



Deputy Director (Competition and Consumer Policy)

Media Development Authority of Singapore

Attn : Ms Lee Ee Jia (c/o Mr. Twang Geng Chong, John)

24 January 2014

Response to Public Consultation Paper for the Proposed Code of Practice for Television Broadcast Standards

Dear Sir,

MDA published a public consultation paper on 9 December 2013 regarding the proposed Code of Practice for Television Broadcast Standards. As the key Free-To-Air television broadcaster in Singapore, MediaCorp would like to give our comments and suggestions in the Proposed Code. Details of our feedback are attached herewith in MS Word format.

If you need further clarification, please contact the undersigned at:

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Thank you for your attention.

Yours sincerely,

Lau Hing Tung

Senior Vice President (Technologies)

MediaCorp's Response
to
MDA Proposed Public Consultation
on
the Code of Practice
for
Television Broadcast Standards

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I. Summary of Major Points

- a) Under clause 3.2.2 Obligations for Licensees to meet specified requirements, we recommend that the minimum field strength be in accordance with the relevant ITU recommendation or ITU report.
- b) Under clause 5.1c, we suggest that the measurement of Channel Availability be at the Point of Interconnect to the transmission network/webhosting server.
- c) Under clause 5.1d, we recommend that a duration to be set to measure Outage.
- d) Under clause 5.1f & g, we suggest that Encoder/Multiplexer to be part of Service ORI.
- e) Under clause 5.2.2c & d, we suggest that we calculate Analogue terrestrial TV services and DTV services ORI based on an average of past 12 months instead of monthly.
- f) Under clause 5.2.3c, we recommend to use transmission coverage prediction to calculate the Normalisation factor (N).
- g) Under clause 5.2.3e, we suggest listing various scenarios for exemption from the computation of ORI results.
- h) Under clause 5.3.2a, we propose further granularity in calculation of the ORI.
- i) Under clause 5.3.3c, R should be based on total number of service operation hours in a calendar month.
- j) Under clause 5.3.3e, we propose to exclude outages that occur due to factors not under the control of the Licensee.
- k) Under clause 5.3.3f, we propose that complaints arising from issues due to the customer's broadband or mobile service operator be excluded as well.
- l) Under clause 6.1a, loudness requirement for OTT TV should be applicable to linear channels only.
- m) We have also provided some clarifications on the Reporting requirements for the various sections of the Code.

II. Statement of Interest

MediaCorp Pte Ltd. is a local broadcaster which offers Free-To-Air (FTA) television services over the terrestrial platform in Singapore as well as Over-The-Top (OTT) television services over the internet platform. We hold licenses of FTA Nationwide TV Broadcast and Digital TV Broadcasting Services, and Nationwide Subscription Television issued by MDA.

The proposed Code of Practice for television broadcast standards published by MDA on 9 December 2013 suggests a series of standards and reporting regime that the respective broadcasters are to comply. According to MDA, these standards are necessary to safeguard consumers' interests. As television broadcast involves complex production and transmission processes, the compliance to the proposed standards would involve significant compliance costs for the organization. Therefore in response to the proposed Code, MediaCorp would like to clarify and give suggestions on relevant items of the proposed Code which we consider are fair changes and are justifiable. We would also comment on the reporting requirements where efforts are needed to prepare for MDA's consumption.

We appreciate that MDA would consider our feedback positively and make relevant adjustments to the Code.

III. Comments

1. TV Signal Strength Requirements

1.1 Minimum signal strength for Analogue terrestrial broadcast TV services (clause 3.2.2a)

MDA's definition:

A Licensee providing free-to-air nationwide Analogue terrestrial broadcast TV services shall ensure that the outdoor TV signal strength within the required coverage area for such services shall not fall below the minimum signal strength of 65 dB μ V/m for Band IV and 70 dB μ V/m for Band V, as specified in Recommendation ITU-R BT.4703. These requirements apply to the median field strength at a height of 10m above ground level.

MediaCorp's response: According to ITU-R 417, in the absence of interference from other television transmissions and man-made noise, the minimum field strengths at the receiving antenna that will give a satisfactory grade of picture, taking into consideration receiver noise, cosmic noise, antenna gain and feeder loss, are: 62 dB μ V/m in Band IV and 67 dB μ V/m in Band V. We suggest revising the minimum signal strength to the figures recommended in ITU-R 417.

1.2 Obligations for Licensees to meet specified requirements (clause 3.2.2)

Minimum signal strength for DTV services (clause 3.2.2b)

MDA's definition:

A Licensee providing free-to-air nationwide DTV services shall ensure that the outdoor TV signal strength within the required coverage area for such services shall not fall below the minimum signal strength of 74 dB μ V/m at a height of 1.5m above ground level.

