



Report No.: 150511023GZU-002
Issued: 08 Oct., 2016

TEST REPORT

Applicant Name & Address : Guangzhou Grandview Crystal Screen Co., Ltd
Federal Industry Zone, No. 363, Yushan West Road, Shiqiao, PanYu District,
Guangzhou

Sample Description

Product : Projection Screen
FCC ID : XH8SK-MXXX
Model No. : SK-Mx2(r), SK-Mx1(r)
Electrical Rating : 120V, 60 Hz (please refer to Page 4 for details)

Date Received : 11 June 2016
Date Test Conducted : 11 June 2016 –29 June 2016

Test standards : **FCC Part 15: 2016 Subpart B**

Test Result : Pass

Conclusion : The submitted samples complied with the above rules/standards.

Remark : 868MHz receiver

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Prepared and Checked By:

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Signature

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Team Leader
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08 Oct., 2016 **Date**

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TEST RESULTS SUMMARY

Classification of EUT: Class B

Test Item	Standard	Result
Conducted disturbance voltage at mains ports	FCC Part 15: 2016, Subpart B	Pass
Radiated emission (30 MHz–1 GHz)	FCC Part 15: 2016, Subpart B	Pass
Radiated emission (Above 1 GHz)	FCC Part 15: 2016, Subpart B	Pass
Remark: Reference publication is used for methods of measurement: ANSI C63.4:2014		

Remark: 1. The symbol “N/A” in above table means Not Applicable.

2. When determining the test results, measurement uncertainty of tests has been considered.



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Test Results Conclusion (with Justification)

RE: EMC Testing Pursuant to FCC Part 15, Subpart B performed on the Projection Screen,
Model: SK-Mx1(r), SK-Mx2(r).

We tested the Projection Screen, Model: SK-Mx1(r), to determine if it was in compliance with the relevant FCC rules as marked on the Test Results Summary. We found that the unit met the requirement of FCC Part 15, Subpart B when tested as received. The worst case's test data was presented in this test report.

Conclusion:

The sample as received complied with the FCC Part 15 requirement.

Model differences:

The difference between model SK-Mx1(r) and SK-Mx2(r) is outlook and motor used, the receiver part is same.

Model no.	Model no. of Motor	Current (A)	Rated Power(W)	Size of the screen
SK-Mx2(r)	AM35-6/28	0.96	115	80-150"(4:3)
	AM45-20/28	2.1	250	80-150"(4:3)
SK-Mx1(r)	AM45-20/28	2.1	250	150-240"(4:3)
	SIRIUS 80/12 PA	2.5	290	180-240"(4:3)
	50/12	2.1	250	150-180"(4:3)

The motor "SIRIUS 80/12 PA" has the maximum rated current, Select model SK-Mx1(r) with motor "SIRIUS 80/12 PA" to do all tests, covered other models.

The production units are required to conform to the initial sample as received when the units are placed on the market.



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LABORATORY MEASUREMENTS

Configuration Information

Equipment Under Test (EUT):	Projection Screen
Model:	SK-Mx1(r)
Serial No.:	Not Labeled
Support Equipment:	N/A
Rated Voltage:	120V/60Hz
Condition of Environment:	Temperature : 22~28°C Relative Humidity: 35~60% Atmosphere Pressure 86~106kPa

Notes:

1. The EMI measurements had been made in the operating mode producing the largest emission in the frequency band being investigated consistent with normal applications.
An attempt had been made to maximize the emission by varying the configuration of the EUT.

All of the tests are performed at:
Guangzhou Vkan Certification & Testing Co., Ltd.
No.3 Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, P.R.China

This test facility and site measurement data have been fully placed on file with the FCC, test firm registration number is 146519.

