AIR TURQUOISE SA | PARA-TEST.COM

Route du Pré-au-Comte 8 • CH-1844 Villeneuve • •41 (0)21 965 65 65

Test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes



PH PARAGLIDER HARNESSES

INSPECTION CERTIFICATE

Inspection certificate number: PH_164.2016

MANUFACTURER DATA

Manufacturer name: Sky Paragliders

Contact person: Nemec Martin

Street: Okruzni 39

Post code / place: 73911 Frydlant N.C.

Country: Czech Republic

SAMPLE DATA

Name: Reverse 4

Size: S

Type: ABS

Pilot max load [kg]: 120

Impact pad type: Airbag

Weight [kg]: 3.2

Serial number: 2153-13-5879

Date of reception: 15.04.2016

Volume reserve parachute container [cm3] or [kg]: Min 0.95kg

Max: 1.7 kg

TEST DATA

ATMOSPHERE AGL

Date of test: 15.04.2016

[C°] 20.2

Place of test: Villeneuve

RH [%] 39

Test responsible: Alain Zoller

[hPa] 1010.4

ISSUE DATA

Place of declaration: Villeneuve

Date of issue: 22.09.2016

Managing Director: Alain Zoller

Signature:

This signature aprouve the validity of the test reports no: R0,R2,R4,R6,R8,R9,R10

Air Turquoise SA, having thoroughly assessed the sample mentioned hereunder, declare it was found conform with all requirements defined by the following norms

European Standard EN1651 September 1999 | Test no: R0,R2,R4,R6,R8,R9,R10 Test recognized for the standard: Airworthiness Requirements LTF NFL 2009 in 91/09

European Standard EN12491 September 2001 | Test no: RRDT,RRST Test recognized for the standard: Airworthiness Requirements LTF NFL 2009 in 91/09

Present declaration's scope only extends to the conformity of a given sample, on a given date and in a given place – as mentioned here above.

This inspection report contain the following test and is complet with the test report: 71.9.1 | PH ID R0,R2,R4,R6,R8,R9,R10, RRDT,RRST

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Test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes



Inspection certificate number: PH_164.2016

A. STRUCTURAL STRENGHT TESTS SUMMARY

A test plan was set up in order to execute the different tests in an efficient order. The table below summarizes this test plan together with the applicable standards and results

		Standard Ref.		Anchor	ing	Force	es		
Test ID	TESTED ?	EN 1651:1999	TEST setup	Attach -ment points	Dummy	Req. Load in [g] force	Min. force [N]	Min. Test duration [sec]	POSITIVE
R0	1	5.3.2.1	Default flying	2 main attachment	Hip fixated	6	6000	10	POSITIVE
R2	1	5.3.2.2	position	points	Hip fixated	15	15000	5	POSITIVE
R4	-	5.3.2.7	Flying position before landing	Main risers attachments	landing conf.	15	15000	5	POSITIVE
R6	-	5.3.2.4	Rescue attachments	Rescue riser attachments	Hip fixed	15	15000	5	POSITIVE
R8	1	5.3.2.3	One riser	ONE main att.	1 central hip fixation	6	6000	10	POSITIVE
		5005	Tamina	2 main att. + 2 tow	None	3	3000	10	n/a
R9		5.3.2.5	Towing	att.	None	5	5000	10	
R10	1	5.3.2.6	Default, Negatif	One main att.	Head fix.	4.5	4500	10	POSITIVE

B. RESCUE DEPLOYMENT RESISTANCE TEST SUMMARY

The deployment of the rescue system has to be ensured in all circumstances of flight. This test is to verify whether the force needed to deploy is in between reasonable limits

		Standard Ref.	۵	Ancho	oring	Force for single hand deployment		Result
Test ID	TESTED ?		T setup		À	Min.		Result
ř	TES	EN 12491:2001	TEST	Attachment points	Dummy	Max.	Resistance measured [N]	<u>"</u>
						[N]		
RRDT	,	6.1.5	Default	Test sample is attac		20	48.0	POSITIVE
KKDI		6.1.5	flying position	(no dummy	required)	70	46.0	POSITIVE

