

On **18/11/2022** document No. **TR08190001 [0]** is applied to the following elements:

REFERENCE	DESCRIPTION
212661	COAX.CAB.T100 LSFH Dca/A 16AtC GR.250m

Test Report

Electrical Characterization

Document No.: **IEI02081900001**

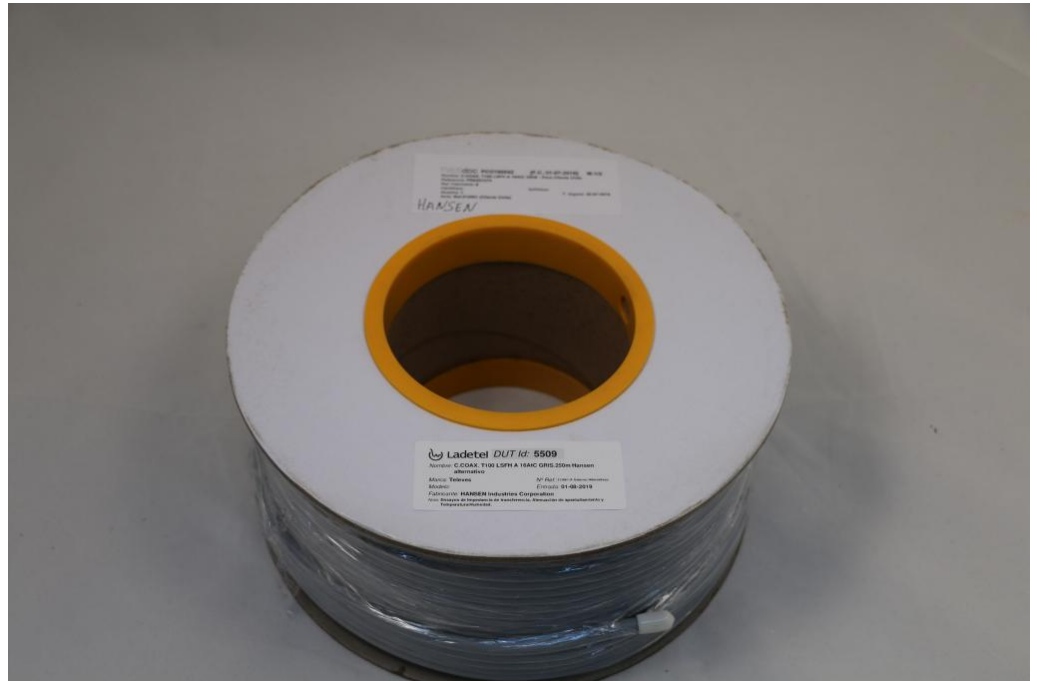
Date: **02-08-2019**

Made to: **Productos OEM**

Reference: **212661**

Device: **C.COAX. T100 LSFH A 16AtC GR.250m**

Image:



Product Data

D.U.T. Id: **5509** In Date: **01-08-2019**
 D.U.T.: **C.COAX. T100 LSFH A 16AtC GR.250m**
 Trade Mark: **Televes** Reference: **212661**
 State Development: **External M. (Alternative)**

Standards

Standard	Title	Part	Section
EN 50117-2-4:2004 + A1:2008 + A2:2013 UNE-EN 50117-2-4:2005	Coaxial cables.	Part 2-4: Sectional specification for cables used in cable distribution networks. Indoor drop cables for systems operating at 5MHZ - 3000MHZ.	

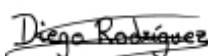
Standard Paragraphs

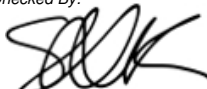
Standard	Paragraph	Title
EN 50117-2-4:2004	5.1.2.6	Transfer Impedance. Triaxial Method
EN 50117-2-4:2004	5.1.2.7	Screening attenuation. Triaxial Method
EN 50117-2-4:2004	5.2.9	Flexure. Procedure B: helix bend
EN 50117-2-4:2004	5.2.9	Flexure. Procedure A: S bend


