

**MEMORANDUM CIRCULAR**  
**NO. 4-07-88**

**SUBJECT: IMPLEMENTING RULES AND REGULATIONS REQUIRING  
ALL RADIO STATIONS TO BROADCAST A MINIMUM OF  
FOUR ORIGINAL PILIPINO MUSICAL COMPOSITION (OPM)  
IN EVERY CLOCKHOUR.**

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Pursuant to the provisions of Executive Order No. 255 dated July, 1987 in order to ensure the growth of the local music industry, promote popularize and conserve the nation's historical and cultural heritage, resources, as well as artistic creations, and to give patronage to arts and letters, the National Telecommunications Commission hereby promulgates the following rules and regulations for all radio stations.

1. All radio station shall broadcast a minimum of four (4) original Pilipino musical compositions in every clochour of a program with a musical format. As defined, "original Pilipino musical composition" shall refer to any musical composition created by a Filipino, whether the lyrics be in Pilipino, English or any other language or dialect. (Sec. 1, E.O. 255).
2. All radio stations shall enter into their program logbook, for a program with a musical format, the following:
  - a. Name/Title of song or musical composition
  - b. Name of singer or band/musician
  - c. Time and date when played over the air
3. In order to ensure compliance with the provisions of the Executive Order and of this Circular, the National Telecommunications Commission shall:
  - a. Require, as may be necessary, the submission to the Commission, records, logbooks and other pertinent documents;
  - b. Direct radio stations to allow NTC representatives, upon request and at a reasonable time to examine or go over their programs logs at their radio station premises/offices;
  - c. Monitor and record when necessary, radio programs of radio stations through its authorized representative/s or by an authorized monitoring station/s;



Any franchise holder or operator of a radio station which fails to broadcast the minimum number of original Pilipino musical compositions in every clockhour of a program with a musical format shall be fined in the amount of P100.00 per violation. The NTC may, after due hearing, suspend or cancel the Certificate of Registration and Authority of any radio station in the event of repeated violations. (Sec. 2, E.O. 255).  
Compliance is herewith enjoined.

This Circular takes effect immediately.

Quezon City, Philippines. March 1988

JOSE LUIS A. ALCUAZ  
COMMISSIONER



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## GLOSSARY OF CATV TERMS

Active – any circuit containing amplifying devices, such as tubes or transistors.

Antenna preamplifier – a small amplifier located in the immediate vicinity of the antenna, used to amplify extremely weak signals, thereby improving the signal-to-noise ratio of a system.

Automatic gain Control (AGC) – a circuit which automatically control the gain of an amplifier so that the output signal level is virtually constant for varying input signal levels. Sometimes referred to as automatic level (ALC) or automatic volume control.

Automatic Spacing – a method whereby unavoidable errors in amplifier spacing are automatically corrected.

Automatic Temperature Control – a method whereby changes due to temperature in amplifiers or coaxial cable are automatically corrected by either a closed-or open-loop servo system.

Automatic Tilt – automatic correction of changes in tilt.

Block Tilt – a form of half-tilt where all low-band channels are set to the same level as Channel 2, and all high-band channels to the same level as Channel 13.

Bridging amplifier or bridger – an amplifier which is connected directly into the main trunk of a CATV system. It serves as a high-class tap, providing isolation from the main trunk and multiple high-level outputs.

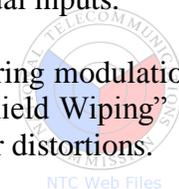
Cable powering – a method of supplying power to solid-state CATV equipment by utilizing the coaxial cable to carry both signal and power simultaneously.

Closed-loop System – a servo feedback system where the residual error after correction is fed back directly into the servo system for inverse proportional control.

Coaxial cable – the most commonly used means of signal distribution, consisting of a center conductor and a cylindrical outer conductor (shield). Other types of transmission line used in CATV systems include open-wire (two-wire line) and a Goubea line.]

Combining network – a passive network which permits the addition of several signals into one combined output with a high degree of isolation between individual inputs.

Countermodulation – a type of cross-modulation distortion where interfering modulation appears as out-of-phase modulation of the desired signal. “White Windshield Wiping” is typical countermodulation. Maybe caused by combination of second-order distortions.