C. RESCUE DEPLOYMENT STRAP STRENGHT TEST SUMMARY

.The connection between handgrip and inner container has to have sufficient load capacity/structural strength in any situation that may arise during normal use .During this test is verified, whether this connection fulfill the requirements

Test ID	ESTED ?	Standard Ref.	TEST setup	Minimum force [N]	Min. Test duration	Breaking resistance measured [N]	Result
	-	EN 12491:2001			[s]		
RRST	1	5.3.2	Connection strap in tensile testing machine	700	10	1098.0	POSITIVE

Calculed value in tests reports include the value minus the uncertainty (on safe side) / The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of the measurand lies within the assigned range of values with a probability of 95%.

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TEST REPORT PH ID 0

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016 Manufacturer name: Sky Paragliders

Name: Reverse 4

Max load [kg]: 120

Serial number: 2153-13-5879 Date of test: 15.04.2016 Test responsible: Alain Zoller

Directives: EN 1651:1999

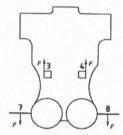
Test standard §: 5.3.2.1

Test setup: Default flying position

Attachment points: Both main riser attachments (3, 4)

Dummy: Default, hip fixed (7, 8)

Required load in force [g]: 6 Model max load [kg]: 120 Required test load in [N]: 7063 Min. duration test load [s]: 10



Results

Duration of maintained min. load [s]: 12.57 [C°] 20.2 Any signs of structural failure after this test: no failure RH [%] 39 Test result: POSITIVE [hPa] 1010.4

Graph: D0

Required test load in [N]: D0 9000 8000 7000 6000 5000 4000 3000 2000 1000 0 0 10 20 30 40 50 60 Time [s]

Instruments	Validity calibration	Manufacturer	Type nr.	S/N
Load sensor	14.10.2017	НВМ	1-S9M/50KN-1	31314652
Geos n°11 Skywatch	07.04.2017	JDC	Geos n° 11	0022

TEST REPORT PH ID 2

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016

Manufacturer name: Sky Paragliders

Name: Reverse 4

Max load [kg]: 120

Serial number: 2153-13-5879 Date of test: 15.04.2016 Test responsible: Alain Zoller

Directives: EN 1651:1999

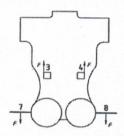
Test standard §: 5.3.2.2

Test setup: Default flying position

Attachment points: Both main riser attachments (3, 4)

Dummy: Default, hip fixed (7, 8)

Required load in force [g]: 15 Model max load [kg]: 120 Required test load in [N]: 17658 Min. duration [s]: 5



Results

Duration of maintained min. load [s]: 9.31

Any signs of structural failure after this test: no failure

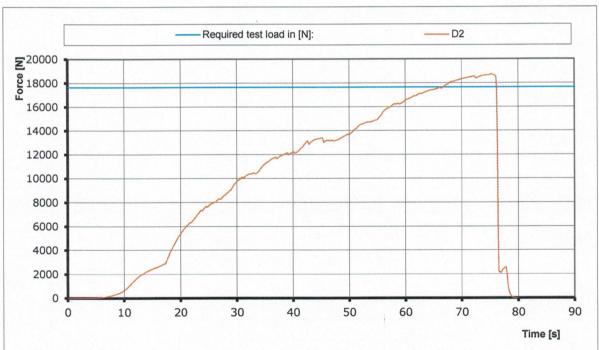
Test result: POSITIVE

[C°] 20.2

RH [%] 39

[hPa] 1010.4

Graph: D2



Instruments	Validity calibration	Manufacturer	Type nr.	S/N
Load sensor	14.10.2017	НВМ	1-S9M/50KN-1	31314652
Geos n°11 Skywatc	07.04.2017	JDC	Geos n° 11	0022

TEST REPORT PH ID 4

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016

Manufacturer name: Sky Paragliders

Name: Reverse 4

Max load [kg]: 120

Serial number: 2153-13-5879 Date of test: 15.04.2016

Test responsible: Alain Zoller Directives: EN 1651:1999

Test standard §: EN 5.3.2.7

Flying position before landing: seat

Test setup: board (11) in landing position, leg

straps (10) closed.