Measurements made

	Result	Measure	Standard Applied	Standard Method	Standard Limit
1	Class B	Transfer Impedance after mechanical tests (5MHz-30MHz) in coaxial cables	EN 50117-2-4:2004 Paragraph: 5.1.2.6	EN 50289-1-6:2002 Paragraph: 6 EN 50289-3-9:2001 Paragraph: 4.3.1 EN 50289-3-9:2001 Paragraph: 8.3.2	EN 50117-2-4:2004 Paragraph: 5.1.2.6
5	Class A+	Screening attenuation after mechanical tests (30MHz-2150MHz) in coaxial cables	EN 50117-2-4:2004 Paragraph: 5.1.2.7	EN 50289-1-6:2002 Paragraph: 8 EN 50289-3-9:2001 Paragraph: 4.3.1 EN 50289-3-9:2001 Paragraph: 8.3.2	EN 50117-2-4:2004 Paragraph: 5.1.2.7

Televes S.A.U. document No.: TR08190001 [0] creation date 02-08-2019

Made By: 

Checked By: 

Aproved by: 

Diego Rodriguez Noguero

Silvia Rey Calveiro

Eduardo Castro Ares

Summary	Pag. 2
D.U.T. Description	Pag. 4
1. Transfer Impedance after mechanical tests (5MHz-30MHz) in coaxial cables	Pag. 5
5. Screening attenuation after mechanical tests (30MHz-2150MHz) in coaxial cables	Pag. 8

D.U.T. Description

Administrative Data

D.U.T. Id: **5509**

In Date: **01-08-2019**

Product Data

D.U.T.: **C.COAX. T100 LSFH A 16AtC GR.250m**

Trade Mark: **Televes**

Reference: **212661**

Description: **C.COAX. T100 LSFH A 16AtC GR.250m**

Technical Data

Manufacture: **[Redacted]**

State Development: **External M. (Alternative)**

Type: **Passive**

No. of Ports: **1**

Chassis: **Cable**

Port	Type	Range	Direction	Connector	Comments
1	Chassis			Enclosure	

D.U.T. Images



Name **IMG_0167**



Name **IMG_0170**

1. Transfer Impedance after mechanical tests (5MHz-30MHz) in coaxial cables

Measure

Date: **01-08-2019**

Applied Procedure

Procedure: **INT-OEM-005**

Title: **Transfer Impedance after mechanical tests (5MHz-30MHz) in coaxial cables**

Standard | Standard Limit

Standard: **EN 50117-2-4:2004**

Paragraph: **5.1.2.6**

Title: **Coaxial cables.**

Part 2-4: Sectional specification for cables used in cable distribution networks. Indoor drop cables for systems operating at 5MHZ - 3000MHZ.

Paragraph: **Transfer Impedance. Triaxial Method**

Standard Method

Standard: **EN 50289-1-6:2002**

Paragraph: **6**

Title: **Communication cables. Specifications for test methods.**

Part 1-6: Electrical test methods. Electromagnetic performance.

Paragraph: **Transfer Impedance. Triaxial Method**

Standard Method

Standard: **EN 50289-3-9:2001**

Paragraph: **4.3.1**

Title: **Communication cables - Specifications for test methods.**

Part 3-9: Mechanical test methods. Bending tests.

Paragraph: **Single bending (helix bend)**

Standard Method

Standard: **EN 50289-3-9:2001**

Paragraph: **8.3.2**

Title: **Communication cables - Specifications for test methods.**

Part 3-9: Mechanical test methods. Bending tests.

Paragraph: **Cable bending under tension - dynamic test (S bend)**

Environmental Conditions

Temperature: **22.1°C**

Humidity: **52.1%**

Atmospheric Pressure: **1003mbar**

Used Equipment

Id	Equipment	Trade Mark	Model	Serial No.
369	50/75 Matching Pad	Agilent	11852B	55420
158	Cable Agilent 11500B (12.4GHz)	Agilent	11500B	50438
366	Cable Agilent 11500B (12.4GHz)	Agilent	11500B	50440
140	Signal generator R&S (9KHz-3.3GHz)	R&S	SML03 - ref 1090.3000.13	102479
41	Measurement receiver R&S ESPI 3 9KHz-3GHz	R&S	ESPI-ref 1142.8007.03	100044
306	Triaxial system CoMeT	Rosenberger - Bedea	----	----
345	Bending test system	----	----	----

