

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Cable networks for television signals, sound signals and interactive services –
Part 5: Headend equipment**

**Réseaux de distribution par câbles pour signaux de télévision, signaux de
radiodiffusion sonore et services interactifs –
Partie 5: Équipements de tête de réseau**





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NORME INTERNATIONALE

**Cable networks for television signals, sound signals and interactive services –
Part 5: Headend equipment**

**Réseaux de distribution par câbles pour signaux de télévision, signaux de
radiodiffusion sonore et services interactifs –
Partie 5: Équipements de tête de réseau**

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CONTENTS

FOREWORD.....	9
INTRODUCTION.....	11
1 Scope.....	12
2 Normative references.....	15
3 Terms, definitions, symbols and abbreviations.....	17
3.1 Terms and definitions.....	17
3.2 Symbols.....	21
3.3 Abbreviations.....	22
4 Methods of measurement.....	24
4.1 Methods of measurement for digitally modulated signals.....	24
4.1.1 General.....	24
4.1.2 Basic assumptions and measurement interfaces.....	24
4.1.3 Signal level for digitally modulated signals.....	24
4.2 Single-channel intermodulation specification for channel amplifier and frequency converter.....	26
4.3 Three-carrier intermodulation measurement.....	27
4.4 Two carrier intermodulation measurements for second- and third-order products.....	28
4.4.1 General.....	28
4.4.2 Intermodulation products with test signals at frequencies f_a and f_b	29
4.4.3 Signal levels.....	29
4.5 Carrier-to-spurious signal ratio at the output.....	29
4.5.1 Carrier-to-spurious signal ratio at the output of equipment for AM TV systems.....	29
4.5.2 Carrier-to-spurious signal ratio at the output of equipment for FM TV systems.....	30
4.5.3 Shoulder attenuation.....	31
4.6 Signal-to-noise measurement.....	32
4.6.1 Television carrier-to-noise ratio (analogue modulated signals).....	32
4.6.2 RF signal-to-noise ratio ($S_{D,RF}/N$) for digitally modulated signals.....	35
4.7 Differential gain and phase for PAL/SECAM signals.....	36
4.7.1 General.....	36
4.7.2 Differential gain (for PAL/SECAM only).....	37
4.7.3 Differential phase.....	38
4.8 Group delay measurements.....	41
4.8.1 Group delay variation of analogue TV signals.....	41
4.8.2 Procedure for the measurement of group delay variation on DVB channel converters.....	42
4.9 Phase noise of an RF carrier.....	45
4.9.1 General.....	45
4.9.2 Equipment required.....	45
4.9.3 Connection of the equipment.....	46
4.9.4 Measurement procedure.....	46
4.9.5 Presentation of the results.....	46
4.10 Hum modulation of carrier.....	48
4.10.1 General.....	48
4.10.2 Description of the method of measurement.....	48

