TEST REPORT

FCC RULES Part 15 Subpart C §15.231

FCC ID : SY55WY8212

Report File No.	: STROR-05-010
Date of Issue	: 2005-02-03
Kind of Product	: Remote Keyless Entry System
Model Name	: 5WY8212
Manufacturer	: Siemens Automotive Systems Corporation
Serial No.	: -
Test Result	: Complied

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VERIFICATION OF COMPLIANCE

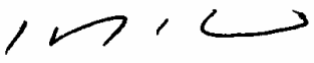
Applicant :	Siemens Automotive Systems Corporation
Kind of Product :	Remote Keyless Entry System
Brand Name :	-
Model Name :	5WY8212
Model Difference :	-
Report File No. :	STROR-05-010
Date of test :	Jan. 18, 2005 ~ Feb. 02, 2005
Receiver EUT :	5WY8230

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
Part 15 Subpart C §15.231	Complied

The above equipment was tested by SGS Testing Korea Co., Ltd. for compliance with the requirements set forth in the FCC RULES Part 15 Subpart C §15.231. The results of testing in this report apply to the product system that was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:  *Date* 2005-02-03

Leo Kim

Approved By  *Date* 2005-02-03

James kwon

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1. General Description of EUT

The RKE transmitter transmits 315MHz an FSK modulated data signal to the SRx. The RF system of SRx receives this encrypted RF signal. The SRx send the signal to corresponding the host Body control module through single wired K-line bus then the host module broadcasts the requested remote commands to the appropriate control modules in the vehicle through CAN ? communication line. In general the following functions are provided:

- Lock the car
- Unlock the car
- Unlock the trunk of the car
- Panic

2. General Information of EUT

Transmitter

Power Supply	DC 3 V(Lithium)
Operating Frequency	315 MHz
Modulation	FSK
Operating Temperature	-20 ℃~ +60 ℃
Frequency Generation	X-tal
Communication method	One-way
Size	57 mm(L) * 35mm(W) * 9mm(H)
Antenna Type	Integral
Emission	82K3F1D

3. Details of Modification

N/A

4. Test Procedure

The test procedures are performed following the test stands ANSI C.63.4-2000, if applicable.

4.1 Conducted Emission

Testing was performed according to ANSI C.63.4-2000 in a shielded room with peripherals placed on a table, 0.8 m high over a metal floor.
It was located more than required distance away from the shield room wall.

4.2 Radiated Emission

Testing was performed according to ANSI C.63.4-2000 at open field test site. The EUT was placed in a 0.8 m high table along with the peripherals.
The turn table was separated from the antenna distance 3 meters. Cables were placed in a position to produce maximum emissions as determined by experimentation and operation mode was selected for maximum.
The frequencies and amplitudes of maximum emission were measured at vary azimuths, antenna heights and antenna polarities.
Reported are maximized emission levels.

5. Test Condition

5.1 Test Configuration

The device was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the EUT and the supported equipments were installed to meet FCC requirement and operated in a manner, which tends to maximize its emission level in a typical application.

Conducted Emission Test

It needs not to test requirement, because the EUT is supplied from a DC battery.

Radiated Emission Test

Preliminary radiated emission tests were conducted using the procedure in ANSI C63.4-2000 clause 8.3.1.1. to determine the worst operating condition. Final radiated emission tests were measured at 3 meter open field test site. To complete the test configuration required by the FCC, the EUT was tested in all three orthogonal planes.

5.2 EUT Operation

EUT was tested according to the following operation modes provided by the specifications given by the manufacturer, and reported the worst emissions.

5.3 Peripherals / Support Equipment Used

Following peripheral devices and interface cables were connected during the measurement.

Type of Peripheral Equipment Used:

Description	Model Name	Serial NO	Manufacturer	FCC ID

6. Field Strength of the Carrier FCC Part 15, Subpart C, Section15.231(b)

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 45% Temperature: 23℃

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Carrier Freq. (MHz)	Amp. (dBuV/m)	Detect Mode	Pol.	Ant. (dB/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
315	53.2	Peak	H	15.72	2.1	71.02	95.62	24.6
315	53.1	Average	H	15.72	2.1	70.92	75.62	4.7

* Remark: To get a maximum emission level from the EUT, the EUT was moved throughout the XY,XZ, and YZ planes.