Attachment points: Both of the main riser attachments attached (3 and 4);

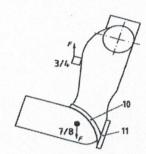
Dummy: Default, hip fixed (7, 8)

Required load in force [g]: 15

Model max load [kg]: 120

Required test load in [N]: 17658

Min. duration [s]: 5



Results

Duration of maintained min. load [s]: 8.75

Any signs of structural failure after this test: no failure

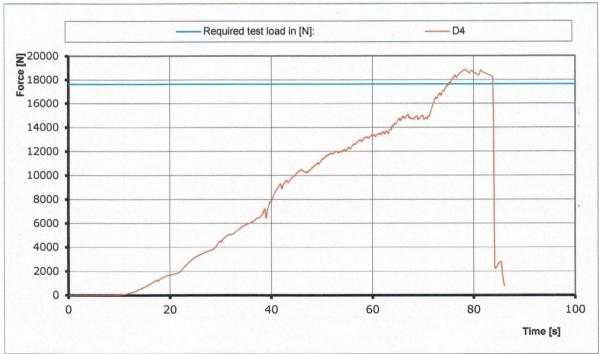
RH [%] 39

Test result: POSITIVE

[hPa] 1010.4

[C°] 20.2

Graph: D4



Instruments	Validity calibration	Manufacturer	Type nr.	S/N
Load sensor	14.10.2017	НВМ	1-S9M/50KN-1	31314652
Geos n°11 Skywatch	07.04.2017	JDC	Geos n° 11	0022

TEST REPORT PH ID 6

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016

Manufacturer name: Sky Paragliders

Name: Reverse 4

Directives: EN 1651:1999

Max load [kg]: 120

Serial number : 2153-13-5879 Date of test : 15.04.2016

Test responsible: Alain Zoller

Test standard §: 5.3.2.4

Test setup: Rescue attachments

Attachment points: Rescue riser attachments (1,2)

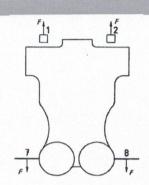
Dummy: Hip fixed (7, 8)

Required load in force [g]: 15

Model max load [kg]: 120

Required test load in [N]: 17658

Min. duration [s]: 5



Results

Duration of maintained min. load [s]: 12.31

Any signs of structural failure after this test: no failure

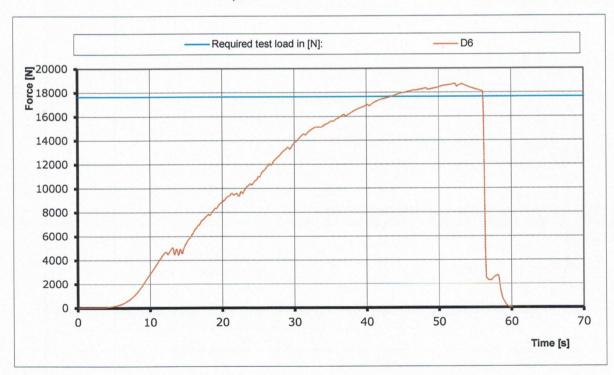
Test result: POSITIVE

Graph: D6

[C°] 20.2

RH [%] 39

[hPa] 1010.4



Instruments	Validity calibration	Manufacturer	Type nr.	S/N
Load sensor	14.10.2017	НВМ	1-S9M/50KN-1	31314652
Geos n°11 Skywatc	07.04.2017	JDC	Geos n° 11	0022

TEST REPORT PH ID 8

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016

Manufacturer name: Sky Paragliders

Name: Reverse 4

Max load [kg]: 120

Serial number: 2153-13-5879

Date of test: 15.04.2016

Test responsible: Alain Zoller

Directives: EN 1651:1999

Test standard §: 5.3.2.3

Test setup: Only one riser attached

Attachment points: One main riser attachments (3)

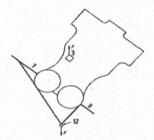
Dummy: Hip fixed (7, 8 -> 12)

