Report No. : EED39M00029902

CE

EMC TEST REPORT

Product	:	Fiber Optic Fusion Splicer
Trade mark	:	F2H
Model/Type reference	:	GS60
Serial Model	:	GS40
Ratings	:	Input: AC 100V~240V;50/60Hz; 1.5A；330W Output: DC 15V;4.5A;68W
Report Number	:	EED39M00029902
Date of Issue	:	Oct 27, 2020
Regulations	:	See below

Test Standards	Results
☒ EN 61326-1:2013	PASS
☒ EN 61000-3-2: 2014	PASS
☒ EN 61000-3-3:2013/A1:2019	PASS

Prepared for:

Shanghai Grandway Telecom Tech. Co., Ltd.
6F, Xin'an Building No.99 Tian Zhou Road，Shanghai China

Prepared by:

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检验检测专用章 Inspection & Testing Services

Compiled by: Jenny. Yu　　Reviewed by: Tony.Qi

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Check No.: 3915507859

Modification Record

No.	Last Report No.	Modification Description
1	EED39M00029902	First report
All test date come from the report of EED39M00029901		

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1. GENERAL INFORMATION

Applicant:	Shanghai Grandway Telecom Tech. Co., Ltd. 6F, Xin'an Building No.99 Tian Zhou Road，Shanghai China
Manufacturer:	Shanghai Grandway Telecom Tech. Co., Ltd. 6F, Xin'an Building No.99 Tian Zhou Road，Shanghai China/ Zhejiang Grandway Telecom Tech. Co., Ltd 6 Building,No.8 Haining Avenue,Haining ,Haining City,Zhejiang Province
EMC Directive:	2014/30/EU
Product:	Fiber Optic Fusion Splicer
Trade mark:	F2H
Model/Type reference:	GS60
Serial Model:	GS40
Report Number:	EED39M00029902
Sample Received Date:	Aug 20,2020
Sample tested Date:	Oct 13,2020 to Oct 19,2020

The tested sample(s) and the sample information are provided by the client.

2. TEST SUMMARY

The Product has been tested according to the following specifications:

EMISSION		
Standard	**Test Item**	**Test**
CISPR 11	Conducted emission	Yes
CISPR 11	Radiated emission	Yes
EN 61000-3-2	Harmonic current emission	Yes
EN 61000-3-3	Voltage fluctuations & flicker	Yes

IMMUNITY (EN 61326-1:2013)		
Standard	**Test Item**	**Test**
IEC 61000-4-2	Electrostatic discharge immunity	Yes
IEC 61000-4-3	Radio-frequency electromagnetic field immunity	Yes
IEC 61000-4-4	Electrical fast transient/burst immunity	Yes
IEC 61000-4-5	Surges immunity	Yes
IEC 61000-4-6	Conducted disturbances induced by radio-frequency fields Immunity	Yes
IEC 61000-4-8	Power-frequency magnetic field immunity	N/A[1]
IEC 61000-4-11	Voltage dips, short interruptions and voltage variations immunity	Yes

Notes:1.The Product doesn't contain any device susceptible to magnetic fields.

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted emission (Power Ports)	+/- 3.1188
Radiated disturbance (30MHz to 1GHz)	+/- 4.4805

4. PRODUCT INFORMATION AND TEST SETUP

4.1 PRODUCT INFORMATION

Ratings: Input: AC 100V~240V;50/60Hz;
1.5A； 330W
Output: DC 15V;4.5A;68W

The highest frequency of the internal sources of the EUT is (less than 108 MHz) MHz:

☒ less than 108 MHz, the measurement shall only be made up to 1 GHz.
☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.
☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.
☐ above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

Adapter information: Model: TAA0651500450M3
Input: AC 100~240V;50/60Hz;1.5A
Output: DC 15V;4500mA

Model difference: The models of the products are GS60 and GS40,
The test model is GS60. The specific differences are as follows.

Project name	GS60	GS40
Motor number	6	4
Weight	1739(Don't take the battery)	1629(Don't take the battery)
Structure	same	same
Circuitous philosophy	same	same
PCB Layout	same	same
Key components	same	same
Volume	same	same
Colour	same	same
Power	same	same

4.2 TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

4.3 DECISION OF FINAL TEST MODE

1. The EUT was tested together with the above additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.
   The following test mode(s) were scanned during the preliminary test:

Pre Test Mode		
Emission	Conducted Emission	**Mode 1: Normal Operation**
	Radiated Emission	**Mode 1: Normal Operation**

2. After the preliminary scan, the following test mode was found to produce the final emission level.

Final Test Mode		
Emission	Conducted Emission	**Mode 1: Normal Operation**
	Radiated Emission	**Mode 1: Normal Operation**

Then, the above highest emission mode of the configuration of the EUT and cable was chosen for all final test items.

4.4 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	digital multimeter	/	17B+	47224235WS	/	/
2.	Load	/	/	/	/	/

Notes:
1. All the equipment/cables were placed in the worst-case configuration to Monitoringimize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

All test facilities used to collect the test data are located at Building 18, Zhihui New Town Ecological Industrial Park, No. 1206, Jinyang East Road, Lujia Town, Kunshan, Jiangsu, China.The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.
The calibrations of the Monitoring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the Monitoring instrument.

Equipment used during the tests:

Conducted emission Test					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
Receiver	R&S	ESR3	102043	2019-12-11	2020-12-10
LISN	R&S	ENV4200	100325	2019-12-11	2020-12-10
LISN	R&S	ENV216	102058	2019-12-11	2020-12-10
ISN	R&S	ENY81	100255	2019-12-11	2020-12-10
ISN	R&S	ENY81-CA6	101744	2019-12-11	2020-12-10

Radiated emission Test					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
3M Chamber	RIKEN	9.25(L)m*6.25(W) m*6.45(H)m	AC-K	2019-09-07	2022-09-06
Receiver	R&S	ESU8	100537	2019-12-11	2020-12-10
Spectrum analyzer	R&S	FSV40	101185	2019-12-11	2020-12-10
Microwave Preamplifier	R&S	SCU-08	100748	2019-12-11	2020-12-10
Microwave Preamplifier	R&S	SCU-18D	1987397	2019-12-11	2020-12-10
Antenna (30MHz~1GHz)	TESEQ	CBL6112D	53439	2019-12-03	2020-12-02
Antenna (1GHz~18GHz)	R&S	HF907	102524	2019-12-16	2020-12-15

Harmonic / Flicker Test (EN 61000-3-2) / (EN 61000-3-3)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
Harmonic & Flicker System	EM-TEST	DPA 503N & AIF 503N32.1	P1545166605 & P1613178045	2019-12-11	2020-12-10
Muitifunction AC/DC Power Source	EM-TEST	NetWave 30-400	P1613178144	2019-12-11	2020-12-10

Electrostatic discharge Test (IEC 61000-4-2)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
ESD Simulator	Noiseken	ESS-B3011A	ESS1940818	2019-12-13	2020-12-12

Radio-frequency electromagnetic field Immunity Test (IEC 61000-4-3)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
Radiated immunity test system	TESEQ	ITS 6006	77394	2019-12-6	2020-12-5
Stacked double Log.-Per. Antenna	Schwarzbeck	STLP 9129	00131	NCR	NCR
Power Amplifier (80MHz~1GHz)	TESEQ	CBA 1G-600B	T2491-0819	2019-12-4	2020-12-3
Power Amplifier (1GHz~6GHz)	MILMEGA	AS0860B-50/50	1087034	2019-12-5	2020-12-4
Power Meter	TESEQ	PMU 6006	77681	2019-12-5	2020-12-4
Power Meter	TESEQ	PMU 6006	77688	2019-12-5	2020-12-4

Electrical Fast Transients Test (IEC 61000-4-4)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
Compact Generator	EM-TEST	UCS500N7	P1608172945	2019-12-11	2020-12-10
Three phase coupling network	EM-TEST	CNI503B7	P1626181212	2019-12-11	2020-12-10
Capacitive Clamp	EM-TEST	HFK	P1620179963	2019-12-11	2020-12-10
Coupling/ decoupling network	EM-TEST	CNI508N2	P1618179278	2019-12-11	2020-12-10
Mechanical auto voltage regulator	EM-TEST	MV2616	P1532162313	2019-12-11	2020-12-10

