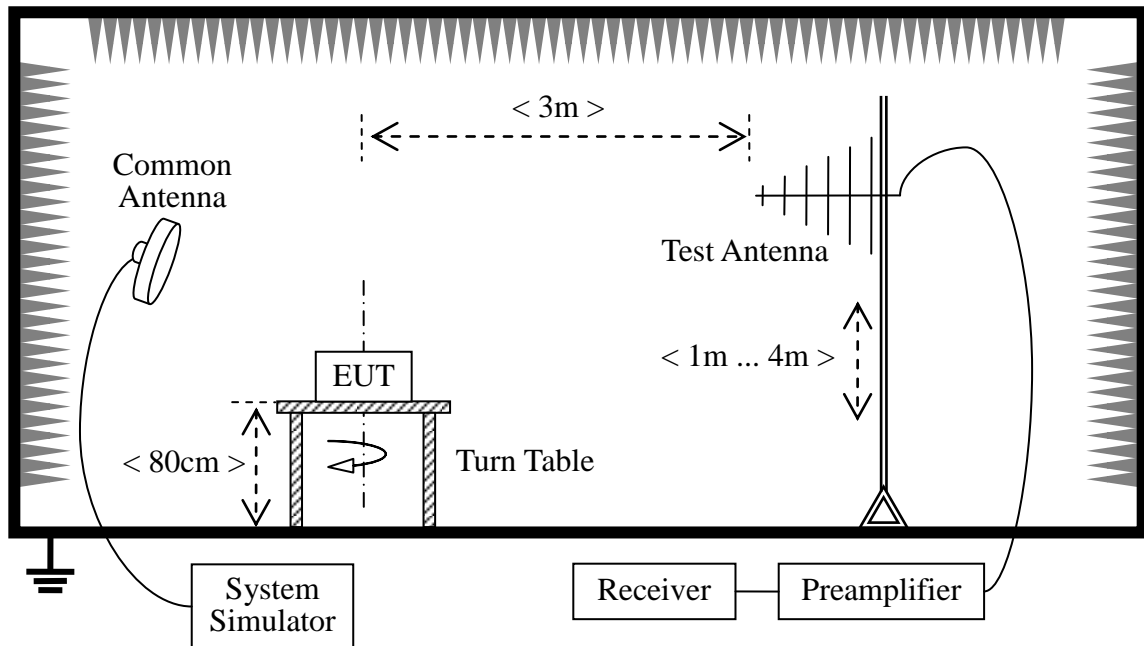
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument. The Common Antenna is used for the call between the EUT and the System Simulator (SS). A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2010.9	1year
LISN	Rohde&Schwarz	ENV216	812744	2010.9	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2010.9.	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

3.2.2 Radiated Emission

C. Test Setup:



The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower. The Common Antenna is used for the call between the EUT and the System Simulator (SS).

D. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2010.9	1year
Full-Anechoic Chamber	ETS • LINDGREN	9m*6m*6m	(n.a.)	2010.9	1year
Test Antenna - Bi-Log	Rohde&Schwarz	HL562	100385	2010.9	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2010.9	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

4. 47 CFR Part 15B Requirements

4.1 Conducted Emission

4.1.1 Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

NOTE:

- The limit subjects to the Class B digital device.
- The lower limit shall apply at the band edges.
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

4.1.2 Test Description

See section 2.3.1 of this report.

