

MPE TEST REPORT

Equipment Under Test : Private Land Mobile Radio for Vehicle (VHF)
Model No. : SM5202
Applicant : MAXON CIC Corp.
Address of Applicant : Chongho Bldg, #7-61, Yangjae-Dong, Seocho-Gu, Seoul, Korea
Date of Test(s) : 2009-07-30
Date of Issue : 2009-07-31

Standards : FCC 47CFR 2.1091(b)

In the configuration tested, the EUT complied with the standards specified above.

Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

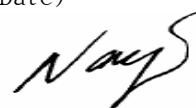
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July 31, 2009
(Date)



Tested by **Hyunsup, Jin**

July 31, 2009
(Date)



Reviewed by **TaeHyun, Nam**

TABLE OF CONTENTS

	Page
1. Description-----	3
2. Antenna Information-----	3
3. Test site-----	3
4. Measurement System-----	3
5. Measurement Uncertainty-----	3
6. Method of measurement-----	4
7. Test result-----	5
8. Conclusion-----	8

1. Description

The SM2102 is a DTMF, SECALL and SMS mobile radio with 208-channel capability. The radio is programmable for output power, channel spacing, and a range of features. The three buttons located on the bottom left-hand side of the radio under the LCD, are described as programmable. These three buttons (P1, P2, and P3) have a short and long press and can be used for various pre-programmed features, Monitor, Power H/L, Scan, DTMF, Key lock, Selcall, Scan, Public Address, Open Close, 1200/2400, SMS and Light.

2. Antenna Information

Whip Antenna for vehicle :148 MHz, 1/4 wave 0 dBi
Whip Antenna for vehicle :161 MHz, 1/4 wave 0 dBi
Whip Antenna for vehicle : 174 MHz, 1/4 wave 0 dBi

3. Test site

BWS TECH Inc.
611-1, Maesan-ri, Mohyeon-myeon, Cheoin-gu, Yongin-si,
Gyeonggi-do 449-853, Korea

4. Measurement System

- Automobile: Samsung SM3
- E-Field Survey Meter & Probe – NARDA Model EMC-20 (100KHz~3GHz)
Calibration due date : 2009-07-30
- Antennas – (1/4 wave 0dBi)

5. Measurement Uncertainty

The information below presents an estimate of the possible errors that are associated with the measurement system.

<u>Description</u>	<u>Error</u>
NARDA Survey Meter	± 3%
Repeatability Accuracy	± 7%

6. Method of measurement

6.1 EME measurements made on trunk mounted antennas

6.1.1 External vehicle EME measurement

(Antenna mounted in trunk center)

With the survey meter and probe, take ten (10) measurements, at the test distance of 60cm to the antenna, from the back of the vehicle in a vertical line and then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters.

6.1.2 Internal vehicle EME measurement

(Antenna mounted in trunk center)

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged

- a) Head area
- b) Chest area
- c) Lower Trunk area

6.2 EME measurements made on center roof mounted antennas

6.2.1 External vehicle EME measurement

With the survey meter and probe, take ten (10) measurements, at the standard test distance of 110 cm from the vehicle-mounted antenna, in a vertical line and then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters; this would be representative of a person standing next to a vehicle during a mobile radio transmission.

6.2.2 Internal vehicle EME measurement

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged.

- a) Head area
- b) Chest area
- c) Lower Trunk area

7. Test Result

Measurement Information			
Measurement Freq.(MHz)	148.025	161.025	173.975
Raw Data Power(W)	54.95	55.08	51.40
Controlled Limit	1.0	1.0	1.0
Uncontrolled Limit	0.2	0.2	0.2
Cal. Factor	1	1	1
Antenna / gain(dBi)	Whip / 0	Whip / 0	Whip / 0
External Vehicle Power Density(50% duty)	Average over body/2		
Internal Vehicle Power Density(50% duty)	Average over (head/Chest/leg)/2		

External Vehicle MPE Assessment at 148.0250 MHz						
Antenna Location	Antenna/ gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Trunk	Whip / 0	60	E	1	0.333	0.1665
Measurement grid						
Test Position	Height (cm)	% of controlled limit		Test Position	Height (cm)	% of controlled limit
1	20	2		6	120	19
2	40	3		7	140	14
3	60	3		8	160	12
4	80	6		9	180	13
5	100	13		10	200	16

External Vehicle MPE Assessment at 161.0250 MHz						
Antenna Location	Antenna/ gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Trunk	Whip / 0	60	E	1	0.0914	0.0457
Measurement grid						
Test Position	Height (cm)	% of controlled limit		Test Position	Height (cm)	% of controlled limit
1	20	3		6	120	35
2	40	5		7	140	28
3	60	9		8	160	21
4	80	19		9	180	23
5	100	30		10	200	20

External Vehicle MPE Assessment at 173.9750 MHz						
Antenna Location	Antenna/gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Trunk	Whip / 0	60	E	1	0.0714	0.0357
Measurement grid						
Test Position	Height (cm)	% of controlled limit		Test Position	Height (cm)	% of controlled limit
1	20	11		6	120	28
2	40	3		7	140	30
3	60	7		8	160	7
4	80	17		9	180	9
5	100	28		10	200	21

External Vehicle MPE Assessment at 148.0250 MHz						
Antenna Location	Antenna/gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Roof	Whip / 0	110	E	1	0.023	0.0115
Measurement grid						
Test Position	Height (cm)	% of controlled limit		Test Position	Height (cm)	% of controlled limit
1	20	1		6	120	2
2	40	1		7	140	4
3	60	2		8	160	3
4	80	2		9	180	3
5	100	2		10	200	3

Internal Vehicle MPE Assessment at 148.0250 MHz						
Antenna Location	Antenna/gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Trunk	Whip / 0	Highest reading	E	1	0.10/0.08	0.05
Measurement grid						
Test Position	% of controlled limit Head		% of controlled limit Chest		% of controlled limit Leg	
Back	9		22		13	
Front	9		10		5	

Internal Vehicle MPE Assessment at 161.0250 MHz						
Antenna Location	Antenna/gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Trunk	Whip / 0	Highest reading	E	1	0.11/0.09	0.06
Measurement grid						
Test Position	% of controlled limit Head		% of controlled limit Chest		% of controlled limit Leg	
Back	15		12		22	
Front	10		1		2	

Internal Vehicle MPE Assessment at 173.9750 MHz						
Antenna Location	Antenna/gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Trunk	Whip / 0	Highest reading	E	1	0.10/0.38	0.05
Measurement grid						
Test Position	% of controlled limit Head		% of controlled limit Chest		% of controlled limit Leg	
Back	3		8		5	
Front	18		12		5	

Internal Vehicle MPE Assessment at 148.0250 MHz						
Antenna Location	Antenna/gain	Meas. Distance (cm)	E/H Field	Calibration Factor	Average Over Body	Pwr. Density (mW/cm^2)
Roof	Whip / 0	Highest reading	E	1	0.06/0.04	0.03
Measurement grid						
Test Position	% of controlled limit Head		% of controlled limit Chest		% of controlled limit Leg	
Back	5		5		2	
Front	6		5		2	

8. Conclusion

**The measurement results complies with the FCC Limit Per 47 CFR 2.1091(b)
for the Uncontrolled RF Exposure.**