Surges Test (IEC 61000-4-5)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
Compact Generator	EM-TEST	UCS500N7	P1608172945	2019-12-11	2020-12-10
Coupling/decoupling network	EM-TEST	CNI503B7	P1626181212	2019-12-11	2020-12-10
Coupling/decoupling network	EM-TEST	CNV504N2	P1613178139	2019-12-11	2020-12-10
Coupling/decoupling network	EM-TEST	CNV504T5	P1612177946	2019-12-11	2020-12-10
Coupling/decoupling network	EM-TEST	CNI508N2	P1618179278	2019-12-11	2020-12-10
Motorized Variac	EM-TEST	MV2616	P1532162313	2019-12-11	2020-12-10

Radio-frequency continuous conducted Immunity Test (IEC 61000-4-6)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
Signal generator	TESEQ	NSG 4070C-35	54406	2019-12-2	2020-12-3
CDN	FCC	FCC-801-M2/M3-16A	170209	2019-12-11	2020-12-10
CDN	FCC	FCC-801-M5-32A	170212	2019-12-11	2020-12-10
Eight-wire communication line coupled de-coupling network	TESEQ	T800	51992	2020-1-2	2021-1-1
Electromagnetic injection clamp	FCC	F-203I-A-32mm	192109	2020-1-2	2021-1-1

Voltage dips and interruptions Test (IEC 61000-4-11)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Calibration Date**	**Calibration Due**
Harmonic & Flicker System	EM-TEST	DPA 503N & AIF 503N32.1	P1545166605& P1613178045	2019-12-11	2020-12-10
Muitifunction AC/DC Power Source	EM-TEST	NetWave 30-400	P1613178144	2019-12-11	2020-12-10

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The Monitoring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. CONDUCTED EMISSION

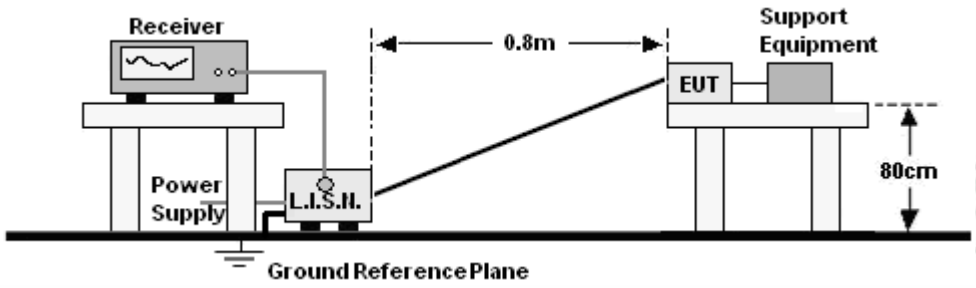
6.1 LIMITS

Limits for class A Group 1 Equipment

Frequency range (MHz)	Limits dB(μV)	
	Rated input power of ≤ 20 kVA	
	Quasi-peak	Average
0.15 to 0.50	79	66
0.50 to 5	73	60
5 to 30	73	60

Note: 1. The lower limit shall apply at the transition frequencies.

6.2 BLOCK DIAGRAM OF TEST SETUP



6.3 Test PROCEDURE

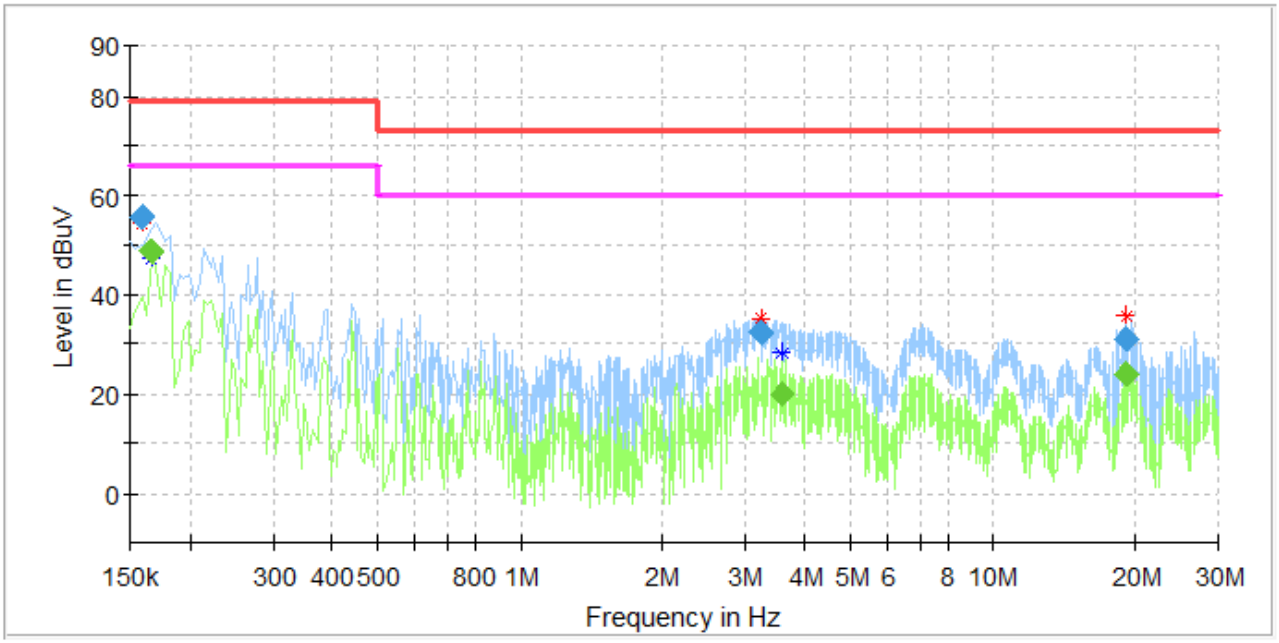
a The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

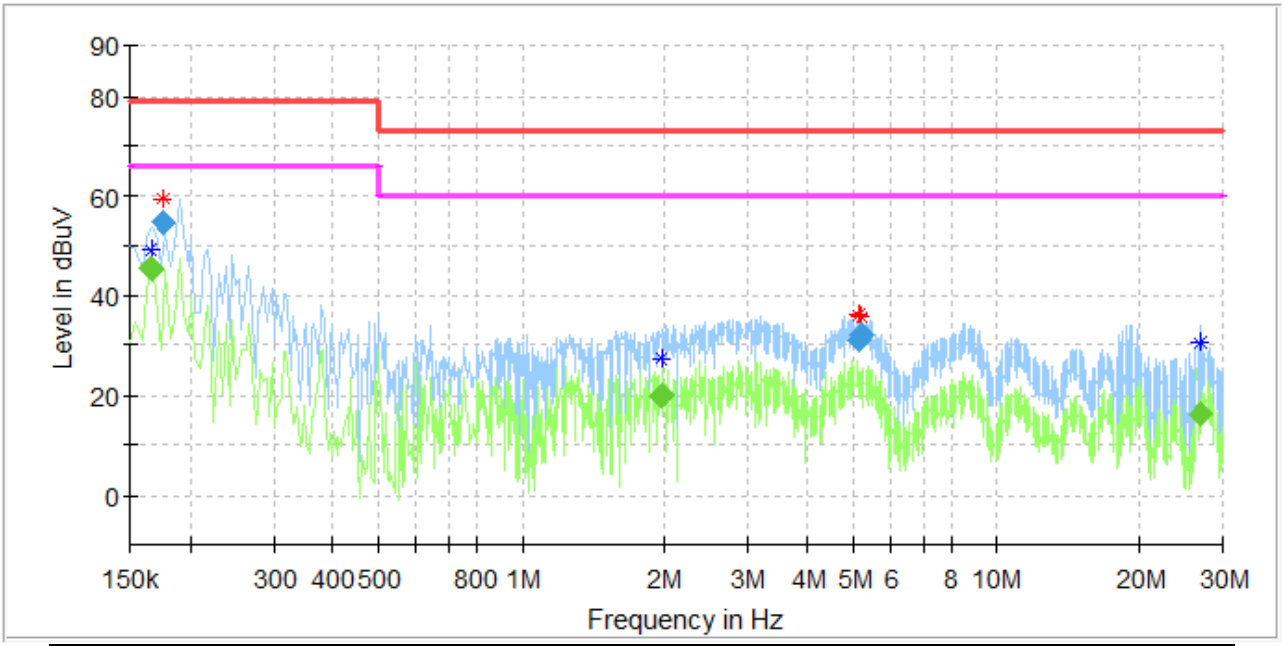
6.4 GRAPHS AND DATA

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	24.1℃
Mode	:	Mode 1	**Humidity**	:	50.2%
Phase	:	L1	**Press**	:	102.3kPa
Test Date	:	2020-10-13			



Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.158965	55.81	---	79.00	23.19	1000.0	9.000	L1	9.5
0.166000	---	48.66	66.00	17.34	1000.0	9.000	L1	9.5
3.240972	32.21	---	73.00	40.79	1000.0	9.000	L1	10.2
3.590000	---	19.86	60.00	40.14	1000.0	9.000	L1	10.1
19.162000	---	23.79	60.00	36.21	1000.0	9.000	L1	10.4
19.165432	30.77	---	73.00	42.23	1000.0	9.000	L1	10.4

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	24.1℃
Mode	:	Mode 1	**Humidity**	:	50.2%
Phase	:	N	**Press**	:	102.3kPa
Test Date	:	2020-10-13			



Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.166000	---	45.35	66.00	20.65	1000.0	9.000	N	9.6
0.174843	54.65	---	79.00	24.35	1000.0	9.000	N	9.6
1.974000	---	19.90	60.00	40.10	1000.0	9.000	N	9.8
5.143718	30.91	---	73.00	42.09	1000.0	9.000	N	9.9
5.171706	31.67	---	73.00	41.33	1000.0	9.000	N	9.9
26.666000	---	15.85	60.00	44.15	1000.0	9.000	N	10.0

7. RADIATED EMISSION

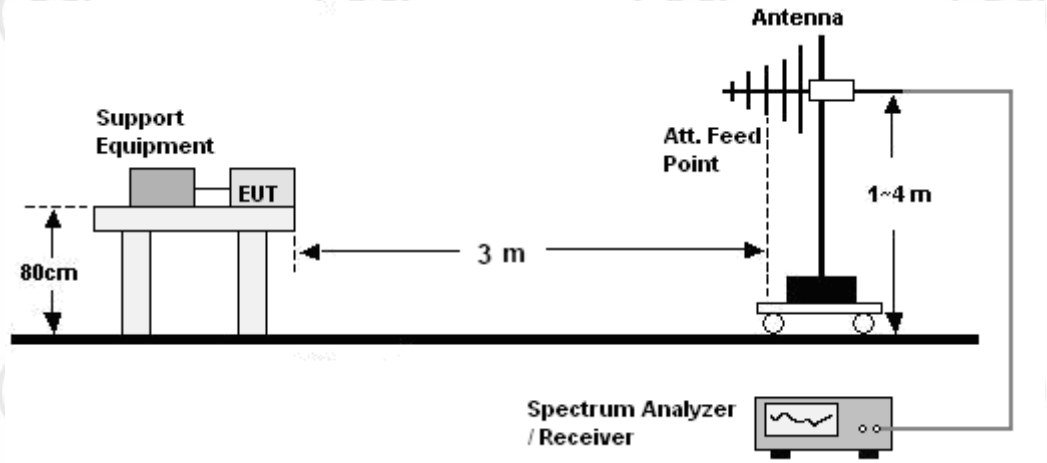
7.1 LIMITS

Limits for Group 1 class A Equipment

Frequency (MHz)	Quasi-peak limits at 3m dB(μV/m)
30-230	50
230-1000	57

Note: The lower limit shall apply at the transition frequencies.

7.2 BLOCK DIAGRAM OF TEST SETUP



7.3 TEST PROCEDURE

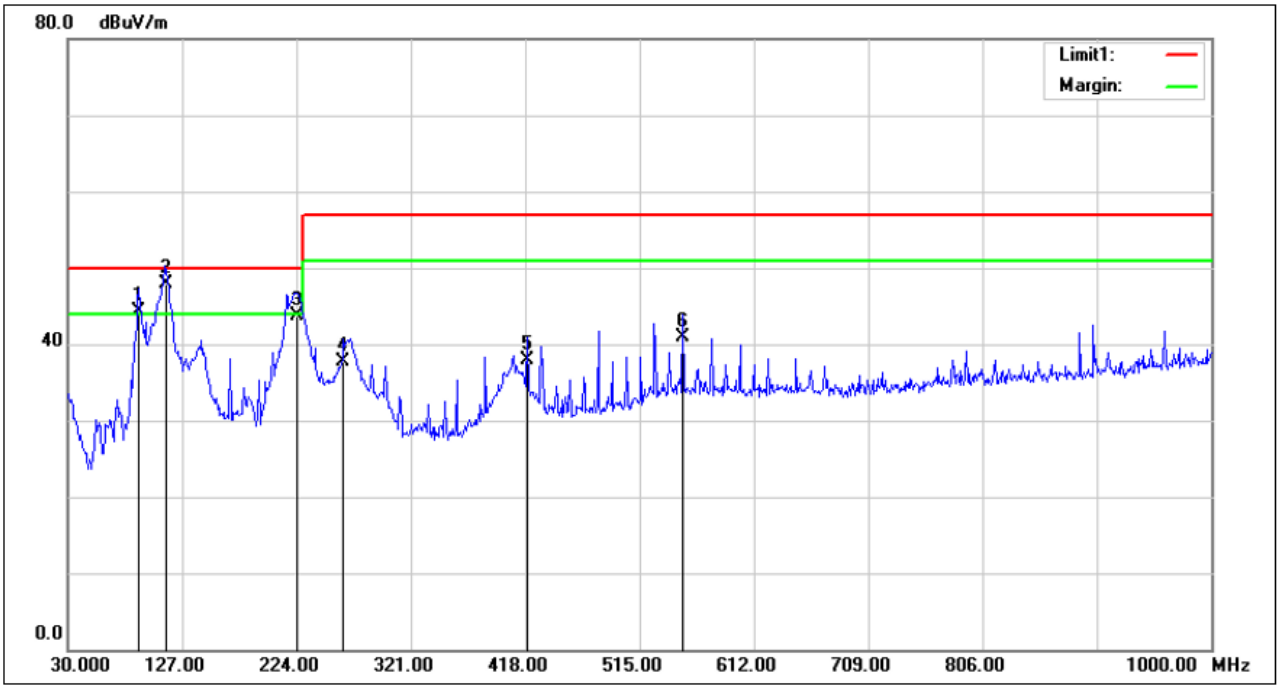
a The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.

b Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

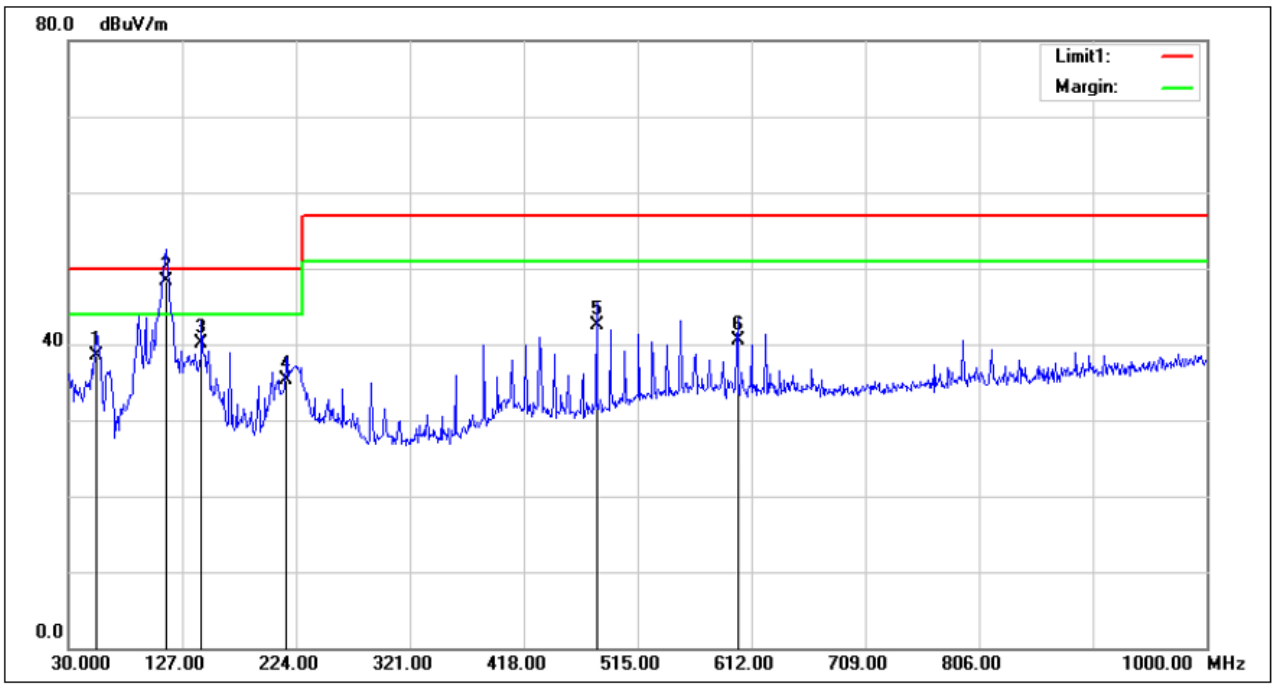
7.4 GRAPHS AND DATA

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	23.9℃
Mode	:	Mode 1	**Humidity**	:	50%
Polarization	:	Horizontal	**Press**	:	102.6kPa
Test Date	:	2020-10-19			



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	90.1400	34.73	9.61	44.34	50.00	-5.66	200	9	QP
2	113.2100	36.32	11.51	47.83	50.00	-2.17	200	234	QP
3	224.9700	32.74	10.99	43.73	50.00	-6.27	100	97	QP
4	263.7700	25.05	12.72	37.77	57.00	-19.23	100	268	QP
5	419.9400	20.85	17.14	37.99	57.00	-19.01	200	138	QP
6	551.8600	20.57	20.37	40.94	57.00	-16.06	200	360	QP

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	23.9℃
Mode	:	Mode 1	**Humidity**	:	50%
Polarization	:	Vertical	**Press**	:	102.6kPa
Test Date	:	2020-10-19			



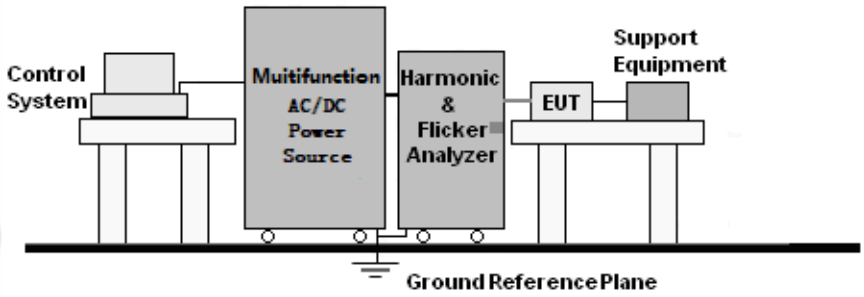
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	54.2500	30.83	7.72	38.55	50.00	-11.45	100	233	QP
2	113.9800	36.85	11.50	48.35	50.00	-1.65	100	92	QP
3	143.4900	28.73	11.39	40.12	50.00	-9.88	100	360	QP
4	215.2700	24.88	10.48	35.36	50.00	-14.64	100	156	QP
5	480.0800	24.43	18.14	42.57	57.00	-14.43	200	360	QP
6	600.3600	20.62	19.84	40.46	57.00	-16.54	100	66	QP

8. HARMONIC CURRENT EMISSION

8.1 LIMITS

Please refer to EN 61000-3-2:2014 Clause 7.

8.2 BLOCK DIAGRAM OF TEST SETUP



8.3 TEST PROCEDURE

a The Product was placed on the top of a non-conductive table above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

b The correspondent test program of test instrument to measure the current harmonics emanated from Product was chosen. The measure time shall be not less than the time necessary for the Product to be exercised.

8.4 TEST RESULTS

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	24.1℃
Mode	:	Mode 1	**Humidity**	:	48.2%
Test Date	:	2020-10-13	**Press**	:	102.3kPa

Pass.

Average harmonic current results				
Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	207.562E-3			
2	529.474E-6			PASS
3	200.951E-3	8.737	2.30	PASS
4	748.319E-6			PASS
5	195.727E-3	17.169	1.14	PASS
6	1.041E-3			PASS
7	187.978E-3	24.413	770.00E-3	PASS
8	1.237E-3			PASS
9	178.126E-3	44.532	400.00E-3	PASS
10	1.511E-3			PASS
11	166.495E-3	50.453	330.00E-3	PASS
12	1.606E-3			PASS
13	153.596E-3	73.141	210.00E-3	PASS
14	1.821E-3			PASS
15	139.747E-3	93.165	150.00E-3	PASS
16	1.856E-3			PASS
17	125.484E-3	94.812	132.35E-3	PASS
18	2.018E-3			PASS
19	111.427E-3	94.095	118.42E-3	PASS
20	2.038E-3			PASS
21	97.453E-3	60.639	160.71E-3	PASS
22	2.044E-3			PASS
23	84.706E-3	57.723	146.74E-3	PASS
24	2.203E-3			PASS
25	72.888E-3	53.991	135.00E-3	PASS
26	2.108E-3			PASS
27	62.250E-3	49.802	124.99E-3	PASS
28	2.199E-3			PASS
29	53.157E-3	45.673	116.39E-3	PASS
30	2.157E-3			PASS
31	45.522E-3	41.813	108.87E-3	PASS
32	2.173E-3			PASS
33	38.875E-3	38.012	102.27E-3	PASS
34	2.052E-3			PASS
35	33.299E-3	34.530	96.44E-3	PASS
36	1.921E-3			PASS
37	28.227E-3	30.945	91.21E-3	PASS
38	1.871E-3			PASS
39	24.131E-3	27.886	86.53E-3	PASS
40	1.649E-3			PASS

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	208.027E-3			
2	1.057E-3			PASS
3	201.469E-3	5.840	3.45	PASS
4	1.270E-3			PASS
5	196.266E-3	11.478	1.71	PASS
6	1.534E-3			PASS
7	188.578E-3	16.327	1.15	PASS
8	1.720E-3			PASS
9	178.803E-3	29.801	600.00E-3	PASS
10	1.985E-3			PASS
11	167.281E-3	33.794	495.00E-3	PASS
12	2.170E-3			PASS
13	154.481E-3	49.042	315.00E-3	PASS
14	2.450E-3			PASS
15	140.723E-3	62.543	225.00E-3	PASS
16	2.526E-3			PASS
17	126.554E-3	63.747	198.52E-3	PASS
18	2.739E-3			PASS
19	112.532E-3	63.352	177.63E-3	PASS
20	2.765E-3			PASS
21	98.592E-3	61.348	160.71E-3	PASS
22	2.783E-3			PASS
23	85.814E-3	58.478	146.74E-3	PASS
24	2.920E-3			PASS
25	73.929E-3	54.762	135.00E-3	PASS
26	2.812E-3			PASS
27	63.220E-3	50.578	124.99E-3	PASS
28	2.864E-3			PASS
29	54.051E-3	46.442	116.39E-3	PASS
30	2.803E-3			PASS
31	46.262E-3	42.493	108.87E-3	PASS
32	2.775E-3			PASS
33	39.489E-3	38.613	102.27E-3	PASS
34	2.596E-3			PASS
35	33.775E-3	35.024	96.44E-3	PASS
36	2.400E-3			PASS
37	28.586E-3	31.339	91.21E-3	PASS
38	2.295E-3			PASS
39	24.390E-3	28.185	86.53E-3	PASS
40	2.057E-3			PASS