4.1.3 Test Result

The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

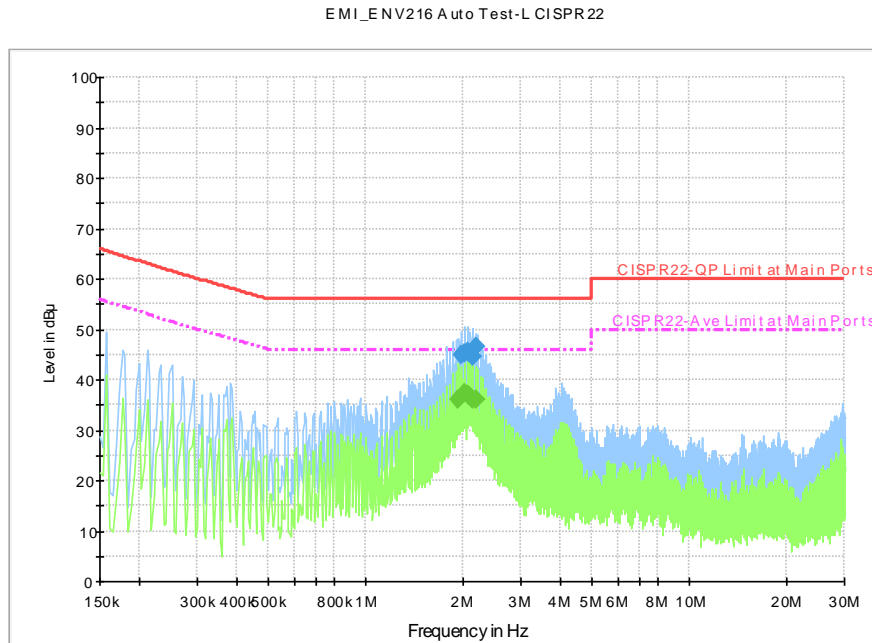
A. Test Verdict Recorded for Suspicious Points:
1. EUT+PC+DC (GSM Test Mode)

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
2.026819	41.6	1000.000	9.000	N	9.8	14.4	56.0	PASS
2.045475	42.9	1000.000	9.000	N	9.7	13.1	56.0	PASS
2.067862	44.0	1000.000	9.000	N	9.7	12.0	56.0	PASS
2.105175	41.0	1000.000	9.000	N	9.7	15.0	56.0	PASS
2.146219	40.4	1000.000	9.000	N	9.8	15.6	56.0	PASS
2.161144	40.0	1000.000	9.000	N	9.7	16.0	56.0	PASS
1.970850	44.9	1000.000	9.000	L1	9.7	11.1	56.0	PASS
2.011894	45.3	1000.000	9.000	L1	9.8	10.7	56.0	PASS
2.060400	45.6	1000.000	9.000	L1	9.7	10.4	56.0	PASS
2.093981	45.2	1000.000	9.000	L1	9.7	10.8	56.0	PASS
2.131294	44.7	1000.000	9.000	L1	9.7	11.3	56.0	PASS
2.176069	46.5	1000.000	9.000	L1	9.8	9.5	56.0	PASS