MediaCorp's response:

The minimum field strength for DTV services should not be a single fixed figure as:

- *field strength requirement depends on many factors, including MODCOD (modulation & code rate), Pilot Pattern, Location Probability, Building Penetration Loss, Receiver Noise Figure, Channel Profile, Frequency, etc.,*
- *broadcaster may plan different type of services (fixed service, portable indoor, portable outdoor, mobile etc.) and the field strength requirement will be different, and*
- *for the same type of service, broadcaster may choose to use more robust mode of transmission to achieve the same level of service with lower field strength.*

We propose that the minimum field strength for DTV services to be in accordance with relevant ITU recommendations, similar to that of Analogue terrestrial broadcast TV service. As DVB-T2 is new, the planning criteria have yet to be included in Recommendation ITU-R BT.1368. In the interim period, we propose that broadcaster to plan services based on Report ITU-R BT2254.

In Report ITU-R BT2254, the recommended minimum median field strength for portable indoor reception (64-QAM, FEC 2/3, 16k, building penetration loss of 11dB) is 67dBuV/m at 650MHz. By using a more robust transmission mode (FEC 3/5), lower operating frequency (up to 570MHz) and lower building penetration loss (10dB), the required minimum median field strength should be lower than 67dBuV/m rather than 74dBuV/m.

Further, our measurement results indicate that indoor reception is achievable with field strength of 67 dBuV/m when using the more robust transmission mode which we are deploying since DSO. Thus, the minimum field strength should be 67 dBuV/m or below.

Broadcaster may plan its service by adding extra margin to compensate for unforeseen factors and/or limitation in the planning tools. For example, the clutter factor (with a 2D map) applies to a wide area. There will certainly be variation within the wide area. Broadcaster may add margin to compensate for such variation to achieve the same minimum field strength.

Broadcaster may also add margin over and above the minimum field strength for higher grade of service.

These extra margins (over and above the minimum field strength) added by broadcasters for planning purpose do not change the minimum field strength, which remains as the minimum field strength required to ensure the minimum signal level at the receiver is achieved for a receiver to successfully decode a signal.

In summary, we recommend the minimum field strength to be in accordance with relevant ITU recommendation or ITU Report.

2. **Reliability Requirements** - Introduction (clause 5.1)
- 2.1 Channel & Service Availability (clause 5.1 c)
- 2.1.1 MDA's definition

“Channel Availability” refers to the time during which an individual programme channel is available as measured at the point of delivery into the transmission network/webhosting server.

MediaCorp’s response: We suggest that the measurement of Channel Availability for an individual channel shall be at the Point of Interconnect to the transmission network/webhosting server.

2.2 The Interpretation of Outages (Clause 5.1d)

2.2.1 MDA’s definition:

An outage is considered to have occurred when (i) there is an absence of channel or service, or (ii) the subjective quality of a channel or service is annoying to viewers. This would include instances where there is an intermittent or persistent loss of audio or video for one or more channels, or when the broadcaster is incapable of maintaining the subjective quality of a channel or service at Grade 3 or more on the ITU-R 5-Point Scale.

MediaCorp’s response:

We are of the view that considering an outage to have occurred when “(i) there is an absence of channel or service”, is too wide and does not contemplate situations where there is a deliberate absence on the screen. Accordingly, it would be clearer to define the duration of the specific disruptions in order to avoid any ambiguity. In our current MediaCorp’s definition, an outage is considered to have occurred when :

- (i) there is black on-air for 3 seconds or more.*
- (ii) there is freeze frame for 6 seconds or more.*
- (iii) there is audio loss of 6 seconds or more.*

The above outage definition takes into consideration of the fact that there may be intentional black, freeze frame as well as silence in programmes. Moreover, configuring the system alarm to trigger at every instance of black, freeze frame or silence will create a lot of false alarms. Based on our experience, intentional black would usually last less than 3 seconds while freeze frame would last less than 6 seconds and silence at less than 6 seconds.

We do not agree that an outage is considered to have occurred when “(ii) the subjective quality of a channel or service is annoying to viewers”. Instead this should be classified as a degradation of service quality. Moreover it is difficult to define what is annoying to viewers and that it is ambiguous to use subjective quality as a reliability measurement where it is difficult to define. As an analogy, would an outage or disruption of a public transport service be deemed to have occurred if the subjective quality such as the temperature of the air conditioning, ride comfort (smooth or jerky), engine or ambience noise, cleanliness, odour, congestion and so on, is annoying to the commuters? An outage or disruption of a public transport service would be deemed to have occurred only if there is a break in service.