Report No. : EED39M00029902

Maximum harmonic voltage results

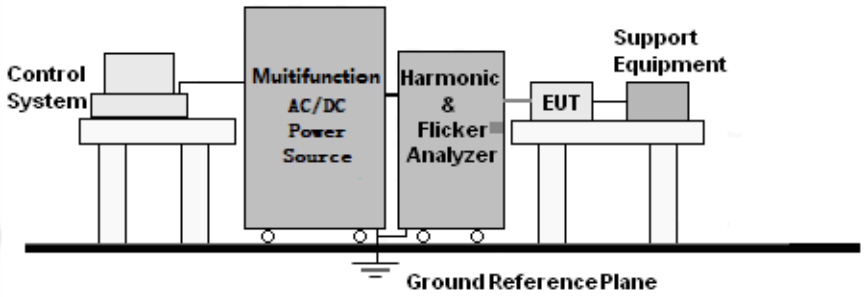
Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.76	100.331		
2	181.76E-3	0.079	0.2	PASS
3	159.30E-3	0.069	0.9	PASS
4	86.38E-3	0.038	0.2	PASS
5	59.46E-3	0.026	0.4	PASS
6	54.72E-3	0.024	0.2	PASS
7	98.49E-3	0.043	0.3	PASS
8	47.74E-3	0.021	0.2	PASS
9	27.74E-3	0.012	0.2	PASS
10	42.65E-3	0.019	0.2	PASS
11	80.10E-3	0.035	0.1	PASS
12	42.71E-3	0.019	0.1	PASS
13	35.97E-3	0.016	0.1	PASS
14	39.26E-3	0.017	0.1	PASS
15	64.40E-3	0.028	0.1	PASS
16	39.50E-3	0.017	0.1	PASS
17	41.82E-3	0.018	0.1	PASS
18	33.52E-3	0.015	0.1	PASS
19	54.34E-3	0.024	0.1	PASS
20	24.15E-3	0.011	0.1	PASS
21	31.06E-3	0.014	0.1	PASS
22	20.14E-3	0.009	0.1	PASS
23	64.19E-3	0.028	0.1	PASS
24	17.80E-3	0.008	0.1	PASS
25	30.76E-3	0.013	0.1	PASS
26	21.63E-3	0.009	0.1	PASS
27	20.25E-3	0.009	0.1	PASS
28	19.64E-3	0.009	0.1	PASS
29	43.80E-3	0.019	0.1	PASS
30	14.19E-3	0.006	0.1	PASS
31	22.40E-3	0.010	0.1	PASS
32	15.40E-3	0.007	0.1	PASS
33	38.50E-3	0.017	0.1	PASS
34	22.80E-3	0.010	0.1	PASS
35	52.97E-3	0.023	0.1	PASS
36	24.50E-3	0.011	0.1	PASS
37	17.14E-3	0.007	0.1	PASS
38	20.65E-3	0.009	0.1	PASS
39	23.49E-3	0.010	0.1	PASS
40	13.48E-3	0.006	0.1	PASS

9. VOLTAGE FLUCTUATIONS & FLICKER TEST

9.1 LIMITS

Please refer to EN 61000-3-3:2013/A1:2019 Clause 5.

9.2 BLOCK DIAGRAM OF TEST SETUP



9.3 TEST PROCEDURE

a The Product was placed on the top of a non-conductive table above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b During the flick test, the measure time shall include that part of whole operation cycle in which the Product produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

9.4 TEST RESULTS

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	24.1℃
Mode	:	Mode 1	**Humidity**	:	48.2%
Test Date	:	2020-10-13	**Press**	:	102.3kPa

Pass.

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.461	1.00	PASS
Plt	0.202	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.196	4.00	PASS
Tmax [s]	0.000	0.50	PASS

10. IMMUNITY TEST

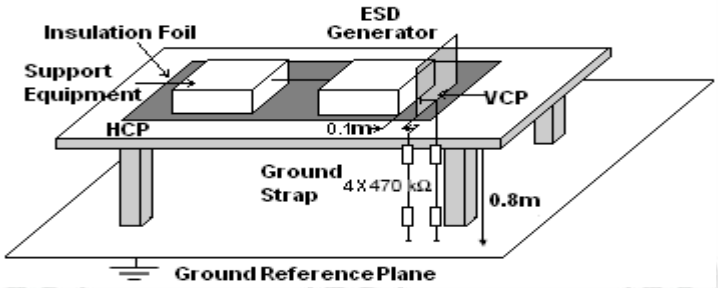
General Performance Criteria	
Product Standard	**EN 61326-1:2013**
CRITERION A	The equipment shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.
CRITERION B	The equipment shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.
CRITERION C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

11. ELECTROSTATIC DISCHARGE IMMUNITY

11.1 TEST SPECIFICATION

Basic Standard	**:**	EN 61326-1 & IEC 61000-4-2
Test Port	**:**	Enclosure port
Discharge Impedance	**:**	330 ohm / 150 pF
Discharge Mode	**:**	Single Discharge
Discharge Period	**:**	one second between each discharge

11.2 BLOCK DIAGRAM OF TEST SETUP



11.3 TEST PROCEDURE

a Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.

b The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c The time interval between two successive single discharges was at least 1 second.

d The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.

e Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

g At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the Product. The ESD generator was positioned vertically at a distance of 0.1 meters from the Product with the discharge electrode touching the HCP.

h At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the Product were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the Product.

11.4 RESULTS & PERFORMANCE

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	21.6℃
Mode	:	Mode 1	**Humidity**	:	48.7%
Test Date	:	2020-10-14	**Press**	:	102.4kPa

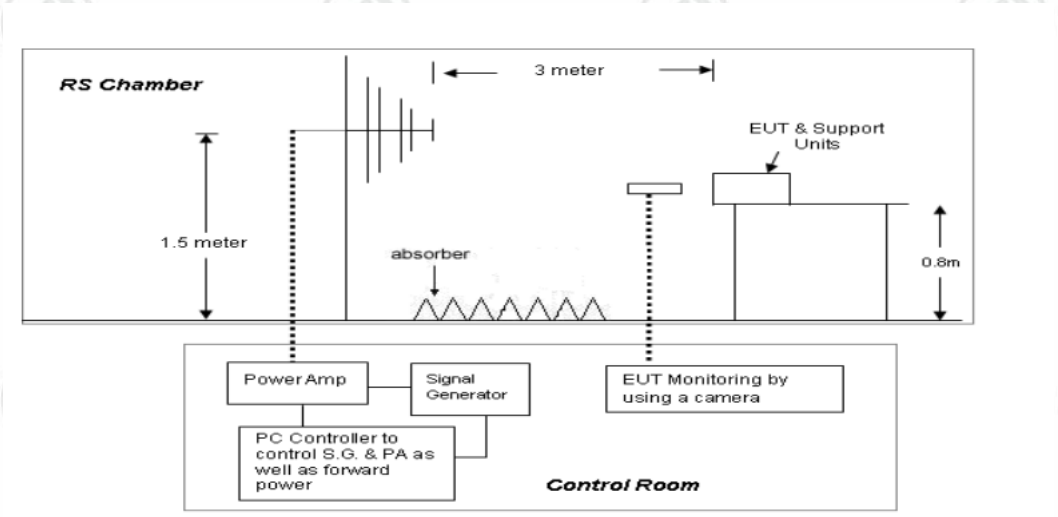
Discharge Method	Discharge Position	Voltage (±kV)	No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Indirect Discharge VCP	± 4	25	B	A
	Indirect Discharge HCP	± 4	25	B	A
	Conductive Surfaces	± 4	25	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	± 8	10	B	A

12. RADIO-FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY

12.1 TEST SPECIFICATION

Basic Standard	:	EN 61326-1 & IEC 61000-4-3
Test Port	:	Enclosure port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	3 second
Polarization	:	Horizontal & Vertical

12.2 BLOCK DIAGRAM OF TEST SETUP



12.3 TEST PROCEDURE

a The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3m from the Product.

b The frequency range is swept from 80MHz to 1000MHz and 1400MHz to 2700MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1%.

c The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.