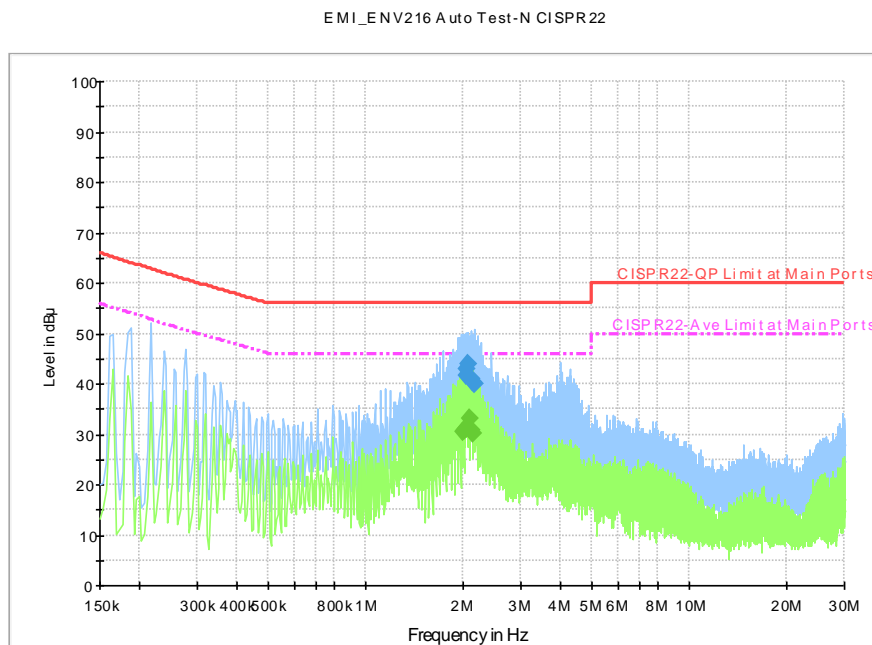
Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
1.982044	30.6	1000.000	9.000	N	9.8	15.4	46.0	PASS
2.008162	30.9	1000.000	9.000	N	9.8	15.1	46.0	PASS
2.026819	31.1	1000.000	9.000	N	9.8	14.9	46.0	PASS
2.086519	33.3	1000.000	9.000	N	9.7	12.7	46.0	PASS
2.105175	30.8	1000.000	9.000	N	9.7	15.2	46.0	PASS
2.146219	30.2	1000.000	9.000	N	9.8	15.8	46.0	PASS
1.929806	35.9	1000.000	9.000	L1	9.7	10.1	46.0	PASS
2.015625	37.2	1000.000	9.000	L1	9.8	8.8	46.0	PASS
2.056669	37.2	1000.000	9.000	L1	9.7	8.8	46.0	PASS
2.093981	36.8	1000.000	9.000	L1	9.7	9.2	46.0	PASS
2.135025	36.1	1000.000	9.000	L1	9.8	9.9	46.0	PASS
2.172338	36.1	1000.000	9.000	L1	9.7	9.9	46.0	PASS

B. Test Plot:

1. EUT+PC+DC (GPRS Test Mode)



(Plot A: L Phase)



(Plot B: N Phase)

4.2 Radiated Emission

4.2.1 Requirement

According to FCC section 15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency range (MHz)	Field Strength	
	$\mu\text{V/m}$	$\text{dB } \mu\text{V/m}$
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE: a) Field Strength ($\text{dB } \mu\text{V/m}$) = $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$.

b) In the emission tables above, the tighter limit applies at the band edges.

4.2.2 Test Description

See section 2.3.2 of this report.

4.2.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

(1) GPRS Traffic operating mode

The EUT configuration of the emission tests is EUT + PC+DC

A communication link was established between the EUT and a System Simulator (SS). The EUT operated at GPRS 850 mid (190) and maximum output power (level 5). The EUT operated at GPRS 1900 mid (661) and maximum output power (level 0).

(2) GPS receiver operating mode

The EUT configuration of the emission tests is EUT + PC+DC

EUT operated at GPS mode , search GPS signal.

(3) Idle mode

The EUT configuration of the emission tests is EUT + PC+DC

The EUT was registered to the base station simulator but no call was set up

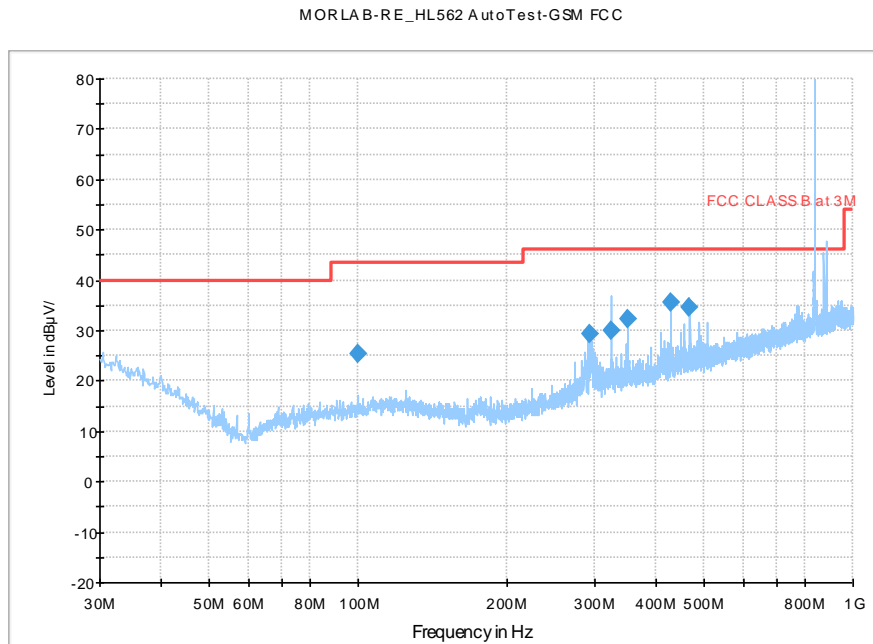
A. Test Verdict Recorded for Suspicious Points:
1. EUT +PC+DC (GPRS Test Mode)