4 TEST RESULTS

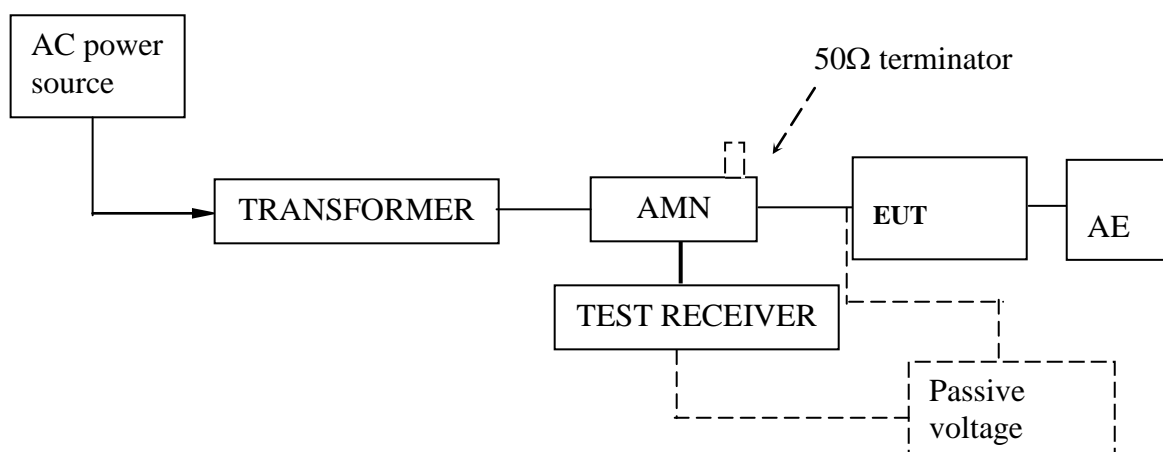
4.1 Conducted Disturbance Voltage at mains ports

Test Result: Pass

4.1.1 Used Test Equipment

Equipment No.	Equipment	Model	Manufacturer	Cal. Due date	Calibration Interval
EM-000370	LISN	NSLK 8127	SCWARZBECK	2017-1-18	1 year
NB-0087	EMI receiver	ESCI	R&S	2017-1-18	1 year

4.1.2 Block Diagram of Test Setup



4.1.3 Test Setup and Procedure

Test was performed according to ANSI C63.4: 2014. The EUT was set to achieve the maximum emission level. The mains terminal disturbance voltage was measured with the EUT in a shielded room. The EUT was connected to AC power source through an Artificial Mains Network which provides a 50Ω linear impedance. Artificial hand is used if appropriate (for handheld apparatus). The load/control terminal disturbance voltage was measured with passive voltage probe if appropriate.

The table-top EUT was placed on a 0.8m high non-metallic table above earthed ground plane (Ground Reference Plane). And for floor standing EUT, was placed on a 0.1m high non-metallic supported on GRP. The EUT keeps a distance of at least 0.8m from any other of the metallic surface. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

The bandwidth of test receiver was set at 9 kHz. The frequency range from 150 kHz to 30MHz was checked.

4.1.4 Limit

Class B

Frequency range MHz	AC mains terminals dB (uV)	
	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50
Note 1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		
Note 2: The lower limit is applicable at the transition frequency.		



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4.1.5 Test Data

At main terminal: Pass

Tested Wire: Live

Operation Mode: Receiving mode

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15QP			
Trace2:	FCC15AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV	DELTA	LIMIT dB
1 Quasi Peak	162 kHz	52.45 L1	-12.90	
2 Average	162 kHz	38.82 L1	-16.53	
1 Quasi Peak	210 kHz	42.17 L1	-21.03	
1 Quasi Peak	330 kHz	36.63 L1	-22.81	
1 Quasi Peak	422 kHz	38.34 L1	-19.06	
2 Average	442 kHz	35.28 L1	-11.73	
1 Quasi Peak	15.454 MHz	39.42 L1	-20.57	
1 Quasi Peak	17.834 MHz	42.69 L1	-17.30	
1 Quasi Peak	21.99 MHz	39.02 L1	-20.97	