12.4 RESULTS & PERFORMANCE

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	25.2℃
Mode	:	Mode 1	**Humidity**	:	46.1%
Test Date	:	2020-10-14	**Press**	:	102.4kPa

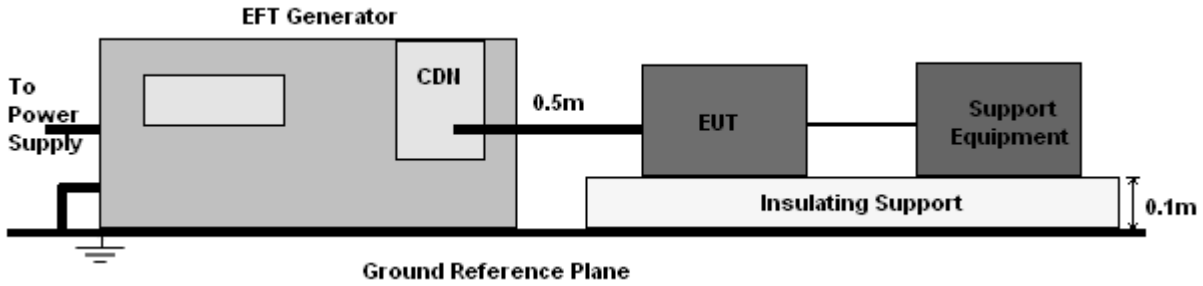
Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Performance Criterion
80 - 1000	Front, Back, Left, Right	10	A	A
1400 - 2000	Front, Back, Left, Right	3	A	A
2000 - 2700	Front, Back, Left, Right	1	A	A

13. ELECTRICAL FAST TRANSIENTS/BURST IMMUNITY

13.1 TEST SPECIFICATION

Basic Standard	:	EN 61326-1 & IEC 61000-4-4
Test Port	:	Input AC mains power port
Impulse Frequency	:	5 kHz
Impulse Wave-shape	:	5/50 ns
Burst Duration	:	15 ms
Burst Period	:	300 ms
Test Duration	:	1 minute per polarity

13.2 BLOCK DIAGRAM OF TEST SETUP



13.3 TEST PROCEDURE

a The Product and support units were located on a non-conductive table above ground reference plane.

b A 0.5m-long power cord was attached to Product during the test.

13.4 RESULTS & PERFORMANCE

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	24.2℃
Mode	:	Mode 1	**Humidity**	:	48.3%
Test Date	:	2020-10-19	**Press**	:	102.6kPa

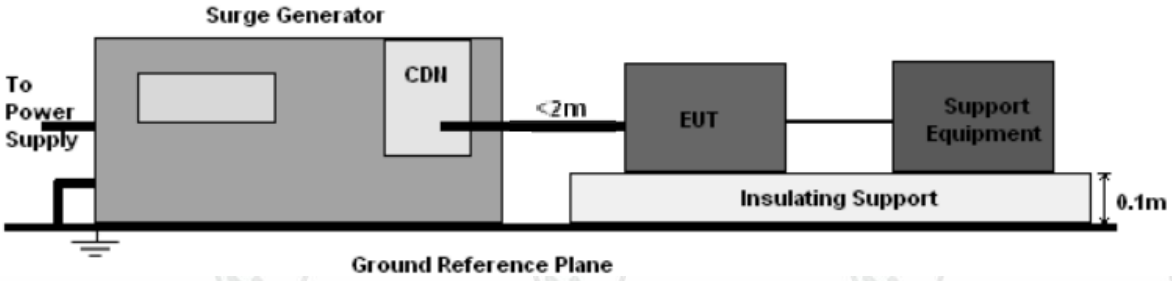
Coupling	Voltage (kV)	Polarity	Required Level	Performance Criterion
L	2	±	B	A
N	2	±	B	A
PE	2	±	B	A
L+N	2	±	B	A
L+PE	2	±	B	A
N+PE	2	±	B	A
L+N+PE	2	±	B	A

14. SURGES IMMUNITY

14.1 TEST SPECIFICATION

Basic Standard	:	EN 61326-1 & IEC 61000-4-5
Test Port	:	Input AC power port
Wave-Shape	:	Open Circuit Voltage: 1.2 / 50 us
Phase Angle	:	0°，90°，180°，270°
Pulse Repetition Rate	:	1 pulse / min.
Test Events	:	5 pulses (positive & negative) for each polarity

14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 TEST PROCEDURE

a The surge is to be applied to the Product power supply terminals via the capacitive coupling networking. Decoupling networkings are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave.

b The power cord between the Product and the coupling/decoupling networkings shall be 2 meters in length (or shorter). Interconnection line between the Product and the coupling/decoupling networkings shall be 2 meters in length (or shorter).

14.4 RESULTS & PERFORMANCE

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	24.2℃
Mode	:	Mode 1	**Humidity**	:	48.3%
Test Date	:	2020-10-19	**Press**	:	102.6kPa

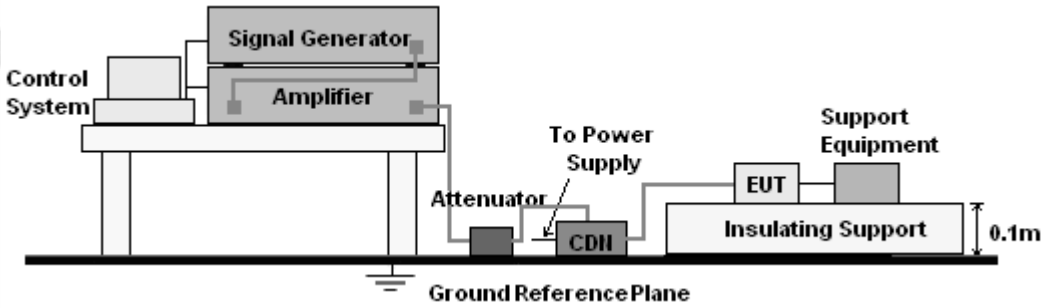
Coupling Line	Voltage (kV)	Polarity	Required Level	Performance Criterion
L - N	1	±	B	A
L-PE	2	±	B	A
N-PE	2	±	B	A

15. CONDUCTED DISTURBANCES INDUCED BY RADIO-FREQUENCY FIELDS IMMUNITY

15.1 TEST SPECIFICATION

Basic Standard	:	EN 61326-1 & IEC 61000-4-6
Test Port	:	Input AC power port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	3 second

15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST PROCEDURE

a The Product and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.

b The frequency range is swept from 150 kHz to 80MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5x 10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.

c The dwell time at each frequency shall be not less than the time necessary for the Product to be able to respond.

15.4 RESULTS & PERFORMANCE

Product	:	Fiber Optic Fusion Splicer	**Model/Type reference**	:	GS60
Power	:	AC 230V/50Hz	**Temperature**	:	24.2℃
Mode	:	Mode 1	**Humidity**	:	46.2%
Test Date	:	2020-10-15	**Press**	:	102.6kPa

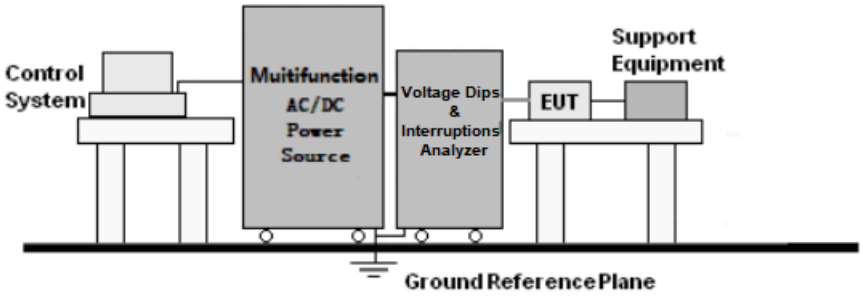
Inject Line	Frequency (MHz)	Voltage Level (V)	Required Level	Performance Criterion
AC port	0.15 - 80	3	A	A

16. VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS IMMUNITY

16.1 TEST SPECIFICATION

Basic Standard : EN 61326-1 & IEC 61000-4-11
Test Ports : Input AC power port
Phase Angle : 0°

16.2 BLOCK DIAGRAM OF TEST SETUP



16.3 TEST PROCEDURE

a The Product and support units were located on a non-conductive table above ground floor.

b Set the parameter of tests and then perform the test software of test simulator.

