% PGM (BW)
Telegraph Office Building
Kashmiri Gate, Delhi -110006
Tel: 011-23865257 Fax: 23865284

भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

No.: 5-4/2004-W(T)/Vol-II/61 **Dated 14/02/2013**

To,

The GM (Civil) - USO
BSNL CO
New Delhi.

All PCEs/CEs (C)
BSNL

Sub: Mandatory use of Telecom Tower Standards issued by Telecommunication Engineering Centre.

Enclosed please find h/w guidelines issued by DOT regarding mandatory use of Telecom Tower Standards issued by TEC, received vide Director(CM), BSNL CO, New Delhi letter No. 23-dir(CM)/2013-N dated 11/01/2013, for necessary action please.

This is issued with the approval of PGM (BW).

Encl.: - As above.

Roy Kumar
14/02/13
DGM (Civil)

DY. No. Date	244 16/1/13
AGM (BA-I/II)	
DGM (CFA)	

1/c

No. 23- Dir(CM) / 2013-N

BHARAT SANCHAR NIGAM LIMITED
(A Government of India Enterprise)

Please find enclosed herewith guidelines issued by DOT regarding mandatory use of telecom tower standards as per the standards issued by TEC.

Necessary action in this regard may please be taken.

Encl : a/a

(R.K. Agarwal)
Director (CM)
January 11, 2013

Sr. GM (NWP-GSM-I) / Sr. GM (NWP-GSM-II)

PGM (Civil) / GM (TF)

Government of India
Department of Telecommunications
(Access Services Cell)
Sanchar Bhawan, 20, Ashoka Road New Delhi – 110 001

File No: 800-15/2010-VAS (Pt) **Dated:** 02.01.2013

To

All CMTS/ UAS/Basic Services Licensee(s)

Subject: Mandatory use of Telecom Tower Standards issued by Telecommunication Engineering Centre.

Kindly find enclosed herewith the letter No. 16-10/2012-CS-III(Part-I) dated 11.12.2012 issued by Department of Telecommunications on the above-mentioned subject for compliance at your end.

(P.C.Sharma)
Director(AS-II)

Copy to:

1. DDG (Security-TERM), DoT
2. DDG (CS), DoT

Enclosure: As above.

This letter may kindly be sent to Dir (CM) for your information & n/a pl
08/01/13

DZM (GS) – on leave

DM (PG-I)

ES (GSM I/II/TF/civil)

3/c

Government of India
Ministry of Communications & IT
Department of Telecommunications
Sanchar Bhawan, 20-Ashoka Road, New Delhi-110001
(Carrier Services Cell)

No. 16-10/2012-CS-III(Part-I) **Dated 11.12.2012**

To.
All Telecom Service Providers

Subject: Mandatory use of Telecom Tower Standards issued by Telecommunication Engineering Centre.

A DoT Committee on BTS Towers has recommended that telecom towers established/used by Telecom Service Providers (TSPs) should conform to applicable Generic Requirements (GRs) issued by Telecommunication Engineering Centre (TEC), Department of Telecommunications, Government of India. In this connection, it has been decided that telecom towers, erected/used by the TSPs with effect from 01.04.2014, shall conform to the Generic Requirements of Towers issued by TEC.

2. A list of TEC GRs for Telecom Towers is attached herewith along with the broad specifications and features of the towers.

3. The Telecom Service Providers may suggest new designs, if any, alongwith specifications that may be developed as TEC GRs. It is proposed that few such designs, as suggested by TSPs, shall be vetted for structural safety, construction practice, material properties, etc before being approved. The TSPs may suggest the new designs alongwith all the details of the tower to TEC by 31st January, 2013 so that such designs can be short-listed and vetted for structural safety etc and corresponding GRs can be issued to ensure that the specifications are ready well in advance for usage before the due date, that is, 01.04.2014.

Encl: A/A

11.12.2012
(S.T. Abbas)
Director(CS-III)

Copy to:
(i) Sr DDG(TEC) for information & necessary action.
(ii) Sr. DDG(AS)/DDG(DS) for information please.