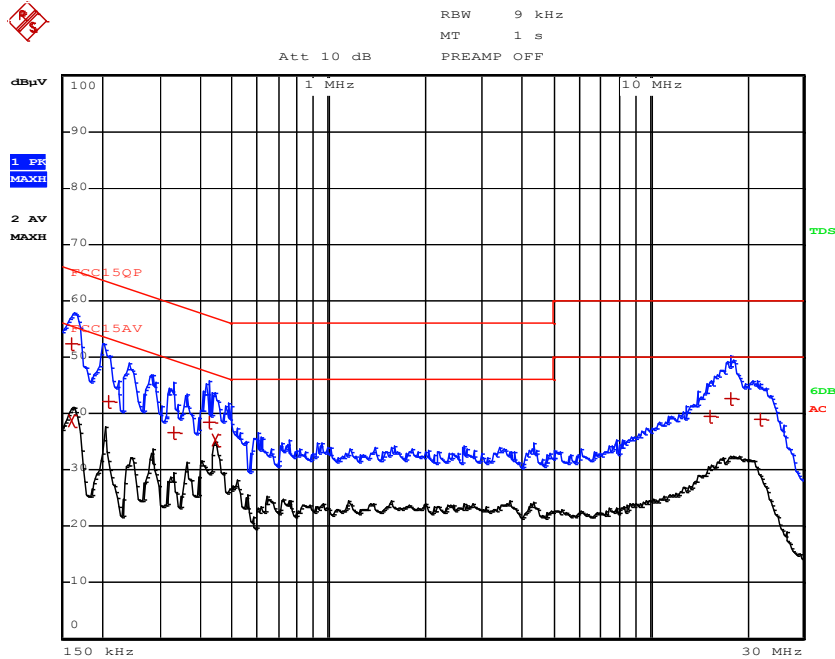
Tested Wire: Neutral

Operation Mode: Receiving mode

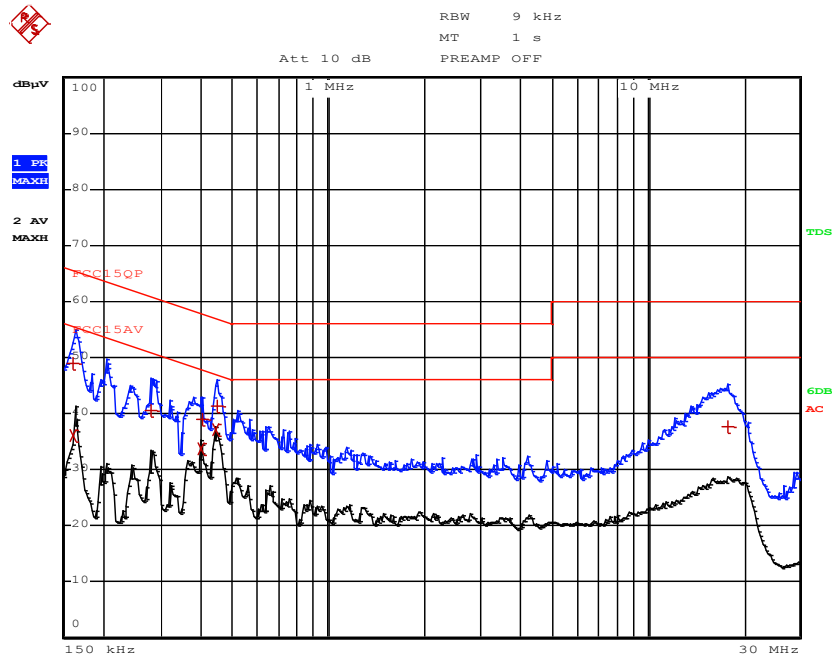
EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15QP			
Trace2:	FCC15AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV	DELTA	LIMIT dB
1 Quasi Peak	162 kHz	48.90 L1	-16.45	
2 Average	162 kHz	36.08 L1	-19.28	
1 Quasi Peak	278 kHz	40.63 L1	-20.23	
2 Average	398 kHz	33.80 L1	-14.09	
1 Quasi Peak	402 kHz	38.93 L1	-18.87	
2 Average	442 kHz	37.24 L1	-9.78	
1 Quasi Peak	446 kHz	41.38 L1	-15.56	
1 Quasi Peak	17.874 MHz	37.56 L1	-22.43	