16.4 RESULTS & PERFORMANCE

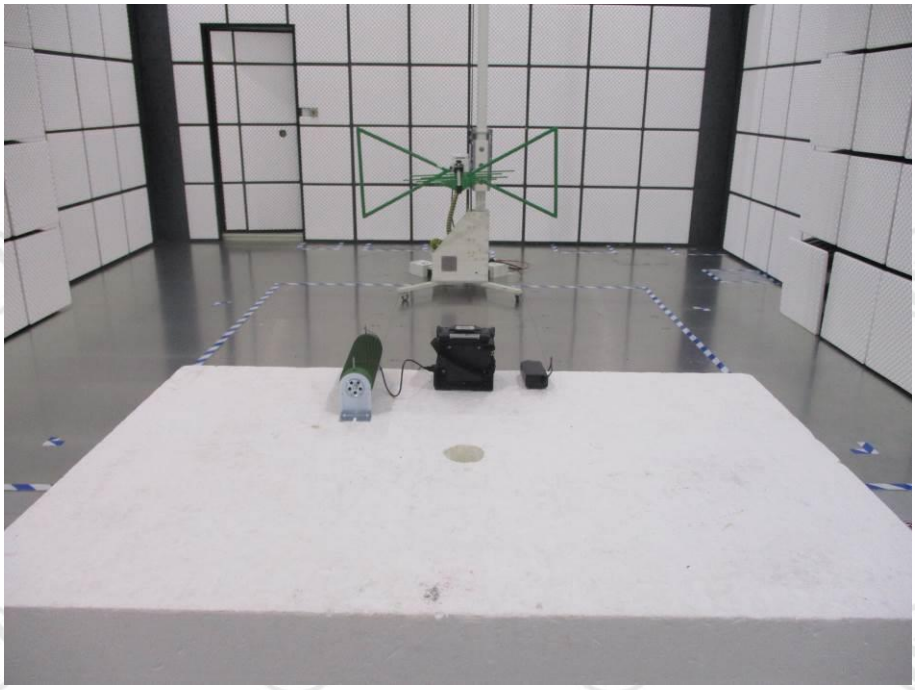
Product : Fiber Optic Fusion Splicer
Power : AC 230V/50Hz
Mode : Mode 1
Test Date : 2020-10-13
Model/Type reference : GS60
Temperature : 24.1℃
Humidity : 48.2%
Press : 102.3kPa

Test Level % UT	Reduction (%)	Cycle	Required Level	Performance criteria
0	100	1	B	A
40	60	10	C	A
70	30	25	C	A
0	100	250	C	C

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Conducted Emission Test Setup