Critical distance or cable length – the length of a particular cable which cause a worst-case reflection is mismatched; depends on a velocity of propagation and attenuation of cable.

Cross-modulation – a form of distortion where modulation of an interfering station appears as a modulation of the desired station. Caused by third and higher odd order non linearities. A typical example of cross modulation is the form of overload known as “windshield wiping.”

Directional coupler – a high quality tapping device providing isolation between tap and output terminals.

Distribution systems – the part of a CATV system used to carry signals from the head end to subscriber’s receivers. Often applied, more narrowly, to the part of a CATV system starting at the bridger amplifiers.

Dynamic range – see overload-to-noise ratio.

Emitter tuning principle – a circuit which extends the high frequency response of transistors by using variable trimmer capacitors to neutralize detrimental emitter inductance.

Equalization – a means of modifying the frequency response of an amplifier or network, thereby resulting in a flat overall response.

Equalized loss – any loss in a CATV systems caused by coaxial cable also, insertion loss of components designed to match cable loss characteristics.

Feeder line – the coaxial cable running between bridgers, line extenders, and taps.

Flat loss – equal loss at all frequencies, such as caused by attenuators.

Flat Outputs – operation of a CATV system with equal levels of all TV signals at the output of each amplifier, corresponding to fully-tilted input signals.

Frequency response – the change of gain with frequency.

Full-tilt – operation of a CATV systems with maximum tilt at the output each amplifier ( flat input signals at each amplifiers ).

Fully-integrated systems – a CATV system designed to take advantage of the optimum amplifier – cable relationship for highest performance at lowest cost. Such a system is also admirably suited to the fully automated CATV system concept.



Gain – a measure of amplification, usually expressed in db. For matched CATV components, power gain is readily determined as insertion power gain. Gain of an amplifier is often specified at the highest frequency of operation, for example, at Channel 13 for all-band equipment.

Half-Tilt – operation of a CATV system half way between full-tilt and flat-outputs operation. Compared with a FULL-TILT system, the level of Channel 2 is up at the input and output of an amplifier by one half its slope.

Head end – the electronic equipment located at the start of a cable system, usually including antennas, preamplifiers, frequency converters, demodulators, and related equipment.

High Band – TV Channels 7 through 13.

House drop – the coaxial cable from line tap to the subscriber's TV set.

Hum modulation – form of distortion where the power-line frequency modulates the TV signal, causing hum bars to appear in the picture.

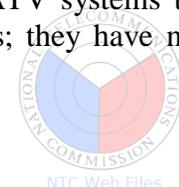
In-line package – a housing, for amplifiers or other CATV components, designed for use without jumper cables; cable connectors on the ends of the housing are in line with the coaxial cable.

Insertion loss – additional loss in a system when a device such as a directional coupler is inserted; equal to the difference in signal level between input and output of such a device.

Integrated systems – a term used to denote a system in which all components, including various types of amplifiers and taps, have designed from a well founded overall engineering concept to be fully compatible with each other. Such a system results in greater economy at improved performance through the avoidance of over specification by well engineered designed center values.

Intermodulation – a form of distortion where two modulated or unmodulated carriers produces beats according to the frequency relationship  $f = nf + 1 + -mf2$ , where n and m are whole numbers. Inter-modulation is caused by second and higher order curvature, and is essential for the proper operation of frequency converters, mixers, modulators, and multipliers. Second-order curvature by itself does not cause distortion of the modulation envelope, but is often responsible for parasitics. The order of the inter-modulation product is defined as n plus m.

Jumper cable – short length of flexible coaxial cable used in older CATV systems to connect system coaxial cable to amplifiers or other CATV components; they have no place in a modern, high quality system.



Level diagram – a graphic diagram indicating the signal level at any point in a system.

Line extender or distribution amplifier – types of amplifiers used in the feeder system.

Low band – TV Channels 2 through 4.

Main trunk – the major link from the head end to a community or connecting communities.

Noise figure – a measure of the noisiness of an amplifier. Noise factor is defined as input signal-to-noise ratio to output signal-to-noise ratio. Noise figure is noise factor expressed in db. The lowest possible value for a matched system is 3 db.