4.10.3	Measuring procedure	49
4.10.4	Calculating the hum modulation ratio	50
4.11	2T-pulse response, <i>K</i> -factor	51
4.12	Chrominance-luminance delay inequalities (20T-pulse method)	52
4.13	Luminance non-linearity	54
4.14	Intermodulation distortion (FM stereo radio)	54
4.14.1	General	54
4.14.2	Equipment required	55
4.14.3	Connection of equipment	55
4.14.4	Measurement	55
4.15	Decoding margin (teletext)	55
4.15.1	General	55
4.15.2	Method of measurement and measuring set-up (Figure 31)	56
4.15.3	Applicability of measuring set-up	56
5	Performance requirements and recommendations	56
5.1	Safety	56
5.2	Electromagnetic compatibility	56
5.3	Environmental	56
5.4	Marking	57
5.4.1	Marking of equipment	57
5.4.2	Marking of ports	57
6	Equipment characteristics required to be met	57
6.1	General	57
6.2	Power supply voltage	58
6.3	RF signal requirements	58
6.3.1	Impedance (input)	58
6.3.2	Impedance (output)	58
6.3.3	Return loss (input, output) of equipment	58
6.3.4	Return loss (output, of headend)	58
6.3.5	Typical back-off for digital against analogue signals	58
6.3.6	Immunity against other signals in the FM radio and TV range	59
6.3.7	Carrier-to-spurious-signals ratio at output in the frequency range of 40 MHz to 862 MHz	59
6.3.8	Image rejection for AM TV and FM radio	60
6.3.9	Carrier to local oscillator signal ratio at the output for AM TV and FM radio	60
6.3.10	Frequency stability	60
6.3.11	Phase noise of digital modulated signals at the output of the headend	61
6.3.12	In-channel group delay variation for digital modulated signals	62
6.3.13	In-channel peak-to-peak amplitude response variation for digitally modulated signals	63
6.3.14	Stability of sound intercarrier	63
6.3.15	Stability of residual carrier amplitude	63
6.3.16	Frequency stability – SAT IF/IF converter	63
6.3.17	Typical modulation error ratio (MER) for a QAM signal	64
6.3.18	Minimum <i>C/N</i> values at the output of the headend	64
6.4	Composite video signal requirements	64
6.4.1	Impedance	64
6.4.2	Return loss	65

6.4.3	Signal voltage	65
6.4.4	Polarity	65
6.4.5	Offset voltage	65
6.5	Audio signal requirements	65
6.5.1	Input impedance	65
6.5.2	Output impedance	65
6.5.3	Signal level	65
6.6	Requirements for decoding margin (teletext)	66
6.7	IF signal requirements (AM-TV)	66
6.7.1	Impedance	66
6.7.2	Return loss	66
6.8	Antennas for terrestrial reception	66
6.8.1	Impedance	66
6.8.2	Return loss	66
6.9	Antenna amplifier	66
7	Equipment characteristics required to be published	67
7.1	General	67
7.2	Environmental conditions	67
7.3	Maximum permissible output level	67
7.4	Operating range for output level	68
7.5	TV standard	68
7.6	Clamp	68
7.7	Noise figure	68
7.7.1	Equipment without AGC	68
7.7.2	Equipment with AGC	69
7.8	Data control signals, description of interface	69
7.9	Output level stability for TV modulators, TV converters and pilot generators	69
7.10	Pilot signal	69
7.11	Differential gain and phase	70
7.11.1	Differential gain	70
7.11.2	Differential phase	70
7.12	Group delay variation for analogue TV signals	70
7.13	Luminance non-linearity	70
7.14	2T-pulse	71
7.15	20T-pulse	71
7.16	Hum modulation	71
7.17	Television carrier-to-noise ratio	71
7.18	Audio in TV	71
7.19	Processing units for FM radio	72
7.19.1	Audio input	72
7.19.2	Stereo crosstalk	72
7.19.3	Total harmonic distortion	72
7.19.4	Intermodulation distortion	72
7.19.5	Deviation, pre-emphasis	72
7.20	Antennas for terrestrial reception	72
7.20.1	Antenna gain	72
7.20.2	Sidelobe suppression	72
7.20.3	Return loss of antennas	72
7.21	Control signals for outdoor units	73