Required load in force [g]: 6

Model max load [kg]: 120

Required test load in [N]: 7063

Min. duration [s]: 10



Results

Duration of maintained min. load [s]: 15.46

Any signs of structural failure after this test: no failure

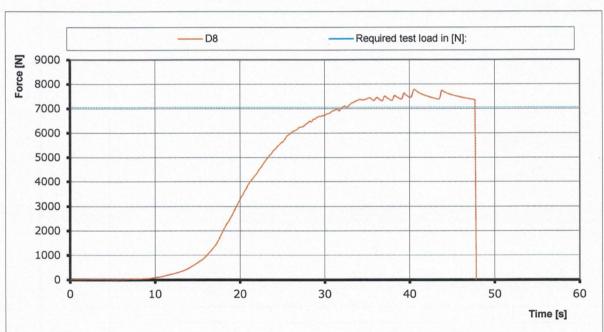
Test result: POSITIVE

Graph: D8

[C°] 20.2

RH [%] 39

[hPa] 1010.4



Instruments	Validity calibration	Manufacturer	Type nr.	S/N
Load sensor	14.10.2017	НВМ	1-S9M/50KN-1	31314652
Geos n°11 Skywatc	07.04.2017	JDC	Geos n° 11	0022

TEST REPORT PH ID 10

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016

Manufacturer name: Sky Paragliders

Name: Reverse 4

Max load [kg]: 120

Serial number: 2153-13-5879

Date of test: 15.04.2016

Test responsible: Alain Zoller

Directives: EN 1651:1999 Test standard §: 5.3.2.6

Test setup: Normal flying position in NEGATIF

Attachment points: ONE of the main riser attachments attached downwards(3 or 4);

Dummy anchored at the head position

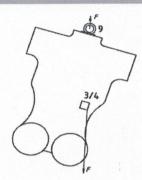
Dummy: (9)

Required load in force [g]: 4.5

Model max load [kg]: 120

Required test load in [N]: 5297

Min. duration [s]: 10



Results

Duration of maintained min. load [s]: 15.14

Any signs of structural failure after this test: no failure

Test result: POSITIVE

Graph: D10

[C°] 20.2

RH [%] 39

[hPa] 1010.4

		_	_D10		_	Require	d test loa	d in [N]:			
7000			***************************************				***************************************	*******************			
6000							~~				
5000					1	~	V				
4000				1							
3000		~									
2000		N									
1000	/	/									
0									\		7
0	1	10	20	3	30	40	5	0	60) Time	

Instruments	Validity calibration	Manufacturer	Type nr.	S/N
Load sensor	14.10.2017	НВМ	1-S9M/50KN-1	31314652
Geos n°11 Skywatc	07.04.2017	JDC	Geos nº 11	0022

TEST REPORT PH RRDT

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016

Manufacturer name: Sky Paragliders

Name: Reverse 4

Max load [kg]: 120

Serial number: 2153-13-5879
Date of test: 05.09.2016
Test responsible: Alain Zoller

Directives: Nfl II 91 / 09

Test standard §: 6.1.5

The deployment of the rescue system has to be ensured in all circumstances, especially with a damaged glider.

The pilot has to be able to deploy the rescue chute with a single pull out of the outer container, single handed and in an anatomical favorable direction.

In order to simulate this, the test responsible deploys the rescue seated in the harness. In a similar way as in real flight. The deployment resistance is approximately measured by the load cell, which is placed between the hand of the test responsible and the rescue hand grip.

On the other hand inadvertent deployment has to be fairly remote. Therefore a shear link has to withstand a minimum load.