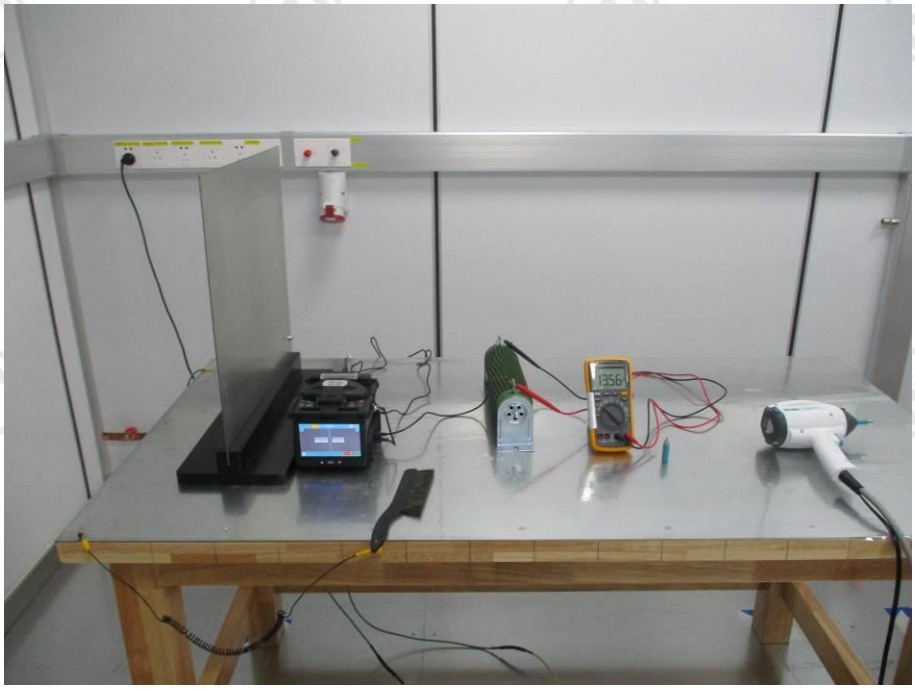
Radiated Emission Test Setup



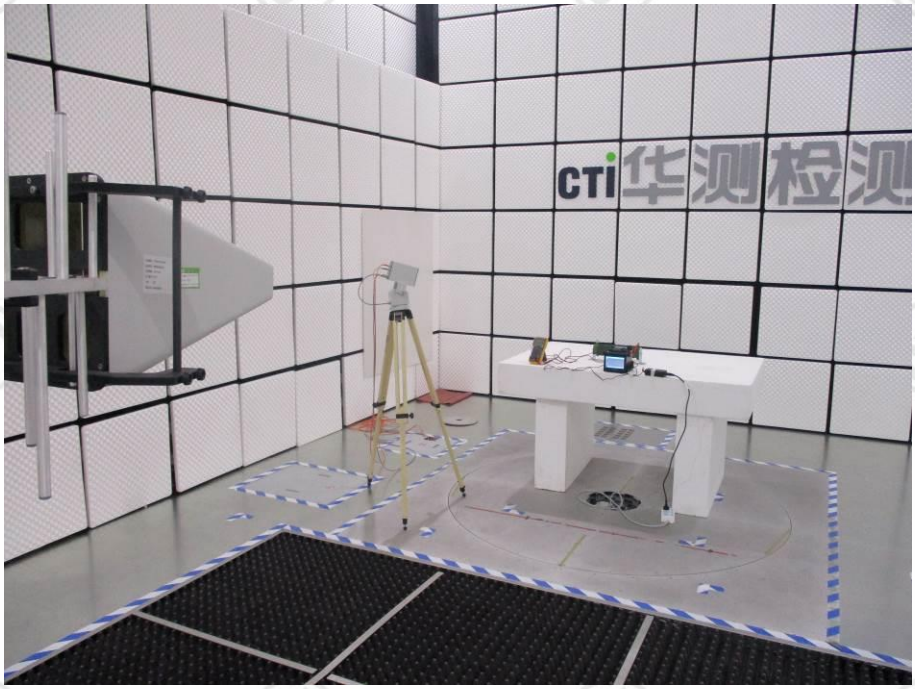
Harmonic Current Emission Test Setup

Voltage Fluctuations and Flicker Test Setup

Electrostatic Discharge Immunity Test Setup



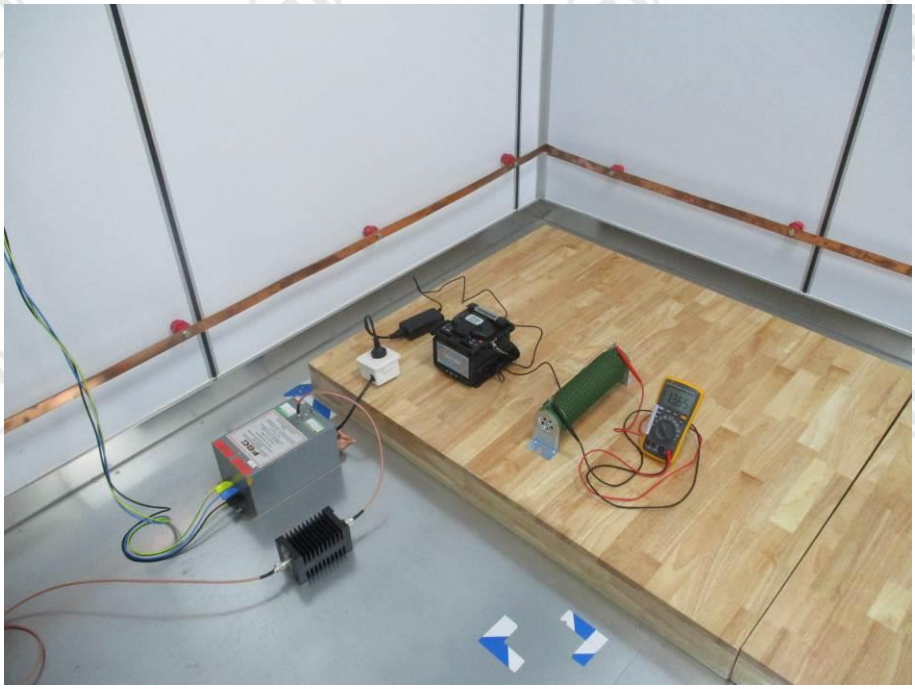
Radio-frequency electromagnetic field Immunity Test Setup



Electrical Fast Transients/burst Immunity Test Setup

Surges Immunity Test Setup

Conducted Disturbances Induced By Radio-frequency Fields Immunity Test Setup



Voltage Dips, Short Interruptions And Voltage Variations Immunity Test Setup

APPENDIX 2 PHOTOGRAPHS OF PRODUCT

View of Product-1

View of Product-2

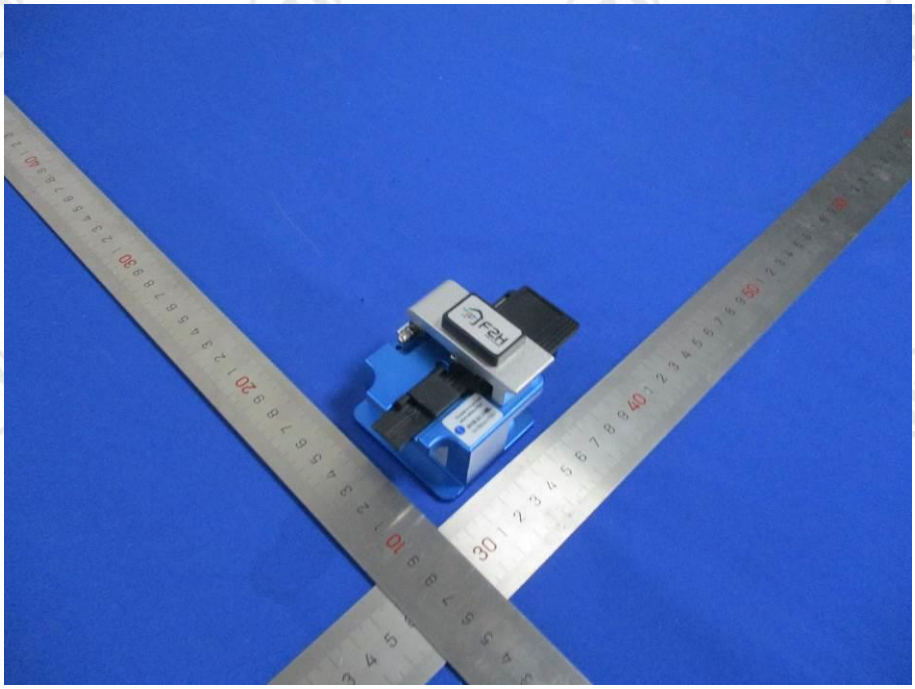
View of Product-3

View of Product-4

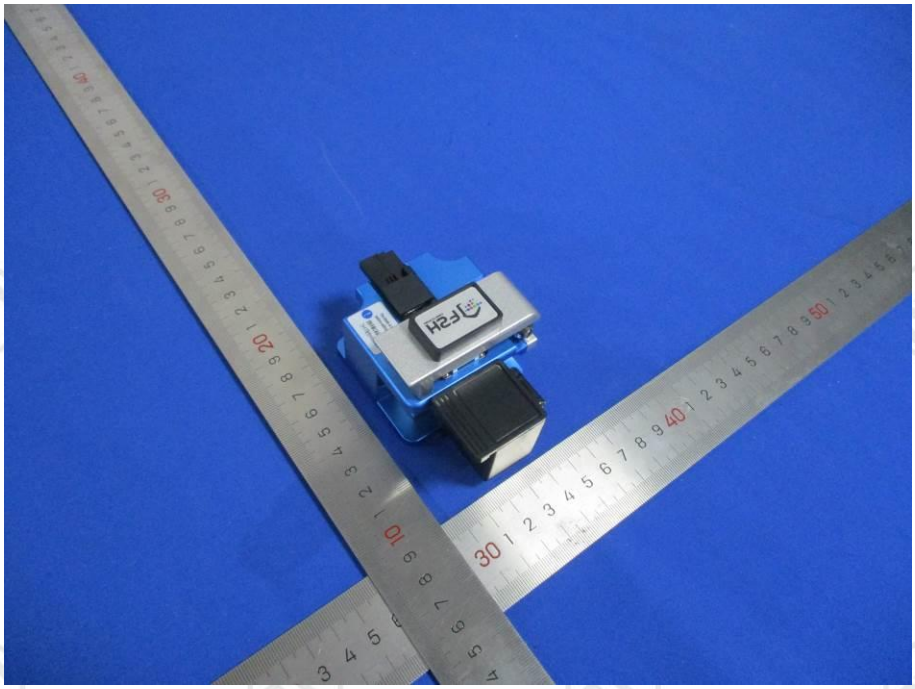
View of Product-5

View of Product-6

View of Product-7

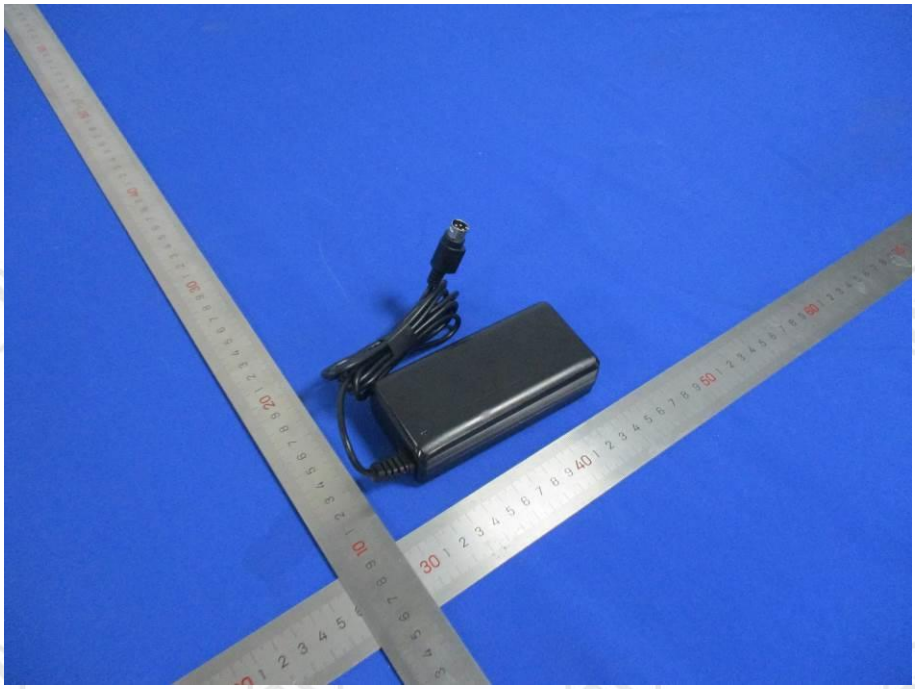


View of Product-8



View of Product-9

View of Product-10



View of Product-11

*** End of Report ***