Noise modulation – also called “Noise Behind the Signal.” Increase in demodulated noise level with the application of the desired carrier.

Open-loop system – a servo correction system in which the residual error is unrelated to the means of correction.

Overload-to-noise ratio – the ratio of overload-to-noise level measured at or referred to the sample point in a system or amplifier, usually expressed in db, and commonly used as an amplifier figure of merit. Not to be confused with signal-to-noise ratio.

Pancake package – a flat amplifier housing designed to accommodate printed-circuit boards.

Passive - a circuit or a network using active devices such as tubes and transistors.

Reflection coefficient – ratio of reflected waves to incident wave – mathematically related to VSWR.

Return loss – reflection coefficient expressed in db.

Semiconductor – material with an electrical conductivity between conductors and insulators. Most commonly used semiconductors for transistors and diodes are germanium, silicon, and gallium arsenide.

Signal-to-noise ratio – the ratio of the signal to noise level with both measure either at the input or output of a electronic equipment, usually expressed in db.

Single-ended package – a housing for electronic components having connections at one end only.

Slope – difference in amplifier gain, or change in cable attenuation, between Channel 2 and 13, in db.



Solid state – a term taken from physics, used interchangeably with the word transistorized; also includes other semiconductor elements, such as diodes. Generally refers to tubeless equipment.

Spacing – length of cable between amplifiers expressed as db loss at the highest TV channel provided for in a system, usually at Channel 13 in an all band system; equal to amplifier gain in the main trunks.

Span – distance between line extenders or distribution amplifiers also, distance between taps.

Splitter – a network supplying a signal to a number of outputs which are individually matched and isolated from each other; usually based on hybrid coils.

System level – the level of the highest signal frequency, usually Channel 13, output of each amplifier. Must be carefully chosen and maintained for at least distortion and noise.

System Mode – or System Tilt. The tilt at the output of each amplifier, normally set in the head end for the main trunk (or bridger for the distribution system).

Tap – any device used to obtain signal voltages from a coaxial cable. The earlier forms such as capacitive and transformer types have been replaced by directional couplers in modern systems.

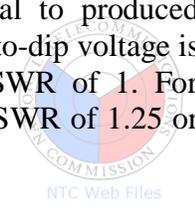
Terminator – a resistive load for an open coaxial line to eliminate reflections; usually capacitively coupled to avoid short in cable-powered systems.

Tilt – difference in level between Channel 2 and 13 at output of amplifier in db; in fully-tilted system operation, equal to slope. Often used interchangeably with slope. See also full-tilt, half-tilt, flat outputs.

Tilt-compensation – the action of a tilt-compensated gain control, whereby tilt of amplifier equalization is simultaneously changed with the gain so as to provide the correct cable equalization for different lengths of cable; normally specified by range and tolerance.

Velocity of propagation – velocity of signal transmission. In free space, electromagnetic wave travel with the speed of light. In coaxial cables, this speed is reduced. Commonly expressed as percentage of the speed in free space.

VSWR – abbreviation for Voltage Standing Wave Ratio. Reflections present in a cable due to mismatch (faulty termination) combine with the original signal to produced voltage peaks and dips by addition and subtraction. The ratio of the peak-to-dip voltage is termed VSWR. A perfect match with zero reflections produces a VSWR of 1. For freedom from ghosting, most matches in a CATV system must have a VSWR of 1.25 or less.



Windshield wiper effect – onset of overload in multichannel CATV systems caused by cross-modulation, where the horizontal sync pulses of one or more TV channels are superimposed on the desired channel carrier. Both black and white windshield wiping are observed and are caused by different mechanisms. See also countermodulation.