Tower Comparison Table

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
1	15 Meter Self Supporting Mast	G/MST-01/01.OCT96 (Reaffirmed as per Minutes of DCC Dt.25/04/03.)	15M	Light weight yagi antenna	198 Km/hr	1m x 1m	259kg +/- 3% & 18.47 Kg of foundation grillage	
2	40 Meter Narrow Base Heavy Weight Tower	GR/TWR-02/02.MAY 2004 (Reaffirmed May 2008)	40M	Either two parabolic microwave dish solid antennas of 2.4 m dia or 4 nos of 3.0m dia grid paraboloid antennas at any level /position /orientation /configuration.	200 Km/hr (wind zone vi of IS:875)	square base of 2 m	(i) Tower Superstructure: 11736 Kg +/- 3% (ii) Ladder, two platforms, wave guide rack and Support : 2147 Kg +/- 3% ** Additional Platform at 17.5m level, if required. 706.00 Kg +/- 3% (iii) Material for fixing of tower super structure foundation: 706.88 Kg +/- 3% (iv) Antenna Fixtures (4) : 686.88 Kg +/- 3% (v) Aviation Lamp bracket and fixtures: 7.5 Kg +/- 3%	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
3	60 Meter Heavy Weight M/W Tower	G/TWR-03/01. JAN2000 (Amendment No. 1 dated 07/06/2005)	60M	Maximum of four parabolic microwave solid dish antennas of 4m dia.	200 Km/hr	square base of 11 m	42715.54 Kg +/- 3%	
4	40 Meter Narrow Base Light Weight Tower	GR/TWR-04/01.DEC2000 (Amendment No. 1 dated 19/10/2001 & Amendment No. 2 dated 29/06/2005) & Amendment No. 3 dated 04/07/2005	40M	Maximum of two grid parabolic antennas of 3m dia. at the top of the tower. The tower shall be able to load a combination of more than two grid parabolic antennas of smaller dias. (i.e. 1.2m, 1.4m, 1.8m, 2.4m.) at lower heights i.e. 28.5m and 18.5m. A sample of combinations of different smaller sizes of grid antennas which can be installed at different levels simultaneously in	200Km/hr	square base of 2 m	Total Weight of Tower for: 10318 Kg±3% Pile Foundation Total Weight of Tower for: 9785 Kg±3% Raft Foundation <u>For WLL/GSM antenna loading (as per clause 1.2)</u> Total Weight of Tower for: 10173.5 Kg±3% Pit type Foundation	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
				lieu of 2 nos. of grid antennas of 3m dia at the top, are as under: - (a) 4 grid antennas: 2 nos. of 2.4m dia at 28.5m & 2 nos. of 2.4m dia at 18.5m levels. (b) 6 grid antennas: 2 nos. of 1.2m dia at 40m, 2 nos. of 2.4m dia at 28.5m and 2nos. of 2.4m dia at 18.5m levels. (c) 4 grid antennas: 2 nos. of 3m dia at 28.5m, and 2 nos. of 2.4m dia at 18.5m levels. (d) 6 grid antennas: 2 nos. of 1.2m dia at 40m, 2 nos. of 1.8m dia at				

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
				28.5m and 2 nos. of 3m dia at 18.5m levels. (e) 6 grid antennas: 2 nos. of 1.8m dia. at 40m, 2nos of 1.8m dia at 28.5m and 2 nos. of 2.4m dia. at 18.5m levels (f) 6 grid antennas: 2 nos. of 1.2m dia. at 40m, 2 nos. of 1.2m dia at 28.5m, and 2 nos. of .2m dia at 18.5m levels				
5	30 Meter Narrow Base Heavy Weight Tower	GR/TWR-05/01.DEC2000 (Amendment No.1 Dated : 14/06/2005)	30M	Maximum of either two parabolic microwave dish solid antennas of 2.4 metre dia, Or 4 Nos. of 3.0 metre dia Grid parabolic	200 Km/hr	square base of 1.7 m	9910.56 Kg ± 3%	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
				antennas at top position. The tower shall also be able to load (support) a combination of more than 4 grid parabolic antennas of smaller diameter (i.e. 1.2 metre, 1.4 metre, 1.8 metre).				
6	20 Meter Narrow Base Heavy Weight Tower	GR/TWR-06/01.DEC2000 (Amendment No.1 Dated : 14/06/2005)	20M	Maximum of either two parabolic microwave dish solid antennas of 2.4 metre dia or 4 Nos. of 3.0 metre dia Grid parabolic antennas at top position. The tower shall also be able to load (support) a combination of more than 4 grid parabolic antennas of smaller diameter (i.e. 1.2 metre, 1.4 metre, 1.8 metre .)	200 Km/hr	square base of 1.4 m	5940 Kg ± 3%	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
7	30 Meter Narrow Base Light weight Tower	GR/TWR-07/01.DEC2002 (Amendment No.1 Dated 30/05/2007)	30M	Maximum of two grid paraboloid antennas of 3 m dia. at the top of the tower or 6 Nos. of rectangular panel antennas for wireless systems such as GSM / CDMA etc.	200Km/hr	square base of 1.7 m	7712 Kg ± 3% Inclusive of (i) 1 no. antenna mount fixtures (Leg mount) for grid parabolic antennas (ii) 1 no. antenna mount fixtures (Face mount) for grid parabolic antennas and (iii) 6 nos. antenna mount fixtures for GSM/WLL rectangular panel antennas	
8	20 Meter Narrow Base Light Weight Tower	GR/TWR-08/01.DEC2002 (Amendment No.1 Dated 30/05/2007	20M	Maximum of two grid paraboloid antennas of 3m dia. at the top of the tower or 6 Nos. of rectangular panel antennas for wireless systems such as GSM / CDMA etc.	200Km/hr	square base of 1.4 m	4334 Kg ± 3% (Inclusive of (i) 1 no. antenna mount fixture (Leg mount) for grid parabolic antennas (ii) 1 no. antenna mount fixture (Face mount) for grid parabolic antennas and (iii) 6 nos. antenna mount fixtures for GSM/WLL rectangular panel antennas)	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
9	Roof Top Tower for Cellular Mobile Systems (30/25/20/15 /10 M Tower)	GR/TWR-09/01.FEB2004 (Amendment No.1 Dated 22/04/2008)	30/25/20/ 15/10 M	(A) The 20, 25, and 30 m towers shall be able to support the loading of the antennas as given below: a) 6 nos. of panel antennas for WLL systems at top platform; b) 3 nos. of 0.6m dia microwave solid dish antennas at a platform 5m below the top platform; c) 6 nos. of panel antennas for GSM systems at a platform 10 m below the top platform. (B) The 15 and 10 m towers shall be able	200Km/hr	30m: square base of 3514 mm 25m: square base of 3088 mm 20m: square base of 2655 mm 15m: square base of 2217 mm 10m: square base of 1774 mm	Weight of Towers is inclusive of all parts of Superstructure (except antenna mounting arrangement) as well as Foundation (including base plate, anchor bolts & template but excluding RCC) given below: 30m : 6792 Kg. 25m : 5480 Kg. 20m : 4354 Kg. 15m : 3001 Kg. 10 m : 2012 Kg.	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
				to support the loading of the antennas as given below: a) 6 nos. of panel antennas for GSM/WLL systems at top platform b) 3 nos. of 0.6m dia Microwave solid dish antennas at a platform 5m below top platform				
10	60 Meter Narrow Base Light Weight Tower for Cellular Systems	GR/TWR-10/01.NOV 2004	60M	Following combination of antennas: (i) 6 panel antennas for WLL systems at 57.5 m; (ii) 6 panel antennas of GSM systems at 47.5 m; (iii) 3 solid dish antennas, each of 0.6 m, at 52.5 m.	200 Km/hr)		(i) 29.337 Ton (excluding RCC, antenna fixtures & optional platform) (ii) 893 kg of antenna fixture including face mounting and leg mounting fixtures. (iii) 471 kg of optional platform (With tolerance of ± 3%)	

