

By Speed Post/FAX

PRASAR BHARTI (BCI)
DIRECTORATE GENERAL: DOORDARSHAN
DOORDARSHAN BHAVAN, COPERNICUS MARG,
NEW DELHI – 110 001.

F. No 14(1)10-11/E-I (P)TV

Dt. 05.07.2010

To
M/s -----

Subject: Procurement of Flyway DSNG (C-Band) System.

Reference: - This Directorate tender No. 14(1) 2010-11-EI (P) TV for Flyway C-Band DSNG (1+1) System & Pre-bid Conference held on 14.05.2010.

Dear Sir,

The following Clarifications/Amendments to the Specifications of the tender are hereby authorized:

Sub: Amendment in Specifications for C Band DSNG.

| S. No. | Pg. | Item No. | | Description |
|--------|-----|----------|-------|--|
| 1 | 3 | 1(iv) | Query | The hand held Spectrum Anlayzer of 3Ghz is required. Will a System built Spectrum analyzer Operating in L band be accepted . Pl. advise. GPS Receiver : A system built in GPS receiver is accepted or not in place of a standalone GPS receiver . Pl. advise. |
| | | | Reply | Only stand alone portable unit need to offered. |
| 2 | | | Query | is there any prefered make & specification for the Gen Set and UPS. |
| | | | Reply | Doordarshan do not have preference to any specific make of model. As uch there in no requiremnt of Gen set and it not listed in equipment list. |
| 3 | 3 | 1 (vii) | Query | Hard Case made of Carbon Fiber as per IATA. |
| | | | Reply | Please see amendment list at serial no 1. (minimum 15 mm thickness) |
| 4 | 3 | 1. vii) | Query | It is very difficult to get these type of cases for Housing equipment, it is requested to reconsider, moreover good cases are available such as company M/s Hardigg etc. Only advent is supplying with Carbon fibre type of cases for antenna housing, no other company has recommended and its shortcoming has been identified. Mail for the same from M/s AVL is given in appended mail. |
| | | | Reply | Please see enclosed amendment at sr no 1, regarding box thickness and type. |

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| 5 | 3 | 1 (viii) | Query | Eqpt boxes with shock absorber mounted sub frame should be made light weight alloy. |
| | | | Reply | Carrying boxes should be made of carbon fiber. The mounting sub frame of boxes should be made of light weight alloy. |
| 6 | 3 | 1 (ix) | Query | Total weight with boxes but excluding Genset & UPS, the Genset is not reflected in your suggested Bill of material, please clarify if DG DD wanted a Genset and if yes please specify its capacity etc. (Please clarify the material of boxes DG DD wanted to buy.) |
| | | | Reply | DG gen Set is not required |
| 7 | 4 | (XIX) Introduction | Query | Training should be given to Doordarshan Engineers in operation & maintenance of the system at each consignee's site". Please clarify the no. of engineers & no. of days for training. We feel 2~3 days are sufficient for the same. |
| | | | Reply | There will be 4 to 6 engineers at each site. The duration of training will be one week. |
| 8 | 4 | 1 (XXII) | Query | The tender says "Tenderer can offer any option either with BUC in HPA OR BUC and HPA as separate units. This option is not shown in para 12 Equipment List on Page 23 of the tender specifications; NOR in the Black Schematic Drawing on the last page. |
| | | | Reply | Please see enclosed equipment list |
| 9 | 4 | (XXI) Introduction | Query | Tenderer will have to give demonstration of their product if required and asked for by Doordarshan within one month of the request". It is kindly requested to please extend the time for demonstration at least by 7-8 weeks to know the availability of the demo unit with OEM, transit time of material & clearance of the same. |
| | | | Reply | No change in specification. |
| 10 | 5 | Section 2.1.1, 2.1.6 {c} & 7.2 (b) HD 4:2:2 Profile: | Query | The encoder can encode MPEG-4 AVC HD up to 29Mbps. In the graph below one can see that in typical 20Mbps working point the benefit gained by utilizing 4:2:2 10bit/8bit compare to 4:2:0 8bit is very modest. If DD is planning to work in bit rates above 25Mbps then 4:2:2 could contribute 1dB – 2dB in PSNR. Due to the fact that no more than 20Mbps will be used because of DSNG application hence DD do not require 4:2:2. herefore Harmonic request to remove the HD 4:2:2 options from the spec. |
| | | | Reply | It can not be changed due to online production and post production requirements in studio for contribution links in the Doordarshan network. |
| 11 | 5 | Refer para 2.1.2 | Query | The Basic configuration is required for a 1+1 system. As per the Schematic Diagram, there are 02 independant chain comprising of Encoder+ modulator + Upconverter. (Redundancy controller is asked only for the Up Converter). Secondly 02 no. of HD Encoder with MPEG 4 are to be supplied (that means for 02 DSNG Flyaway system, total quantity of HD encoder is 04 no.). Total quantity of SD encoder for 05 DSNG Flyaway system shall be 10 no's. Is it correct or not. Pl. advise. |
| | | | Reply | As per equipment list requirment is for 10 SD encoders and 4 HD encoders. But HD encoders are to fixed in a separate box for indenpendet operation as and when required. |