Annex A (normative) Definition of the specified test frequency range for return loss and noise figure	74
A.1 Test frequency range for TV channel processor	74
A.2 Test frequency range for sub-band, full-band and multi-band amplifiers	74
A.3 Test frequency range for an FM radio channel processor	74
Annex B (informative) Audio connector for European system according to IEC 60130-9	76
B.1 Contact allocation and mechanical dimensions	76
B.2 Signal-to-pin allocations and applications	76
Annex C (informative) Selectivity diagram for adjacent channel transmission	77
C.1 General	77
C.2 TV modulator for standard PAL B/G with mono or stereo sound	77
C.3 TV modulator for standard PAL B/G with NICAM 728 in the lower adjacent channel	78
C.4 Standard PAL I	78
C.5 Group delay for the standards B/G, D/D1/K and I	79
C.6 Group delay pre-correction for TV modulator for standard B/G	79
C.7 TV modulator for standard SECAM L	80
C.8 Group delay for TV modulator for standard SECAM L	80
C.9 TV modulator for standard PAL D/K with mono or stereo sound	81
Annex D (informative) Differences in some countries	82
D.1 General	82
D.2 Finland, Sweden	82
Annex E (normative) Correction factors for noise	83
E.1 Signal level measurement	83
E.2 Noise level measurement	83
Annex F (informative) Digital signal level and bandwidth	85
F.1 RF/IF power ("carrier")	85
F.2 Occupied bandwidth of a digital signal	85
F.2.1 QAM/QPSK modulation	85
F.2.2 OFDM modulation	86
F.3 Noise bandwidth	86
F.3.1 General	86
F.3.2 QAM/QPSK/8 PSK modulation	87
F.3.3 OFDM modulation	87
F.4 Equivalent signal bandwidth	87
F.4.1 General	87
F.4.2 QAM/QPSK/8 PSK modulation	87
F.4.3 OFDM modulation	87
F.5 Examples	87
Annex G (informative) Minimum frequency distance of converted satellite signals in the IF range	89
Annex H (informative) Measurement errors which occur due to mismatched equipment	90
Annex I (normative) Correction factor for spectrum analyser	91
Bibliography	92
Figure 1 – Example of headend	13
Figure 2 – Examples of IP gateways/interfaces at the input of headends	14
Figure 3 – Examples of IP gateways and interfaces at the output of central headends	15

Figure 4 – Frequencies and levels of test carriers	27
Figure 5 – Test carrier and interfering products in the pass band	28
Figure 6 – Example showing products formed when $2f_a > f_b$	29
Figure 7 – Carrier-to-spurious signal ratio at the output	30
Figure 8 – Carrier-to spurious signal ratio at the output.....	31
Figure 9 – Shoulder attenuation	31
Figure 10 – Arrangement of test equipment for carrier-to-noise ratio measurement.....	32
Figure 11 – Arrangement of test equipment for measurement of differential gain and phase	40
Figure 12 – Signal D2 waveform.....	40
Figure 13 – Example of modified staircase	40
Figure 14 – Measuring set-up for determining the group delay variation	41
Figure 15 – RF signal (time domain) amplitude-modulated with a split-frequency signal.....	42
Figure 16 – Spectral presentation of the group delay measurement.....	43
Figure 17 – Description of the measuring set-up.....	44
Figure 18 – Choices of measuring aperture (value of the split frequency) for various measurement tests	44
Figure 19 – Test set-up for phase noise measurement.....	46
Figure 20 – Mask for phase noise measurements	47
Figure 21 – Carrier/hum ratio	48
Figure 22 – Test set-up for equipment with built-in power supply.....	49
Figure 23 – Test set-up for equipment with external power supply.....	49
Figure 24 – Oscilloscope display	50
Figure 25 – <i>K</i> -factor mask for quality grade 2	52
Figure 26 – Generation of 20 <i>T</i> -pulse	53
Figure 27 – Example of amplitude and delay error using 20 <i>T</i> -pulse.....	53
Figure 28 – Staircase signal for measurement of luminance non-linearity before and after differentiation.....	54
Figure 29 – Example of a possible frequency combination displayed on a spectrum analyser	54
Figure 30 – Arrangement of test equipment for intermodulation distortion.....	55
Figure 31 – Principal measuring set-up for determination of decoding margin.....	56
Figure 32 – Example of diagram of <i>NF</i> , <i>C/N</i> or <i>S/N</i> for equipment with AGC.....	69
Figure A.1 – Test frequency range for TV channel processors.....	74
Figure A.2 – Test frequency range for sub-band, full-band and multi-band amplifiers.....	74
Figure A.3 – Test frequency range for an FM radio channel processor	75
Figure B.1 – Contact allocation and mechanical dimensions	76
Figure C.1 – Selectivity diagram for PAL B/G with mono or stereo sound	77
Figure C.2 – Selectivity diagram for PAL B/G with NICAM 728 in the lower adjacent channel	78
Figure C.3 – Selectivity diagram for PAL I	79
Figure C.4 – Group delay mask for the standards B/G, D/D1/K and I.....	79
Figure C.5 – Group delay pre-correction diagram for standard B/G	80
Figure C.6 – Selectivity diagram for SECAM L.....	80
Figure C.7 – Group delay mask for SECAM L	81