Therefore we suggest that since picture and audio quality requirement has been set up as part of TV broadcasting standards in section 4, the measure of reliability should not overlap with the requirements in this section where the licensee is required to report the viewer’s complaints. The genuine viewers’ complaint is a measurement of the acceptability of the picture quality from the public and this can form the basis of assessing the degradation of quality performance instead of treating them as “outages”.

3. The Coverage of Channel ORI and Service ORI

3.1 Coverage of Channel ORI (clause 5.1f)

MDA's definition: Channel ORI –covers Content source playout and Encoder/Multiplexer

MediaCorp's response: We suggest that Encoder/Multiplexer to be part of Service ORI.

In the case of Pay TV service providers like SingTel or Starhub, MediaCorp's TV services is delivered to them at the Point of Interconnect (POI) to their transmission network or head end., The POI is defined as the signal delivery point where MediaCorp handover the TV signal to the Pay TV operator. Currently the POI of digital TV signals for the Pay TV operators is at the Satellite Operation Center of MediaCorp's headquarter (i.e. Caldecott Broadcast Center). MediaCorp will send the respective SD or HD TV channel baseband signals to the Pay operators through the POI. In addition subtitle information is offered to be delivered by ASI Multiplex signal on separate circuits.

3.2 Coverage of Service ORI (clause 5.1g)

3.2.1 MDA's definition: Service ORI – covers Transmission network

MediaCorp's response: We suggest that the Service ORI for the pay TV operators for the FTA channels should include the contribution link as well as their Multiplex while MediaCorp shall meet its channel ORI up to the POI for any transmission platforms. For consistency with FTA on Pay TV platforms, MediaCorp's transmission Service ORI shall include the Multiplexer/encoder system. Likewise, if there is a third party FTA service provider operating a separate PLP on the same DVB-T2 frequency, the POI of the service provider can be located at their playout center provided that they agree with the transmission operator (e.g. MediaCorp) to take the baseband signals.

3.2.2 Obligations for Licensees to meet specified requirements (clause 5.2.2c and 5.2.2d)

MDA's definition:

For Analogue terrestrial TV services, the monthly Service ORI for analogue transmitter is maintained at 99.80%.

For DTV services, the monthly Service ORI for the main transmitter and each repeater are maintained at 99.90% and 99.50 respectively.

MediaCorp's response: We also suggest that, consistent with international practices, Service ORI be calculated based on an average of past 12 months. Transmission facilities are typically more complex and longer time may be needed to isolate and fix broadcasting problems.

References:

- Arqiva - Reference Offer for the provision of Transmission Services in respect of Ofcom's award of a licence for Local Digital Television Programme Services Version 1 (Publication Date: 9 March 2012):

SCHEDULE 11A

Total Time of Service Availability (option 1)

“The Total Time of Service Availability ("TTSA") calculated as a moving average over the preceding twelve calendar months (if there are less than 12 months since the Actual Service Start Date, the TTSA for the balance of the 12-month measurement period prior to the Actual Service Start Date shall be taken to be 100%) shall be no less than the percentages of Regular Hours shown in Table 1 below for each Station.

Table 1 TTSA targets

<i>First 12 months after Transmission commences</i>	<i>Thereafter</i>
<i>99.80</i>	<i>99.90</i>

SCHEDULE 11B

Total Time of Service Availability (option 2)

“The Total Time of Service Availability ("TTSA") calculated as a moving average over the preceding twelve calendar months (if there are less than 12 months since the Actual Service Start Date, the TTSA for the balance of the 12-month measurement period prior to the Actual Service Start Date shall be taken to be 100%) shall be no less than the percentages of Regular Hours shown in Table 1 below for each Station.

Table 1 TTSA targets

<i>First 12 months after Transmission commences</i>	<i>Thereafter</i>
<i>99.40</i>	<i>99.50</i>

3.2.3 Normalisation Factor (clause 5.2.3)

MDA’s definition:

In computing the Service ORI for outages that affect a localized area or a subset of viewers, the effective lost time shall be calculated using a normalization factor (N) based on the proportion of homes or viewers affected by the outage. The formula is:

$$\text{Effective lost time for outage} = \text{Normalisation factor (N)} * \text{Time lost due to outage.}$$

where $N = \text{Homes affected by outage} / \text{Total connected homes}$

MediaCorp’s response: For calculation of Normalization factor (N), we suggest that for terrestrial transmission network, the transmission coverage prediction be used as basis. Depending on the scale of the outage, N is determined by the percentage coverage loss of the whole network by removing one or more respective transmitters.