Measure Data

Measure No.: **1** Measure Date: **01-08-2019** Tube length: **1 m**

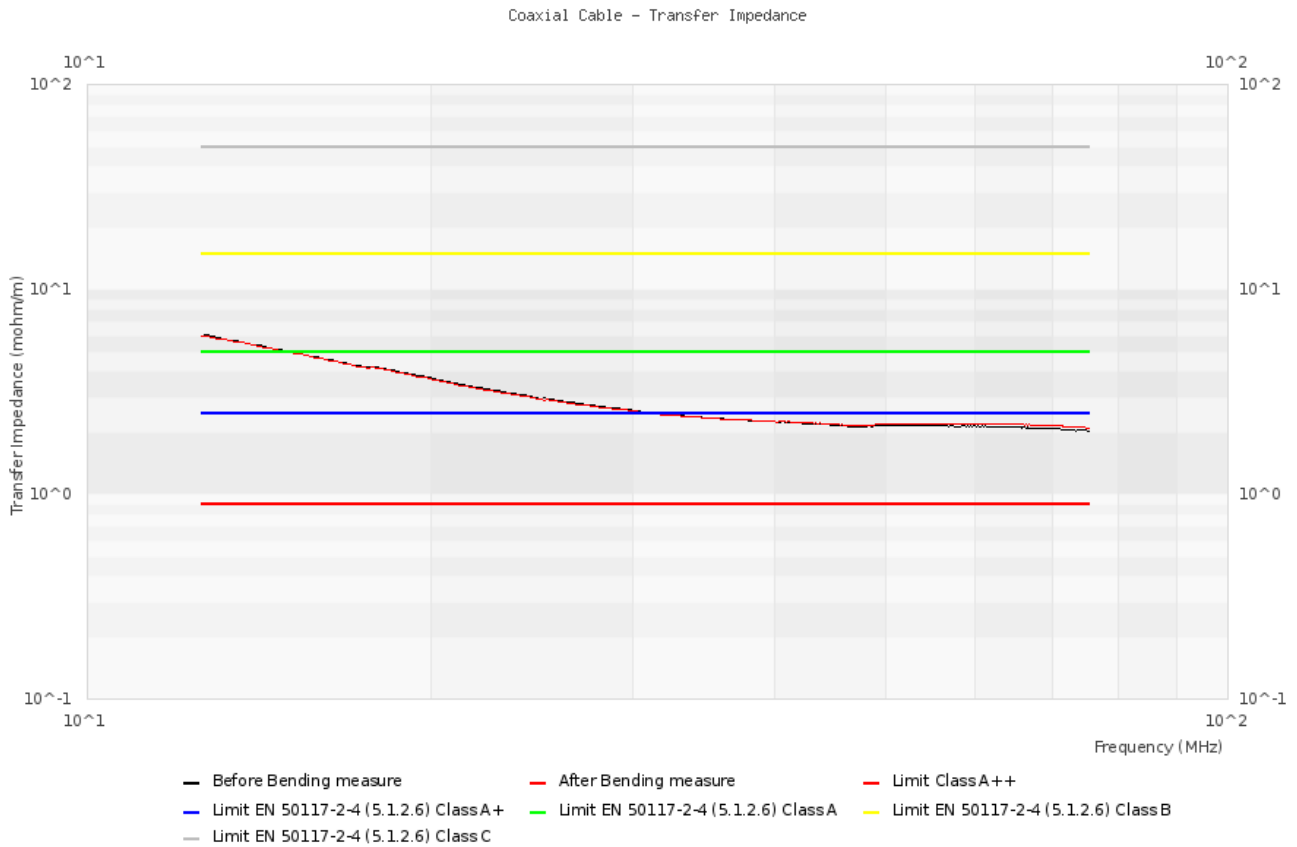
Simple Bending in Helix

Cycle No.: **2** Laps No.: **2** Mandrel Diameter (cm): **15**
Preparation of Extremes: **F Connector** Tension Device: **Bending Test System** Length of Sample (m): **1.3**

