HKTA 1103
ISSUE 4
SEPTEMBER 2000

PERFORMANCE REQUIREMENTS

OF

TELEVISION SIGNALS INPUT

TO THE HEAD END

OF

SUBSCRIPTION TELEVISION SYSTEM

TELECOMMUNICATIONS AUTHORITY
HONG KONG

FOREWORD

1. This specification provides the estimated deviations of the television signals at the input to the head end of the subscription television system.

2. The Telecommunications Authority (TA) reserves the right to revise the contents of this specification without prior notice.

3. In case of any doubt about the interpretation of this specification and the methods of carrying out the tests, the decision of the TA shall be final.

4. The HKTA series specifications are issued by the TA. The documents can be downloaded directly through the OFTA's Internet Home Page at www.ofta.gov.hk.

5. The publications from the International Telecommunication Union (ITU) can be obtained from

   International Telecommunication Union
   Place des Nations
   CH-1211 Geneva 20
   Switzerland
   Tel: +41 22 730 6141
   Fax: +41 22 730 5194

6. If further information is required, please contact:

   Chief Telecommunications Engineer (Advisory & Planning)
   Office of the Telecommunications Authority
   29/F, Wu Chung House,
   213 Queen's Road East, Wanchai,
   Hong Kong.

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1. INTRODUCTION

Between the programme originating source and the input to the head end, there is considerable amount of equipment which will introduce distortion. The quantity of this equipment will depend on the particular type of programme and the organisation staging the programme. To give a guide to the magnitude of distortion to be expected, a notional chain has been postulated. This chain comprises:

(a) One coder;

(b) Studio equipment, comprising mixers, switching matrices and normal ancillary equipment; and

(c) Three video tape recorders (three recording and three replay processes).

2. PERFORMANCE DEVIATIONS

2.1 The deviations shown in the following table are neither tolerances laid down in formal specifications of equipment, nor limits assigned for maintenance purposes. They are estimates, based upon operational experience, of deviations considered to have a high probability (say > 90%) of not being exceeded when the equipment is installed and operated in accordance with current specifications and maintenance practices.

2.2 Column D of the table represents the estimated deviations at the studio output i.e. at the input to the head end. The figures in this column for the parameters numbered 1 to 10 are determined either by the coder or by the final mixer rather than by the addition of column A, B and C. In all other cases, the additions given in column D were made on a power-law basis in accordance with the latest edition of ITU-T Recommendation J.61. In the absence of specific guidance from this source, the exponent h was taken to be 3/2 for the parameters numbered 11, 12 and 17.

2.3 Table 1 is prepared with reference to Appendix IV of Commercial Television Code of Practice on Technical Standards.

Table 1

Estimated deviations from ideal performance, having a high probability of not being exceeded, for System I (PAL) from coder input to head end input

Parameter No.	Parameter	A Coder	B Studio Equipment	C Video Tape Recorder	D A+B+C
1*	Colour sub-carrier frequency error	± 1 Hz	± 1 Hz	± 1 Hz	± 1 Hz
2	Maximum rate of change of sub-carrier frequency	0.1 Hz/s	0.1 Hz/s	0.1 Hz/s	0.1 Hz/s
3	Error in phase quadrature between U and V components of chrominance signal	± 1 degree	± 0 degree	± 0 degree	± 1 degree
4	Delay inequality between U and V components of chrominance signal	± 5 ns	± 0 ns	± 0 ns	± 5 ns
5	Maximum residual (synchronous) sub-carrier when chrominance signal should be zero	0.5 %	0.5 %	0 %	1 %
6	Error in duration of colour burst measured between half-amplitude points on envelop	± 230 ns	± 230 ns	± 230 ns	± 230 ns
7	Error in mean amplitude of colour bursts	± 1 %	± 3 %	± 3 %	
8	Difference in amplitude of bursts on successive lines	5 %	5 %	5 %	
9	Error in start of colour burst, measured between half-amplitude points of leading edge of sync and leading edge of burst envelop	± 100 ns	± 100 ns	± 100 ns	

Parameter No.	Parameter	A Coder	B Studio Equipment	C Video Tape Recorder	D A+B+C
10	Errors in phase angles between individual bursts and the mean burst phase	± 0.5 degrees	± 0.5 degrees	± 0.5 degrees	
11	Chrominance signal phase errors with respect to mean phase of the bursts, independent of luminance signal magnitude and chrominance quadrature errors and measured near to or at blanking level	± 0.5 degrees	± 2 degrees	± 2 degrees	± 2 degrees
12	Error in the ratio between the amplitude of the colour burst and that of the chrominance signal	± 1 %	± 7 %	± 6 %	± 11 %
13	Random noise, unweighted	70 dB	55 dB	39 dB	39 dB
14	Non-linearity luminance	± 1 %	± 4 %	± 12 %	± 14 %
15	Differential gain	± 0 %	± 6 %	± 10 %	± 13 %
16	Differential phase	± 0 degrees	± 6 degrees	± 8 degrees	± 11 degrees
17	Chrominance-luminance crosstalk	± 0 %	± 2 %	± 4 %	± 5 %
18	K (bar)	0.5 %	2 %	3 %	4 %
19	K (2T pulse)	0.5 %	2 %	3 %	4 %
20	K (2T pulse/bar ratio)	0.5 %	2 %	3 %	4 %
21	Gain inequality	± 2 %	± 5 %	± 5 %	± 7 %
22	Delay inequality	± 5 ns	± 40 ns	± 35 ns	± 53 ns

Note: * Where the signal originates from a portable or an overseas source, this error may be increased to ±5 Hz.