Figure C.8 – Selectivity diagram for PAL D/K.....	81
Figure E.1 – Noise correction factor CF (dB) versus measured level difference D (dB)	84
Figure G.1 – Frequency tolerance of converted signals in the IF range.....	89
Figure H.1 – Error concerning return loss measurement	90
Figure H.2 – Maximum ripple	90
Table 1 – Test signal levels for the different television standards in decibels relative to reference level.....	27
Table 2 – Test signal levels in decibels relative to reference level.....	28
Table 3 – Test signal levels for sound and vision carriers in decibels relative to reference level.....	30
Table 4 – Noise bandwidth.....	34
Table 5 – Frequency distances for phase noise measurement.....	47
Table 6 – Publications for environmental requirements of headend equipment	57
Table 7 – Return loss (input, output) of equipment.....	58
Table 8 – Return loss (output) of headend.....	58
Table 9 – Typical levels of digital signals with respect to analogue signals (back-off)	59
Table 10 – Carrier-to-spurious-signals ratio of digital modulated channel with respect to the peak level of an analogue TV carrier.....	60
Table 11 – Frequency stability for AM TV related to the nominal AM TV frequency	60
Table 12 – Long-term frequency stability for digital modulated signals	61
Table 13 – Shoulder attenuation for digital modulated signals.....	61
Table 14 – Phase noise of a DVB signal (PSK and QAM).....	62
Table 15 – Phase noise of a DVB signal (OFDM)	62
Table 16 – In-channel group delay variation for digital modulated signals.....	62
Table 17 – In-channel peak-to-peak amplitude response variation of DVB signals	63
Table 18 – Stability of sound inter-carrier	63
Table 19 – Stability of residual carrier amplitude.....	63
Table 20 – Frequency stability – SAT IF/IF converter.....	64
Table 21 – Minimum requirements for MER for different QAM modulation schemes	64
Table 22 – C/N values for converters at the headend output	64
Table 23 – Return loss	65
Table 24 – Signal voltage.....	65
Table 25 – Signal level.....	66
Table 26 – Requirements for decoding margin (Teletext)	66
Table 27 – Return loss – IF signal.....	66
Table 28 – Return loss – Antennas for terrestrial reception	66
Table 29 – Recommended temperature ranges.....	67
Table 30 – Carrier-to-third-order intermodulation ratio for maximum output level of channel amplifiers/frequency converters.....	67
Table 31 – Carrier-to-third-order intermodulation ratio for maximum output level of sub-band, full band, multi-band amplifiers and multi-channel frequency converters for AM TV (not for channel amplifier)	67
Table 32 – Carrier-to-second-order intermodulation ratio for maximum output level of sub-band, full band, multi-band amplifiers and frequency converters for AM TV or FM radio (not for channel amplifier).....	68

Table 33 – Carrier-to-intermodulation ratio for maximum output level of FM-TV channel amplifiers/frequency converters.....	68
Table 34 – Carrier-to-third-order intermodulation ratio for maximum output level of FM TV full band, sub-band amplifiers	68
Table 35 – Output level stability for TV modulators, pilot generators and TV converters.....	69
Table 36 – Recommendation for differential gain	70
Table 37 – Recommendation for differential phase	70
Table 38 – Recommendation for group delay variation.....	70
Table 39 – Recommendation for luminance non-linearity	71
Table 40 – <i>K</i> -factor masks for 2 <i>T</i> -pulse responses	71
Table 41 – Recommendations for sidelobe suppression.....	72
Table 42 – Recommendation for return loss of antennas.....	72
Table B.1 – Mechanical dimensions	76
Table B.2 – Signal-to-pin allocation.....	76
Table B.3 – Application	76
Table C.1 – Selectivity table for PAL B/G with mono or stereo sound.....	78
Table C.2 – Group delay pre-correction table for standard B/G	80
Table E.1 – Noise correction factor	83
Table F.1 – Total number of carriers and channel spacing for the OFDM modes (8 MHz channel).....	86
Table F.2 – Examples of bandwidths for digital modulation techniques.....	88