Requirements [kN]: 0.07

Min force to prevent unwanted opening [kN]: 0.02

Measured peak to peak required force for deployment [kN]:

Test result 20 [N]: POSITIVE

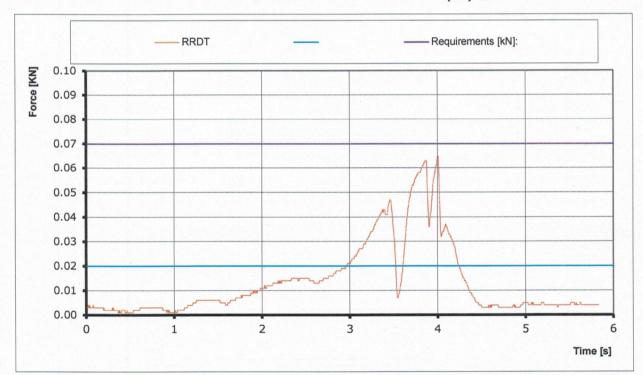
[C°] 24.8

Test result 70 [N]: POSITIVE

RH [%] 55

Graph: RRDT

[hPa] 1021.5



S/N	Type nr.	Manufacturer	Validity calibration	Instruments
8431-10000	1-S9M/50KN-1	Burster / MTS	01.07.2018	Load Cell (axial)
0022	Geos n° 11	JDC	07.04.2017	Geos n°11 Skywatch

TEST REPORT PH RRST

PH PARAGLIDER HARNESSES

Inspection certificate number: PH_164.2016

Manufacturer name: Sky Paragliders

Name: Reverse 4

Max load [kg]: 120

Serial number: 2153-13-5879 Date of test: 05.07.2016 Test responsible: Alain Zoller

Directives: EN 12491:2001 & Nfl II 91 / 09

Test standard §: 5.3.2 (EN) 6.1.8 (LTF)

> Test setup: The handgrip of the outer container has to be connected to the inner container with a removable loop in a way that it is possible to use the inner container

with different types of outer containers.

The connection between handgrip and inner container has to have sufficient load capacity/structural strength in any situation that may arise during normal

operation.

In order to verify this, the connection is tested on its tensile strength by a

default tensile testing setup.

In addition to this the breaking resistance will also be measured.

Requirements[kN]: 0.7 Requirements[s]: 10

Results

Duration of maintained load [s]: 11.60

[C°] 25

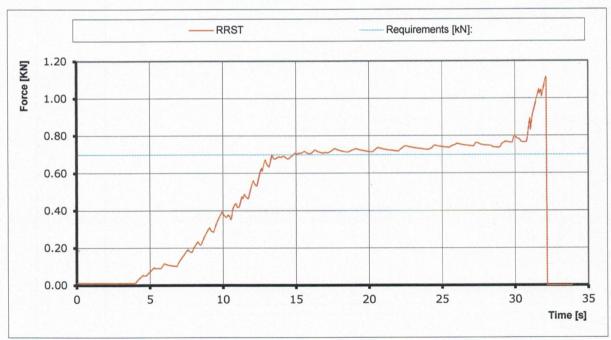
Calculed max value of breaking resistance [KN]: 1.10

RH [%] 55

Test result: POSITIVE

[hPa] 1017.9

Graph: RRST



S/N	Type nr.	Manufacturer	Validity calibration	Instruments
8431-10000	1-S9M/50KN-1	Burster / MTS	01.07.2018	Load Cell (axial)
0022	Geos n° 11	JDC	07.04.2017	Geos n°11 Skywatch

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Test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes



PH PARAGLIDER HARNESSES | IP IMPACT PAD

INSPECTION CERTIFICATE

Inspection certificate number: PH_IP_164.2016

MANUFACTURER DATA

Manufacturer name: Sky Paragliders

Contact person: Nemec Martin

Street: Okruzni 39

Post code / place: 73911 Frydlant N.C.

Country: Czech Republic

SAMPLE DATA

Name: Revers 4

Size: S Impact pad type: Airbag

Pilot max load [kg]: 120 Harness type: ABS

Serial number: 2156-13-6298 Weight [kg]: 3.2

Sample reception date: 05.09.2016 Test date: 05.09.2016

ISSUE DATA

Place of declaration: Villeneuve

Date of issue: 22.09.2016

Director Management: Alain Zoller

Signatures

This signature aprouve the validity of the test reports PH BP

Air Turquoise SA, having thoroughly assessed the sample mentioned hereunder, declare it was found conform with all requirements defined by the following norms:

Airworthiness requirements for hang gliders and paragliders LTF 2009 as published in NfL 91/09 chapter 5 Paraglider harness protectors

Present declaration's scope only extends to the conformity of a given sample, on a given date and in a given place - as mentioned here above.