Dynamic Bending in `S`

Cycle No.: **1** Pulley Radius (cm): **7.5** Distance between Centers (cm): **30**
Bending Length (cm): **100** Bending Angle (°): **120** Displacement Speed: **<1m/s**
Preparation of Extremes: **F Connector** Tension Device: **Bending Test System** Length of Sample (m): **1.3**
Maximum Tension (N): **1.5**

Graph



Before Bending										
Range	Zt (mohm/m)	F. (MHz)	C. A+ Limit	Class A+	C. A Limit	Class A	C. B Limit	Class B	C. C Limit	Class C
5MHZ - 30MHz	6.01	5	2.5	✗	5	✗	15	✓	50	✓

After Bending										
Range	Zt (mohm/m)	F. (MHz)	C. A+ Limit	Class A+	C. A Limit	Class A	C. B Limit	Class B	C. C Limit	Class C
5MHZ - 30MHz	5.97	5	2.5	✗	5	✗	15	✓	50	✓

5. Screening attenuation after mechanical tests (30MHz-2150MHz) in coaxial cables

Measure

Date: **02-08-2019**

Applied Procedure

Procedure: **INT-OEM-004**

Title: **Screening attenuation after mechanical tests (30MHz-2150MHz) in coaxial cables**

Standard | Standard Limit

Standard: **EN 50117-2-4:2004**

Paragraph: **5.1.2.7**

Title: **Coaxial cables.**

Part 2-4: Sectional specification for cables used in cable distribution networks. Indoor drop cables for systems operating at 5MHZ - 3000MHZ.

Paragraph: **Screening attenuation. Triaxial Method**

Standard Method

Standard: **EN 50289-1-6:2002**

Paragraph: **8**

Title: **Communication cables. Specifications for test methods.**

Part 1-6: Electrical test methods. Electromagnetic performance.

Paragraph: **Screening attenuation. Triaxial Method**

Standard Method

Standard: **EN 50289-3-9:2001**

Paragraph: **4.3.1**

Title: **Communication cables - Specifications for test methods.**

Part 3-9: Mechanical test methods. Bending tests.

Paragraph: **Single bending (helix bend)**

Standard Method

Standard: **EN 50289-3-9:2001**

Paragraph: **8.3.2**

Title: **Communication cables - Specifications for test methods.**

Part 3-9: Mechanical test methods. Bending tests.

Paragraph: **Cable bending under tension - dynamic test (S bend)**

Environmental Conditions

Temperature: **22.1°C**

Humidity: **52.1%**

Atmospheric Pressure: **1003mbar**

Used Equipment

Id	Equipment	Trade Mark	Model	Serial No.
369	50/75 Matching Pad	Agilent	11852B	55420
158	Cable Agilent 11500B (12.4GHz)	Agilent	11500B	50438
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140	Signal generator R&S (9KHz-3.3GHz)	R&S	SML03 - ref 1090.3000.13	102479
41	Measurement receiver R&S ESPI 3 9KHz-3GHz	R&S	ESPI-ref 1142.8007.03	100044
306	Triaxial system CoMeT	Rosenberger - Bedea	----	----
345	Bending test system	----	----	----