4.1.6 Emission Curve

Tested Wire: Live



Tested Wire: Neutral



4.1.7 Measurement Uncertainty

Uncertainty: 2.58 dB at a level of confidence of 95%.

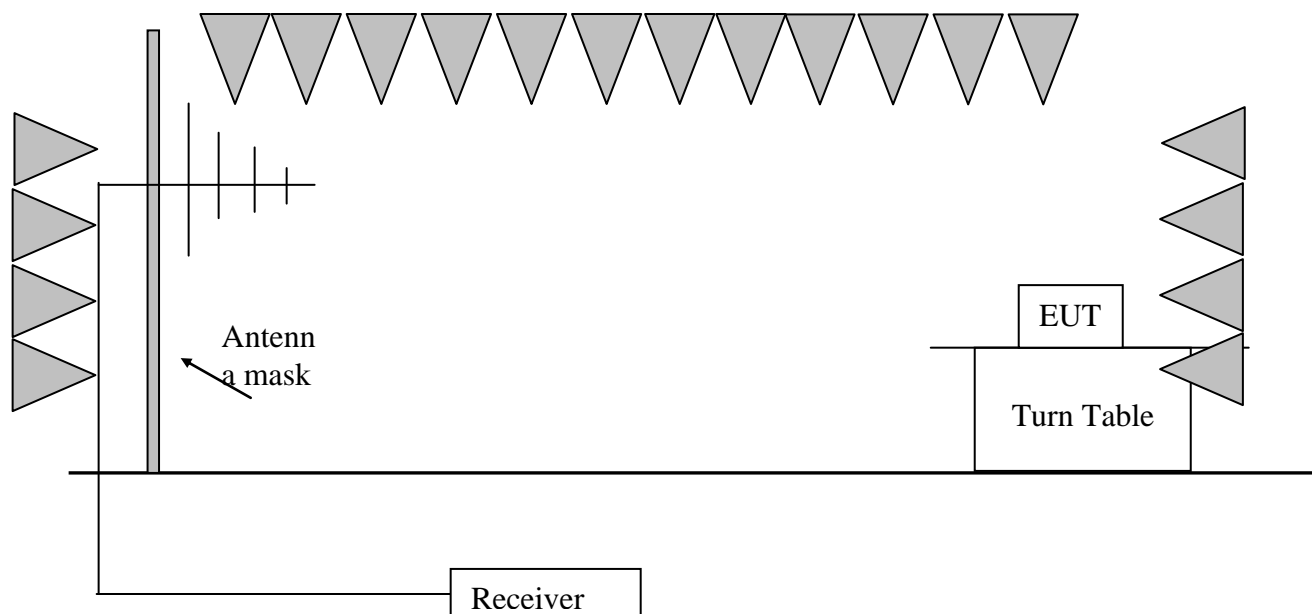
4.2 Radiated Emission (30 MHz -5000 MHz)

Test Result: Pass

4.2.1 Used Test Equipment

Equip. No.	Equipment	Model	Manufacturer	Cal. Due date	Calibration Interval
EM-000460	10m Semi-Anechoic Chamber	10-SAC	Albatross	2016-09-17	1Y
EM-000396	EMI Test Receiver	N9038A-508	Agilent	2016-09-14	1Y
EM-000382	TRILOG Super Broadband test Antenna (30 MHz-3 GHz)	VULB 9163	SCHWARZBECK	2016-11-05	1Y
WKNA-0024-1	Horn Antenna	3115	ETS-Lindgren	2016-09-04	1Y

4.2.2 Block Diagram of Test Setup



4.2.3 Test Setup and Procedure

The measurement was applied in a 10 m semi-anechoic chamber. The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mask. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.