Test Equipment Used

EQUIPMENT	MANUFACTURER	MODEL	CAL DUE.
Spectrum analyzer	H/P	8593E	Aug. 2005
Test Receiver	Rohde & Schwarz	ESVS 10	Jun. 2005
Log-periodic	Rohde & Schwarz	UHALP9107	Jan. 2006

7. Spurious Emission FCC Part 15, Subpart C, Section15.231(b)

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 45% Temperature: 23℃

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Freq. (MHz)	Amp. (dBuV/m)	Detect Mode	Pol. (H/V)	Ant. (dB/m)	Cable (dB)	Amp. (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
630	21.2	Peak	H	21.20	3.08	45.48	55.62	10.14
945	23.5	Peak	H	25.67	3.61	52.78	55.62	2.84
1260	19.6	Peak	H	25.40	4.72	49.72	55.62	5.9
1575	16.4	Peak	H	25.60	5.26	47.26	54.00	6.74
1990	21.59	Peak	H	25.33	5.86	52.78	55.62	2.84
2205	16.71	Peak	H	25.90	6.56	49.17	55.62	6.45
2520	19.19	Peak	H	27.51	7.05	53.75	55.62	1.87
2835	13.81	Peak	H	28.44	7.49	49.74	55.62	5.88
>2835	Not found							

Remark: To get a maximum emission level from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes.

Notes :

1. H: Horizontal polarization, V: Vertical polarization
2. Emission Level =Reading +Antenna Factor + Cable Loss
3. A peak limit is 20dB above the average limit

Test Equipment Used

EQUIPMENT	MANUFACTURER	MODEL	CAL DUE.
Spectrum analyzer	H/P	8593E	Aug. 2005
Test Receiver	Rohde & Schwarz	ESVS 10	Jun. 2005
Log-periodic Antenna	Rohde & Schwarz	UHALP9107	Jan. 2006
Horn Antenna	Schwarzbeck	BBHA9120D(0600)	Jul. 2006

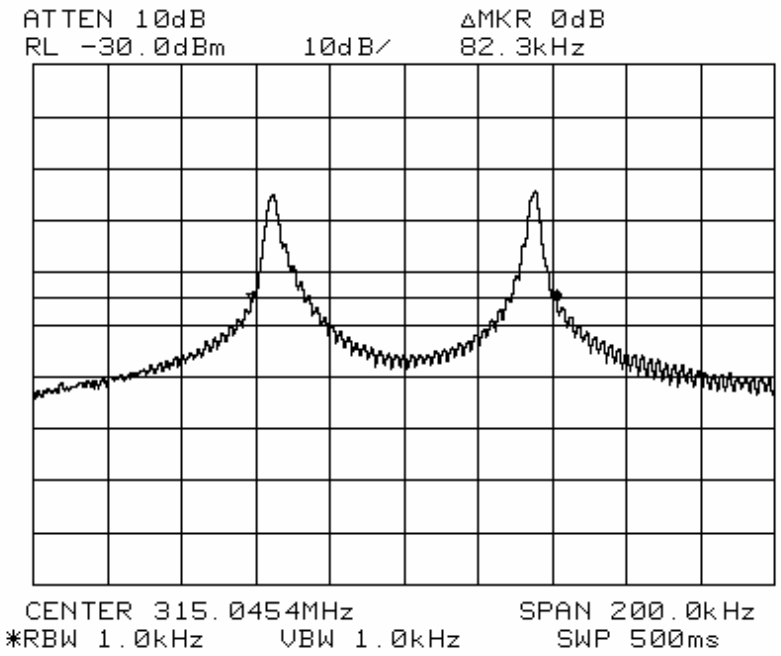
8. Bandwidth of Operation Frequency FCC Part 15, Subpart C, Section15.231(c)

Humidity Level : 45% Temperature: 23℃

Limit of 20dB Bandwidth : 315MHz*0.0025=787.5kHz

Carrier Freq. (MHz)	Bandwidth of the emission. (kHz)	Limit (kHz)	Remark
315	82.3	787.5	The point 20dB down from the modulated carrier

The plot of test result is attached as below



Test Equipment Used

EQUIPMENT	MANUFACTURER	MODEL	CAL DUE.
Spectrum analyzer	H/P	8593E	Aug. 2005
Log-periodic Antenna	Rohde & Schwarz	UHALP9107	Jan. 2006