Measure Data

Measure No.: **1**

Measure Date: **02-08-2019**

Tube length: **2 m**

Simple Bending in Helix

Cycle No.: **2**

Laps No.: **4**

Mandrel Diameter (cm): **15**

Preparation of Extremes: **F Connector**

Tension Device: **Bending Test System**

Length of Sample (m): **2.3**

Dynamic Bending in `S`

Cycle No.: **1**

Pulley Radius (cm): **7.5**

Distance between Centers (cm): **30**

Bending Length (cm): **100**

Bending Angle (°): **120**

Displacement Speed: **<1m/s**

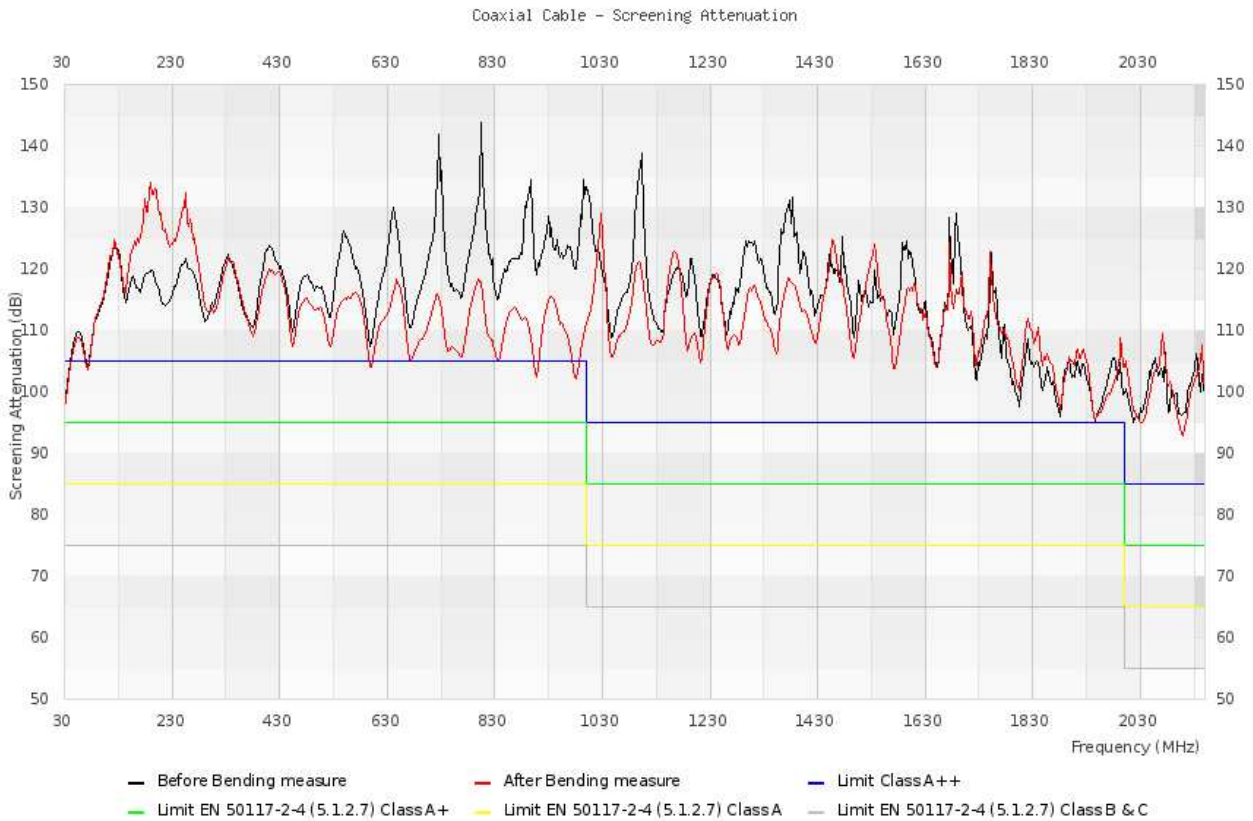
Preparation of Extremes: **F Connector**

Tension Device: **Bending Test System**

Length of Sample (m): **2.3**

Maximum Tension (N): **1.5**

Graph



Before Bending								
Range	Screening Attenuation (dB)	Frequency (MHz)	C. A+ Limit	Class A+	C. A Limit	Class A	C. B & C Limit	Class B & C
30MHz - 1GHz	97.39	30	95	✓	85	✓	75	✓
1GHz - 2GHz	95.31	1946	85	✓	75	✓	65	✓
2GHz - 2.15GHz	94.99	2018	75	✓	65	✓	55	✓

After Bending								
Range	Screening Attenuation (dB)	Frequency (MHz)	C. A+ Limit	Class A+	C. A Limit	Class A	C. B & C Limit	Class B & C
30MHz - 1GHz	97.06	30	95	✓	85	✓	75	✓
1GHz - 2GHz	95.48	1946	85	✓	75	✓	65	✓
2GHz - 2.15GHz	92.83	2110	75	✓	65	✓	55	✓