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| 12 | 5 | 2.1.1 Design Standards | Query | The system shall be designed to meet the international standards for digital broadcasting by satellite known as the MPEG-4 standards (HP@L4, selectable without any hardware changes. It should be possible to provide programme specific information, service name, language description and other related routine data. The system should have a security scheme (encryption) BISS Mode 1 and BISS-E, so as to eliminate open access to the transmitted service. HD Encoders with MPEG-4 (H.264) should have 4:2:2 and 4:2:0 compression format support Please remove "4:2:2" and "BISS" or make optional |
| | | | Reply | BISS-E is essential requirement to prevent open excess to content during DSNG transmission. 4:2:2 is essential requirement of Studio group for post production and editing. Hence this can not be deleted. |
| 13 | 5 | 2.1.6 Video Compression Parameters | Query | Grassvalley EM3000 HD Encoders supports 3.0 to 15 Mbps for 4:2:0 Profiles. Please remove "5.0 to 30 Mbps for 4:2:2 Profiles" or make optional |
| | | | Reply | No change in sepecification |
| 14 | 5 | 2.1.6 (a) Video Resolution (PAL) | Query | Our Encoder Model HVE9100 supports 1280X 720/50p . Your specification shows that horizontal figure and vertical figure are reversed. |
| | | | Reply | please see amendment no 2 |
| 15 | 5 | 2.1.1 HD encoder | Query | We have consulted encoder supplier that HD encoder with MPEG-4 (H264) is difficult to get, so it is suggested that 4:2:2 should be deleted and the format with 4:2:0 should be allowed as quality with this format in HD is very good . |
| | | | Reply | As per our knowledge at least two Manufacturers are making HD encoder with 4:2:2 in MPEG-4 (H.264). |
| 16 | 6 | 2.1.10 (b) Data Rate | Query | Our Encoder Model HVE 9100 supports the following rates For MPEG-1 , Layer II, Single 64, 80, 96,112,128,160,192 Kbps. For MPEG 4 AAC: 64, 96,112, 128 Kbps For MPEG 4 HE AAC : 64, 96, 112, 128 Kbps We would like you to modify the description accordingly. |
| | | | Reply | No change in specifications. |
| 17 | 7 | 2.2 SD Encoder | Query | Our Encoder Model HVE 9100 does not support " Language description and other related routine data" . We would like you to delete this requirement. |
| | | | Reply | No change in specifications. |
| 18 | 7 | 2.2.3-2 Low delay | Query | Our encoder Model HVE9100 does not support 100 msec delay for MPEG 2. We would like you to modify this specification to the following figures. 1080i / 25 : 760ms 1080i / 29 : 634ms 1080i / 30 : 633ms 720p / 50 : 660ms 720p / 59 : 551ms 720p / 60 : 550ms 480i / 29 : 634ms 576i / 25 : 760ms |