3.2.4 Service ORI –individual service for terrestrial transmission network (clause 5.2.3c)

MDA's definition:

In computing the Service ORI, for outages that affect a localized area or a subset of viewers, the effective lost time shall be calculated using a normalization factor (N) based on the proportion of homes or viewers affected by the outage.

MediaCorp's response: The definition for Service ORI is not clear whether it applies to individual channel (or service). As we suggest Encoder/Multiplexer to be part of Service ORI, we propose that the Service ORI shall be computed separately for each individual channel (or service).

3.2.5 Exemption from the computation of Service ORI (clause 5.2.3e)

MDA's definition:

The Channel ORI and Service ORI results should take into account loss of video or sound or control data essential to view the services due to any cause under the control, either directly or through contract arrangements, of the Licensee. Outages that occur due to factors not under the control of the Licensee may be exempted from the computation of ORI results, although they should be recorded in the monthly ORI reports as stipulated in clause 5.2.3(d).

MediaCorp's response: Periods of outages that are beyond the control of MediaCorp shall not be used in computing the downtime. We suggest listing various scenarios for exemption, whereby the ORI calculation shall exclude periods when outages originates from, or is indirectly caused/affected by:

- (i) Impairment or loss of incoming signals managed by external party.
- (ii) Loss of time where remedial action cannot be executed due to compliance with Workplace, Safety and Health Act, regulatory requirements or where, in the reasonable of judgments of MediaCorp that a potential safety hazard exists such as (but not limited to) requiring roof or mast access during darkness or bad weather condition.
- (iii) Unscheduled interruptions caused by supply mains provided by Singapore Power, and the time required to re-establish the transmission system if back-up generator or redundant power supply is available.
- (iv) Outage results from extreme or unforeseen weather conditions, including but not limited to lightning, floods and high winds.
- (v) Impairment of transmission service as a result of change over in the distribution path between fiber and Rebroadcast Links (RBL). The maximum allowable impairment to the service shall be less than 10 sec.
- (vi) Impairment of transmission service as a result of auto change over from main transmitter to standby transmitter. The delay to normalise the transmission system shall be no more than:
- (vii) N+1 redundancy: less than 60 seconds.
- (viii) 1+1 redundancy: less than 15 seconds.
- (ix) The loss of GPS signals for an extended period of time, whereby the downtime shall not be counted after 6 hours from the time GPS failure first occurs.
- (x) Reduction in power when operating in half antenna condition as a result of planned maintenance.
- (xi) Reductions in power of not more than 3dB as a result of a transmission equipment fault.
- (xii) Loss of time to access the repeater sites that is beyond the control of MediaCorp.

- (xiii) Outages resulting from repeater site owner or customer refusal to allow MediaCorp to perform planned or urgent maintenance.
- (xiv) Any planned outages that are scheduled during mutually agreed maintenance window.
- (xv) Any failure of the distribution service provider providing the telecom network if redundant rebroadcast link is not available.

- 3.2.6 Obligations for OTT TV Licensees to meet specified requirements of ORI (Clause 5.3.2 a)
 MDA's definition: A Licensee shall maintain a minimum monthly Service ORI standard of 99.80% for OTT TV services that it may provide. The Service ORI shall be measured at the webhosting server level.

MediaCorp's response: As OTT TV services are delivered through both web servers and apps on connected devices, having the ORI applied only at the web hosting server level may not be appropriate, as in most occasions, the web site may not be available but the Apps still are as they are accessing the API servers directly, which are different from the web site. As such, the service is not entirely not available We propose further granularity in the calculation of the ORI, and not based on the webhosting server alone.

- 3.2.7 Compliance with obligations for OTT TV services (clause 5.3.3)
 Service ORI computation (clause 5.3.3 c)
 MDA's definition

$$\text{Outage Reliability Index (ORI)} = (1 - R) \times 100\%$$

$$\text{where } R = \frac{\text{Total lost time for all outages in a calendar month}}{\text{Total number of broadcast hours in a calendar month}}$$

MediaCorp's response: R should be based on Total number of service operation hours in a calendar month, instead of broadcast hours.