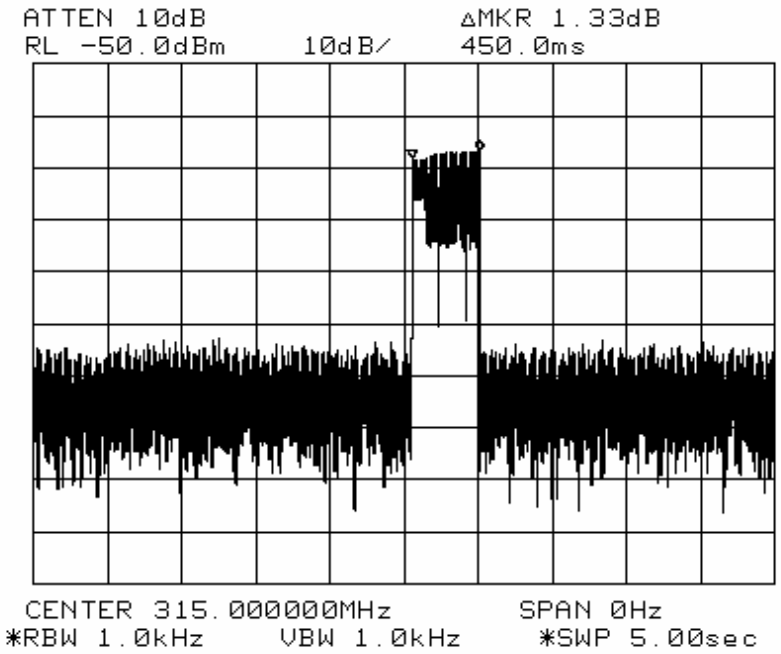
9. Transmission Time FCC Part 15, Subpart C, Section15.231(a) (1)

Humidity Level : 45% Temperature: 23℃

Limit of Transmission Time: A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

Carrier Freq. (MHz)	Transmission Time (sec)	Limit (sec)	Pass/Fail
315	0.45	5	Pass

The plot of test result is attached as below



Test Equipment Used

EQUIPMENT	MANUFACTURER	MODEL	CAL DUE.
Spectrum analyzer	H/P	8593E	Aug. 2005
Log-periodic Antenna	Rohde & Schwarz	UHALP9107	Jan. 2006

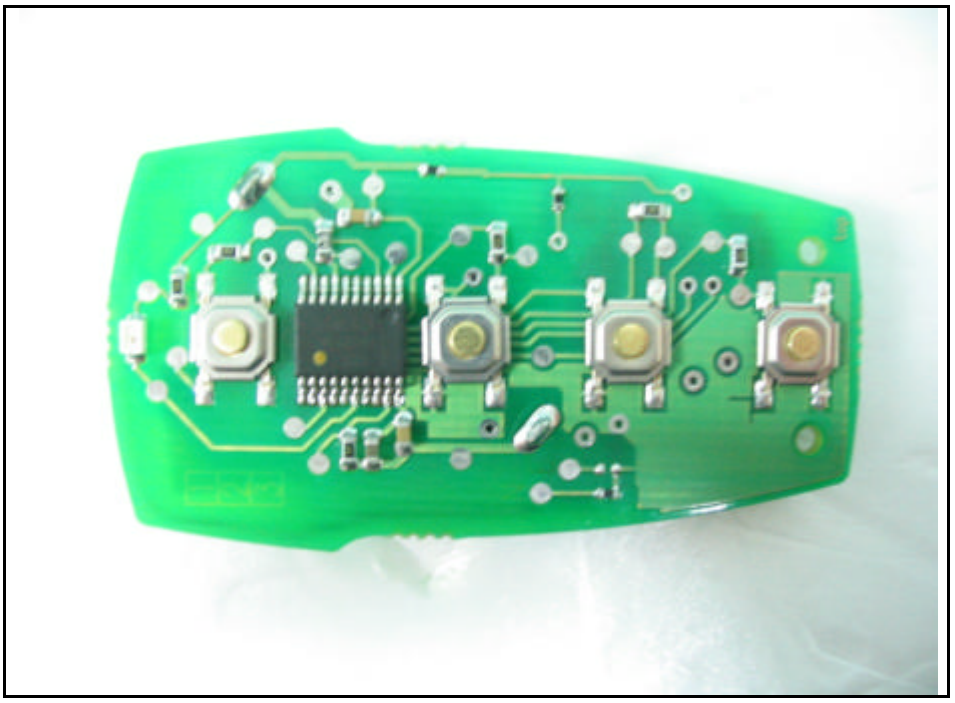
10. Attachment A – Photos of the test set up

11. Attachment B – Photos of the EUT

Front View of EUT

Rear View of EUT

Inner View of EUT



Inner View of EUT