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**CABLE NETWORKS FOR TELEVISION SIGNALS,
SOUND SIGNALS AND INTERACTIVE SERVICES –****Part 5: Headend equipment**

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This third edition cancels and replaces the second edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- new text for the introduction, following the scope of IEC TC 100/TA 5;
- introduction of IPTV to the scope;
- headend specification for digital terrestrial TV signals according to the DVB-T2 standard;

- headend specification for digital TV signals in cable networks according to the DVB-S2 standard.

The text of this standard is based on the following documents:

FDIS	Report on voting
100/2555/FDIS	100/2602/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The list of all the parts of the IEC 60728 series, under the general title *Cable networks for television signals, sound signals and interactive services*, can be found on the IEC website.

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INTRODUCTION

The IEC 60728 series deals with cable networks, including equipment and associated methods of measurement for headend reception, processing and distribution of television and sound signals and for processing, interfacing and transmitting all kinds of data signals for interactive services using all applicable transmission media. These signals are typically transmitted in networks by frequency-multiplexing techniques.

This includes for instance

- regional and local broadband cable networks,
- extended satellite and terrestrial television distribution networks or systems,
- individual satellite and terrestrial television receiving networks or systems,

and all kinds of equipment, systems and installations used in such cable networks, distribution and receiving systems.

The extent of this standardization work is from the antennas and/or special signal source inputs to the headend or other interface points to the network up to the terminal input of the customer premises equipment.

The standardization work will consider coexistence with users of the RF spectrum in wired and wireless transmission systems.

The standardization of any user terminals (i.e. tuners, receivers, decoders, multimedia terminals, etc.) as well as of any coaxial, balanced and optical cables and accessories thereof is excluded.

CABLE NETWORKS FOR TELEVISION SIGNALS, SOUND SIGNALS AND INTERACTIVE SERVICES –

Part 5: Headend equipment

1 Scope

This part of IEC 60728 specifies the characteristics of equipment used in the headends of terrestrial broadcast and satellite receiving systems (without satellite outdoor units and without those broadband amplifiers in the headend as described in IEC 60728-3). The satellite outdoor units for fixed satellite systems (FSS) are described in ETSI ETS 300 158, and for broadcast satellite systems (BSS) in ETSI ETS 300 249. Test methods for both types (FSS and BSS) of satellite outdoor units are laid down in ETSI ETS 300 457.

This part of IEC 60728

- a) covers the frequency range 5 MHz to 3 000 MHz;
- b) identifies performance requirements for certain parameters;
- c) lays down data publication requirements for certain parameters;
- d) stipulates methods of measurements;
- e) introduces minimum requirements defining quality grades (Q-grades).

This part of IEC 60728 specifies the overall characteristics for upstream/downstream signals between external sources/sinks (for example, antennas, cable modem termination systems, etc.) and the system interface to the cable network. In the case of modular headend systems, single equipment items such as modulators, converters, etc. are also described. Cable modem termination systems, encrypters, decrypters, etc. are not described in this part of IEC 60728. If such equipment is used in headends, the relevant parameters for RF, video, audio and data interfaces should be met.

According to the definitions in 3.1, the headends are divided into the following three quality grades:

- Grade 1: central headend;
- Grade 2: hub headend or hubsite;
- Grade 3: MATV headend/individual reception headend.

Figure 1 shows the block diagram of a headend consisting of typical processing units with the corresponding interfaces at the input and output.