Broadband antenna was used as receiving antenna. Both horizontal and vertical polarization of the antenna was set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2014 requirement during radiated test. The bandwidth setting on R&S Test Receiver was 120 kHz. The frequency range from 30MHz to 1000MHz was checked.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper Frequency of Radiated Measurement
Below 1.705 MHz	30MHz
1.705 MHz – 108 MHz	1 GHz
108 MHz – 500 MHz	2 GHz
500 MHz – 1 GHz	5 GHz
Above 1 GHz	5th harmonic of the highest frequency or 40 GHz, whichever is lower.
At transitional frequencies the lower limit applies.	

Remark: Radiated Emission was performed from 30 MHz to 5 GHz.

4.2.4 Limit

Class B limit at 10m test distance:

Frequency range MHz	Quasi-peak limits dB (μV/m)
30 to 88	30
88 to 216	33.5
216 to 960	36
960 to 5000	44
At transitional frequencies the lower limit applies.	



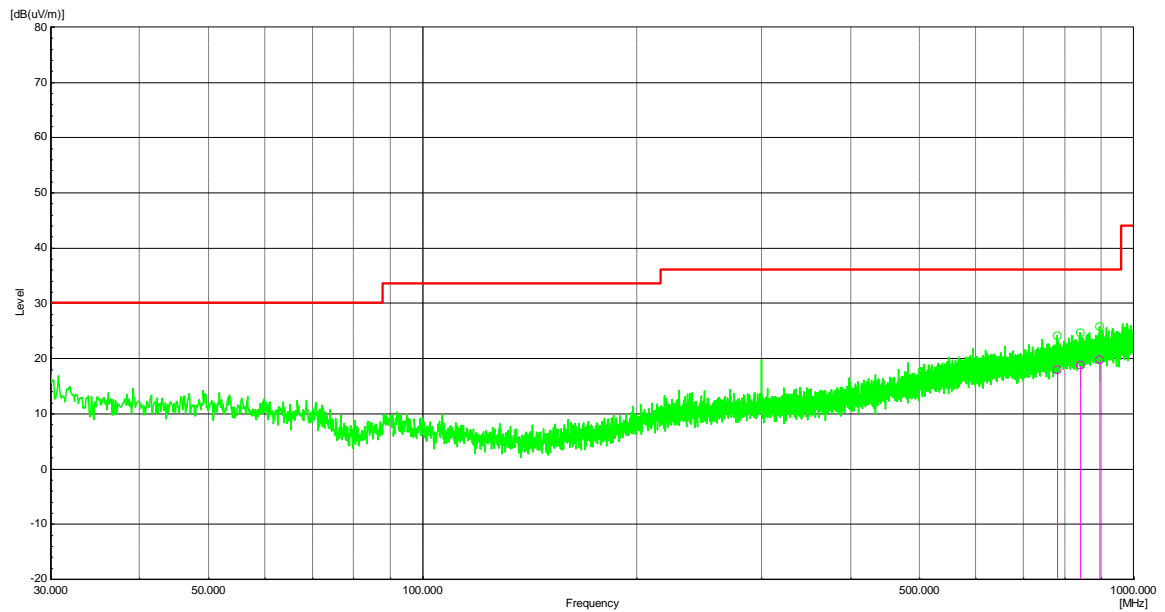
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4.2.5 Test Data