Sl. No	GR Title	GR No.	Height	No. of antenna load*	Wind speed	Base dimension	Weight	Remarks
11	40,30 & 20 meter Towers for Cellular Systems	GR/TWR-11/01.DEC 2004	40/30/20 M	(i) The 40 and 30 m towers shall be able to support the loading of the antennas as given below: a) 6 Nos. of panel antennas for WLL systems at top platform; b) 3 Nos. of 0.6m dia microwave solid dish antennas at a platform 5m below the top platform; c) 6 Nos. of panel antennas for GSM systems at a platform 9.5m below the top platform. (ii) The 20 m tower shall be able to support the loading of the antennas as given below:	200Km/hr	40m:square base of 4500mm 30m: square base of 3498mm 20m: square base of 2560mm	**<u>40 m Tower</u>** (i) Weight of Tower, inclusive of all parts of Superstructure (excluding the weight of antenna mounting arrangement as mentioned below) as well as Foundation (including base plate, anchor bolts but excluding RCC) : 9878 kg. (ii) Wt. of CDMA, Microwave & GSM antenna mounting arrangement: 670 kg **<u>30 m Tower</u>** (i) Weight of Tower, inclusive of all parts of Superstructure (excluding the weight of antenna mounting arrangement as mentioned below) as well as Foundation (including base plate, anchor bolts but excluding RCC): 6610 kg (ii) Wt. of CDMA, Microwave	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
				a) 6 Nos. of panel antennas for GSM/WLL systems at top platform b) 3 Nos. of 0.6m dia microwave solid dish antennas at a platform 5m below top platform			& GSM antenna mounting arrangement: 670 kg **<u>20 m Tower</u>** (i) Weight of Tower, inclusive of all parts of Superstructure (excluding the weight of antenna mounting arrangement as mentioned below) as well as Foundation (including base plate, anchor bolts but excluding RCC): 3848 kg (ii) Wt. of CDMA, Microwave & GSM antenna mounting arrangement: 481 kg	
12	40 meter tower for cellular system (up to 170 km ph wind speed	GR/TWR-12/01. JUN 2005 (Amendment No.1 Dated 17.05.2006 & Amendment No. 2 Dated 04.07.2008)	40M	Support antennas as given below: a) 6 panel antennas for GSM/WLL systems at 1m below the top b) 3 microwave solid dish antennas of 0.6m dia at 4 m below	170Km/hr	Square base of 2m sides	(i) Weight of Tower, inclusive of all parts of Superstructure (excluding the weight of antenna mounting arrangement i.e. antenna fixtures) as mentioned below as well as Foundation (including base plate, anchor bolts but excluding RCC): 8623 kg.	

Sl. No	GR Title	GR No.	Height	No. of antenna load	Wind speed	Base dimension	Weight	Remarks
				the top c) 6 panel antennas for GSM/ WLL systems at 6 m below the top			(ii) Wt. of GSM antenna mounting arrangement (per antenna): 38 kg (iii) Wt. of WLL antenna mounting arrangement (per antenna): 32 kg	