## ANNEX B

Channel	Grade A	Grade B
2-6	68dbu = 251OuV/m	47dbu = 224uV/m
7-13	71dbu = 355OuV/m	56dbu = 631uV/m
14-18	74dbu = 501OuV/m	64dbu = 1585uV/m



A N N E X C

1.1 Field intensity contours

(a) In the authorization of television broadcast stations, two field intensity contours are considered. These are specified as Grade A and Grade B and indicate the approximate extent of coverage over average terrain in the absence of interference from other television stations. Under actual conditions, the true coverage may vary greatly from these estimates because the terrain over any specific path is expected to be different from the average terrain on which the field intensities, (50,50), in decibels above one microvolt per meter (dbu) for the Grade A and Grade B contours are as follows:

Note: It should be realized that the F(50,50) curves when used for the Channels 14-83 are not based on measured data at distances beyond about 30 miles. Theory would indicate that the field intensities for Channel 14-83 should decrease more rapidly with distance beyond the horizon than for Channel 2-6, and modification of the curves for Channel 14-83 may be expected for the result of measurements to be made at a later date. For these reason, the curves should be used with appreciation of their limitations in estimating levels of field intensity. Further, the actual extent of service will usually be less than indicated by these estimates due to interference from other stations. Because of these factors, the predicted field intensity contours give no assurance of service to any specific percentage of receiver locations within the distances indicated. In licensing proceedings these variations will not be considered.

	Grade A (dbu)	Grade B (dbu)
Channels 2-6	68	47
Channels 7-13	71	56
Channels 14-83	74	64

(b) The field intensity contours provided for herein shall be considered for the following purposes only:

- (1) In the estimation of coverage resulting from the selection of a particular transmitter site by an applicant for a television station.
- (2) In connection with problems of coverage arising out of application of multiple ownership.



- (3) In determining compliance with transmitter location and antenna system concerning the minimum field intensity to be provided over the principal community to be served.

## 1.2 Prediction of coverage

(a) All predictions of coverage made pursuant to this section shall be made without regard to interference shall be made only on the basis of estimated field intensities. The peak power of the visual signal is used in making predictions of coverage.

(b) Predictions of coverage shall be made only for the same purposes as relate to the use of field intensity contours as specified in 1.1 (b)

(c) In predicting the distance to the field intensity contours, the F(50,50) field intensity charts shall be used. If the 50 percent field intensity is defined as that value exceeded for 50 percent of the time, these F(50,50) charts give the estimated 50 percent field intensities exceeded at 50 percent of the locations in decibels above one microvolt per meter. The charts are based on effective power of 1 kilowatt radiated from a half-wave dipole in free space, which produces an unattenuated field strength at 1 mile of about 103 db above 1 microvolt per meter (137.6 milivolts per meter). To use the charts for other powers, the sliding scale associated with the charts should be trimmed and used as the ordinate scale. This sliding scale is placed on the charts with the approximate gradation for power in the line with the horizontal 40 db line on the charts. The right edge of the scale is placed in line with the appropriate antenna height gradations, and the charts then become direct reading (in microvolt per meter and in db above one microvolt per meter) for this power and antenna height. Where the antenna height is not one of those for which a scale is provided, the signal strength or distance is determined interpolation between the curves connecting the equidistant points. Dividers may be used in lieu of the sliding scale.

(1) In predicting the distance to the Grade A and Grade B field intensity contours, the effective radiated power to be used is that radiated at the vertical angle corresponding to the depression angle between the transmitting antenna center of radiation and the radio horizon as determined individually for each azimuthal direction concerned. The depression angle is based on the difference in elevation of the antenna center of radiation above the average terrain and the radio horizon, assuming a smooth spherical earth with a radius of 5,280 miles, and shall be determined by the following equation:



$$Ah = 0.0153 \sqrt{H}$$

Where:

Ah is the depression angle in degrees

H is the height in feet of the transmitting antenna radiation center above average terrain of the 2-10 mile sector of the pertinent radial

Note: It should be recognized that this formula is empirically derived for the limited purpose specified here. Its use for any other purpose may be inappropriate.

In cases where the relative field intensity at the depression angle determined by the above formula is 90 percent or more of the maximum field intensity developed in the vertical plane containing the pertinent radial, the maximum radiation shall be used.

(2) In predicting field intensities for other than the Grade A and Grade B contours, the effective radiated power to be used shall be based on the appropriate antenna vertical plane radiation pattern for the azimuthal direction concerned.