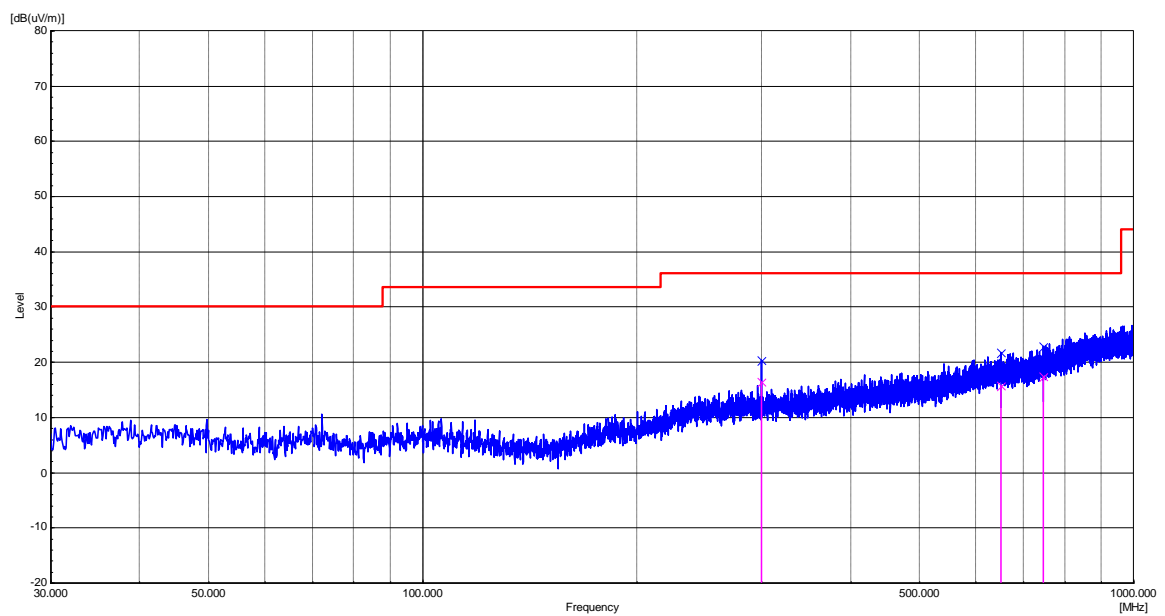
Below 1GHz:

Frequency MHz	Polarization	Factor dB	Level dB(uV/m)	Limit dB(uV/m)	Margin dB
			QP	QP	QP
781.071	H	-11.0	17.9	36.0	-18.1
841.308	H	-10.0	18.8	36.0	-17.2
896.113	H	-9.2	19.7	36.0	-16.3
300.048	V	-19.6	16.4	36.0	-19.6
650.509	V	-13.3	15.8	36.0	-20.2
746.927	V	-11.6	17.3	36.0	-18.7

H:



V:



Above 1GHz:

Frequency MHz	Polarization	Factor dB	Level dB(uV/m)		Limit dB(uV/m)		Margin dB	
			AV	PK	AV	PK	AV	PK
2403.600	H	-6.6	-3.3	16.3	44.0	64.0	-47.3	-47.7
3200.800	H	-4.4	0.1	16.9	44.0	64.0	-43.9	-47.1
4604.001	H	0.1	2.3	21.8	44.0	64.0	-41.7	-42.2
2080.000	H	-7.1	-4.1	13.1	44.0	64.0	-48.1	-50.9
3506.000	H	-3.3	0.4	18.5	44.0	64.0	-43.6	-45.5
3588.800	H	-3.0	1.5	18.8	44.0	64.0	-42.5	-45.2

- Notes:
1. Quasi-peak detector was used at below 1GHz, PK and AV detectors were used at above 1GHz.
 2. All measurements were made at 10 meter.
 3. Negative value in the margin column shows emission below limit.
 4. When tested above 1GHz, the emissions found were at least 20 dB below the limit.

4.2.6 Measurement uncertainty

Uncertainty: 4.87 dB in the frequency range of 30-1000 MHz at a level of confidence of 95%.
Measurement uncertainty is under consideration in the frequency of above 1GHz according to CISPR 16-4-2:2003.