No.	@Frequency (MHz)	Emission Level (dB μ V/m)		Quasi-Peak Limit (dB μ V/m)	Margin (dB μ V/m)	Result
		QP	Antenna Polarization			
1	99.597500	25.3	V	43.5	18.2	PASS
2	292.627500	29.4	V	46.0	16.6	PASS
3	324.031250	30.1	V	46.0	15.9	PASS
4	350.948750	32.3	V	46.0	13.7	PASS
5	429.033750	35.7	V	46.0	10.3	PASS
6	468.076250	34.7	V	46.0	11.3	PASS
7	53.886250	20.9	H	40.0	19.1	PASS
8	65.041250	21.0	H	40.0	19.0	PASS
9	168.952500	24.3	H	43.5	19.2	PASS
10	194.293750	24.4	H	43.5	19.1	PASS
11	198.901250	24.5	H	43.5	19.0	PASS
12	203.751250	26.4	H	43.5	17.1	PASS

A. Test Plot:

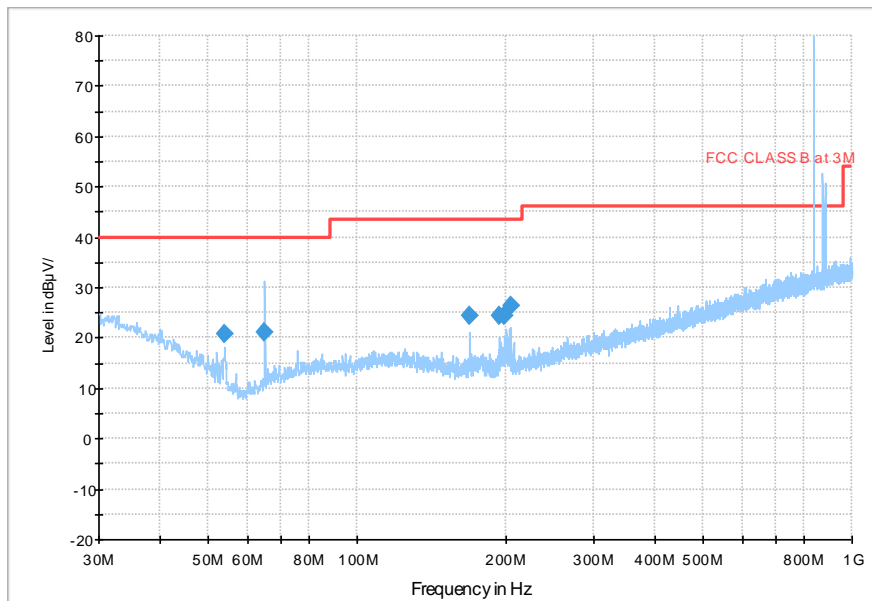
Following is the plots for emission measurement; please note that marked spikes with circle should be ignored because they are EUT and SS carrier frequency.

1. EUT +PC+DC(GPRS Test Mode)



(Plot A: Test Antenna Vertical Frequence from 30MHz to1GHz)

MORLAB-RE_HL562 AutoTest-GSM FCC



(Plot B: Test Antenna Horizontal Frequency from 30MHz to1GHz)

** END OF REPORT **