(d) The antenna height to be used with these charts is the height of the radiation center of the antenna above the average terrain along the radial in question. In determining the average elevation of the terrain, the elevation between 2 and 10 miles from the antenna site are employed. Profile graphs shall be drawn for 8 radials beginning at the antenna site and extending 10 miles therefrom. The radials should be drawn for each 45 degrees of azimuth starting with True North. At least one radial must include the principal community to be served even though such community may be more than 10 miles from the antenna site. However, in the event none of the evenly spaced radials include the principal community to be served and one or more such radials are drawn in addition to the 8 evenly spaced radials, such additional radials shall not be employed in computing the antenna height above average terrain. Where the 2 to 10 mile portion of a radial extends in whole or in part over large bodies of water as specified in paragraph (e) of this section or extends over foreign territory but the grade B intensity contour encompasses land area within the country beyond 10 mile portion of the radial, the entire 2 to 10 mile portion of the radial shall be included in the computation of antenna height above average terrain. However, where the grade B contour does not encompass country's land area and (1) the entire 2 to 10 mile portion of the radial extends over large bodies of water or foreign territory, such radial shall be completely omitted from the computation of antenna height above average terrain, and (2) where a part of the 2 to 10 mile portion of a radial extends over large bodies of water or over foreign territory, only that part of the radial extending from the 2 mile sector to the outermost portion of land area within the Philippines covered by the radial shall be employed in the computation of antenna height above average terrain. The profile graphs for each radial should be plotted by contour intervals of from 40 to 100 feet and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of

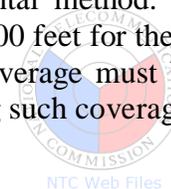
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very rugged terrain where the use of contour intervals of 100 feet would result in several points in a short distance, 200 or 400 foot contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map should be used, although on ly relatively few points may be available. The profile graphs should indicate the topography accurately for each radial, and the graphs be plotted with the distance in miles as the abscissa and the elevation in feet above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data employed. The graph should also show the elevation of the center of the radiating system. The graph may be plotted either on rectangular coordinate paper or special paper which shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration of this procedure, as this factor is taken care of in the charts showing signal intensities. The average elevation of the 8-mile distance between 2 to 10 miles from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded for 50 percent of the distance) in sectors and averaging those values.

Note: The Commission will, upon a proper showing by an existing station that the application of this rule will result in an unreasonable power reduction in relation to other stations in close proximity, consider request for adjustments in power on the basis of a common average terrain figure for the stations in question as determined by the Commission.

(e) In instances where it is desired to determine the area in square miles within the Grade A and Grade B field intensity contours, the area may be determined from the coverage map by planimeter or other approximate means: in computing such areas, exclude (1) areas beyond the borders of the country, and (2) large bodies of water, such as oceans areas, gulfs, sounds, bays, large lakes, etc., but not rivers.

(f) In cases where the terrain in one or more directions from the antenna site departs widely from the average elevation of the 2 to 10 mile sector, the prediction method may indicate contour distances that are prediction method may indicate contour distances that are different from what may be expected in practice. For example, a mountain ridge may indicate the practical limit of service although the prediction method may indicate otherwise. In such cases the prediction method should be followed, but a supplemental showing may be made concerning the contour distances as determined by other means. Such supplemental showing should be describe the procedure employed and should include sample calculations. Maps of predicted coverage should indicate both the coverage as predicted by the regular method and as predicted by the supplemental method. When measurements of area are required, these should include the area obtained by the regular prediction method and the area obtained by supplemental method. In directions where the terrain is such that negative antenna heights below 100 feet for the 2 to 10 mile sector are obtained, a supplemental showing of expected coverage must be included together with a description of the method employed in predicting such coverage.



In special cases, the commission may require additional information as to terrain and coverage.

(g.) In the preparation of the profile graphs previously described, and in determining the location and height above sea level of the antenna site, the elevation or contour intervals shall be taken from the Philippine Coast and Geodetic Survey Maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from city and municipal agencies. Data from Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data is available, use may be made of an altimeter in a car driven along roads extending generally radially from the transmitter site. Ordinarily the Commission will not require the submission of topographic map for areas beyond 15 miles from the antenna site, but the maps must include the principal community to be served. If it appears necessary, additional data may be requested. Philippine Coast and Geodetic Survey Maps may be obtained from the Philippine Coast and Geodetic Survey Office.