- 3.2.8 Compliance with obligations for OTT TV services (clause 5.3.3)
 Service ORI results (clause 5.3.3e)
 MDA's definition: The Service ORI results should take into account loss of video or sound or control data essential to view the services due to any cause under the control, either directly or through contract arrangements, of the Licensee. Outages that occur due to factors not under the control of the Licensee may be exempted from the computation of ORI results, although they should be recorded in the monthly ORI reports to MDA as stipulated in clause 5.3.3(d)

MediaCorp's response: We propose to exclude outages that occur due to factors not under the control of the Licensee be recorded in the monthly ORI reports. Since these are outside the span of control, it may not be possible for the Licensee to be (1) aware of the issues, especially when it is localized to only a selected area, or (2) be provide a meaningful account of the outage as such information may not be provided to the Licensee by the third parties, e.g., ISP providers.

- 3.2.9 Compliance with obligations for OTT TV services (clause 5.3.3)
 Exemptions to quarterly reports (Clause 5.3.3 f)
 MDA's definition: A Licensee shall submit to MDA quarterly reports, in the format set out in the First Schedule, on viewer complaints relating to outages and poor reception quality that were received over the past three (3) calendar months, 14 days after the end of the quarter. In the event where no

complaints were received for the quarter, the Licensee shall still submit the quarterly report and indicate accordingly. Complaints which arise from issues related to viewer premise equipment may be excluded from this report.

MediaCorp's response: Complaints arising from issues due to the customer's broadband or mobile service operator should be excluded as well.

4. Loudness Requirements on OTT TV (Clause 6.1 a)

MDA's definition: The loudness standards must be maintained at the viewers' premises. Compliance with the required standards will minimize large variations in loudness during transitions between different types of content and between channels.

MediaCorp's response: Loudness requirement for OTT TV should be applicable to linear channels only, where there are transitions between different types of content, to ensure consistency in this transition. Video on demand should be excluded. Furthermore, as consumptions of OTT TV contents are largely on portable multimedia devices, there is a great variation in the loudness level of these devices when listening over earphones or through speakers, leading it difficult and impractical to manage the loudness level.

5. Reporting Requirements

The followings are the comments related to reporting of Service Difficulty or ORI performance as stated in the proposed Code of Practice:

5.1. MDA requirements: For FTA / OTT services, MediaCorp needs to submit to MDA 12x monthly ORI report, 4x quarterly reports and two annual reports. The 12 monthly ORI reports will be accompanied with respective outages reports (if any) according to Schedule 2 while the 4 quarterly "complaint" reports are to be presented under the First Schedule. The two annual reports are technical measurement reports related to field strength and loudness respectively (only for nation-wide TV services).

5.2 MediaCorp Comments:

5.2.1 Monthly ORI reports and/or Outage reports - (Clause 5.1d): MediaCorp has suggested a clearer definition of outages.

In reporting these outages, we suggest that MDA consider adopting a pragmatic approach where short AV disruptions be exempted from submitting individual outage reports (as specified in Second Schedule of the proposed Code of Practice) though the monthly ORI will still take into account the total downtime. This is because the short disruptions of say a few seconds are basically immaterial to the viewers and will not affect the overall enjoyment of the content.

(Clause 5.2.3a): As we have suggested to compute the Service ORI as a moving average over the preceding 12 calendar months. With regards to reporting, if confirmed, we could provide monthly Service ORI based on moving average figures.

5.2.2 Quarterly “Complaint” Reports - (clause 2.2.3b, 3.2.3c, 4.2.3d, 5.2.3g, 5.3.3f(OTT), 6.2.3e) - For reporting complaints, we would like to clarify the reporting criteria because it may be ambiguous to define a complaint versus a comment.

MediaCorp suggest not reporting on viewers’ comments on improving service or programme quality unless they are explicitly expressed as written complaint about bad reception service quality due to transmission or picture/sound degradation which are annoying to the enjoyment of programmes. We also propose that related comments made from social media sources (e.g. Discussion Forums) should be exempted from reporting as they may not be factual and the individuals who write the comments may not be identifiable or contactable.

Please also review MediaCorp’s response on Clause 5.3.3f (OTT) reporting requirements in section 3.2.9.

5.2.3 Annual Reporting on loudness performance of broadcast material on each TV channel (including OTT services) over 24 hours period (clause 6.2.3c). We would like to have clarification on the meaning of “spot checks”.

To simplify measurements and reporting, we recommend to take spot measurements of average loudness of each TV channel at prescribed interval of the day over a 24-hr period. The prescribed interval may be every 15 minutes irrespective of the programme contents (e.g. by xxhrs 00 mins, xxhrs 15mins, xx hrs 30 mins and xx hrs 45mins). By adopting the suggested method, we may be able to automate the measurement instead of doing laborious measurements using manual method.

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