This inspection report contain the following test and is complet with the test report PH BP

TESTS RESULTS SUMMARY

Shock impact tests is executed on these harnesses in order to prove the damping characteristics of it.

Test ID	TESTED ?	Standard	TEST setup	Test configuration	Impact at 165 cm (Seat plate)			
					Max Peak impact [g] force	Impact duration at 38 [g] (if any) recorded: [ms]	Impact duration at 20 [g] (if any) recorded: [ms]	Results
	F	LTF	#					
Р	~	5.1.1	Default flying position	Test sample is attached to the dummy like a pilot in flight. Sample temperature +20+25°C without rescue	22.50	0.00	0.00	POSITIVE
PR	~	5.1.1	Default flying position	Test sample is attached to the dummy like a pilot in flight. Sample temperature +20+25°C with rescue	24.78	0.00	0.00	POSITIVE

Calculed value include the value minus the uncertainty (on safe side) / The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of the measurand lies within the assigned range of values with a probability of 95%.

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Test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes

IMPACT PAD SHOCK TEST

TEST REPORT PH IP

BP PARAGLIDER HARNESSES / BACK PROTECTORS

Inspection certificate ref. number: PH IP 164.2016

MANUFACTURER DATA

Manufacturer name: Sky Paragliders
Contact person: Nemec Martin

Street: Okruzni 39

Post code / place: 73911 Frydlant N.C.
Country: Czech Republic

SAMPLE DATA

Name: Revers 4

Size: S

Max load [kg]: 120

Serial number: 2156-13-6298

Date of reception: 05.09.2016

ISSUE DATA

Place of inspection: Villeneuve

Date of inspection: 05.09.2016

Inspector: Alain Zoller

Directive: LTF NFL II-91/09 chapter 5 Paraglider harness protectors

The following limits may not be exceeded during back protector test: Maximum peak 50g, Maximum 38g for a period of 7 milliseconds, Maximum 20g for a period of 25 milliseconds: All three criteria must be fulfilled.

TEST ATMOSPHERE AGL

[C°] 24.8 RH [%] 55 [hPa] 1021.5

TEST RESULTS	Impact in at a height of min 165 [cm] drop:			
BP test without rescue system	P1 (first test)	P2 (second test)	Max value	
Absolute maximum impact [g]	22.5	22.3	22.50	
Impact duration at +38 [g] (if any): [ms]	0.00	0.00	0.00	
Impact duration at +20 [g] (if any): [ms]	0.00	0.00	0.00	
Uncertainty k=2 [%]	7.00	7.00		
Uncertainty k=2 [g]	1.58	1.56		
Repeat testing / max peak comparison [%]	100	99		
Test Result:	POSITIVE	POSITIVE		
BP with rescue system (if applicable)	PR1 (first test)	PR2 (second test)	Max value	
Absolute maximum impact [g]	24.4	24.8	24.78	
Impact duration at +38 [g] (if any): [ms]	0.00	0.00	0.00	
Impact duration at +20 [g] (if any): [ms]	0.00	0.00	0.00	
Uncertainty k=2 [%]	7.00	7.00		
Uncertainty k=2 [g]	1.71	1.73		
Repeat testing / max peak comparison [%]	100	101		
Test Result:	POSITIVE	POSITIVE		

Calculed value include the value minus the uncertainty (on safe side) / The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of the measurand lies within the assigned range of values with a probability of 95%.

Instruments	Validity	Manufacturer	Type nr.	S/N
Accelero meter sensor 100 G	01.08.2018	Burster / MTS	89010-100	1263567
Geos n° 11 Skywatch	07.04.2017	JDC electronics	Geos n° 11	0022

IMPACT PAD SHOCK TEST

TEST REPORT PH IP

BP PARAGLIDERS HARNESS BACK PROTECTORS