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| | | | Reply | It is not clear whether these delay figures are for MPEG-2 or MPEG-4 (H.264) encoding . |
| 19 | 7 | 2.2.6(d) Temporal Processing | Query | For low delay mode, our encoder Model HVE9100 does not support I, B, B, P frame structure for MPEG 2. We would like you to delete this description. |
| | | | Reply | No change in Specification |
| 20 | 7 | 2.2.1 SD Encoder | Query | Not supported format 4:2:2 Please remove "4:2:2" or make optional. |
| | | | Reply | No change in sepecification |
| 21 | 7 | 2.2.3 | Query | Not supported "low delay for MPEG2 – 100Msec" Please remove "low delay for MPEG-2 – 100Msec" or make optional. Please make "low delay for MPEG-4 as 100Msec" |
| | | | Reply | Please see amendment list at serial no 3. |
| 22 | 7 | Section 2.2.3 SD MPEG-2 Low Latency figures: | Query | Harmonic supports 160ms latency for all video bit rates and video quality of MPEG-2 standard. MPEG-2 low latency Video Quality in the figures Harmonic supports provide better Video Quality then in 100msec pipeline which increase the video bit rate and hence the transponder bandwidth utilization. Harmonic can operate in all operation bit rates as per MPEG-2 standard with its latency figure 160ms. |
| | | | Reply | Please see amendment list at serial no 3. |
| 23 | 7 | 2.2.6 (a) SD Encoder | Query | Video resolution should have 2-3 number resolution option as specified pixel are quite close from 1 to 3. |
| | | | Reply | It is not clear what is the question |
| 24 | 7 | 2.2.6 (a) Video Resolutions (PAL) | Query | Our encoder Model HVE9100 does not support the following resolutions. 704 x 576 544 x 576 480 x 576 352 x 576 We would like you to delete the above resolutions. |
| | | | Reply | Please see amendment list at serial no 4. |
| 25 | 2.1 of page 7 | 2.2.6 (d) – Temporal Processing | Query | I, P frames are used to support low delay while B frames add delay. Due to the conflicts with requirement to support low delay, we suggest that the B frames be removed from the specification. |
| | | | Reply | It can not be deleted as the low delay mode operation is proposed to be used only for video conferecncing applications. |
| 26 | 7 | 2.2.6 (C) Video Bit-rate | Query | Not Supported "1 to 25 Mbps for 4:2:2 Profile." Please remove "1 to 25 Mbps for 4:2:2 Profile." or make optional |
| | | | Reply | No change in sepecification |
| 27 | 7 | 2.2.6 (G) Chrominance Format | Query | Not supported "For MPEG -2 , 4:2:0 & 4:2:2 selectable," Please remove ""For MPEG -2 4:2:2 selectable," or make optional |
| | | | Reply | No change in sepecification |
| 28 | 8 | 2.2.10 Audio Compression Technique | Query | (b) Our encoder Model HVE9100 supports the following rates. For MPEG-1, Layer II: Single: 64, 80, 96, 112, 128, 160, 192 kbps For MPEG 4 AAC: 64, 96, 112, 128, kbps For MPEG-4 HE AAC : 64, 96, 112, 128 kbps We would like you to modify the description accordingly. |
| | | | Reply | No change in sepecification. |

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| 29 | 8 | 2.2.10.(a) (a) Audio Encoding Method | Query | Not supported "5.1 surround sound encoding" Please remove "atleast one 5.1surround sound encoding" or make optional |
| | | | Reply | No change in sepecification |
| 30 | 10 | 2.3.4 (5) – Output connector | Query | The connector type may please be amended from SMA(F) to N-Type 50R which is better for repeatable connectivity especially for Flyaway application which will be repeated deployed. |
| | | | Reply | It can not be changed due to compatibility requirements with exisiting equipments in the Doordarshan network. |
| 31 | 10 | 2.3.4 (7) – 1dB compression output | Query | As the max output Level (as stated in 2.3.4 (7)) has specified to be +5dBm. We believe this should be referring to 3rd Order Intercept (3OIC) of which we comply with the spec of +10dBm. Please confirm. |
| | | | Reply | YES |
| 32 | 13 | NOCC Clearance for Antenna system | Query | In case a Certificate is issued by Intelsat or Eutelsat on the performance of the antenna system , will it be sufficient or still the vendor has to get the NOCC clearance locally for all the Five Antenna system . Pl. advise. |
| | | | Reply | Type approval certificate from any one or more satellite operators, in respect of offered antenna, is required to be enclosed along with the tender (technical bid) to meet the technical evalutuion requirment. However, NOCC clearance of each antenna system will be responsibility of tenderer at the time of final inspection at the time of delivery of DSNG Vans. |
| 33 | 13 | 5 (4) | Query | Technical offershQllcl !llcillde_alltenna sy~telJ:l-type approval certificate~ or antenna Performance verification report from reputed International organisations or satellite operators like NOCC/India or INTEL SAT or EUTELSAT or NSS etc. The Eutelsat is irrelevant as there is no C band capacity on any Eutelsat satellite, please drop this EUTELSAT compliant. |
| | | | Reply | Firm may take relevant organization only, as the requirement is from any one organization only. |
| 34 | 14 | 5.1 (10) – Cross Polarization Isolation | Query | Refer to Intelsat 601e doc (as attached); the isolation figure should be 30dB relative to co-polar gain within 1dB, instead of 35dB. |
| | | | Reply | Please see enclosed amendment at sr no 6. |
| 35 | 14 | 5.1 (11) – Rx VSWR | Query | The Rx VSWR may please be amended to 1.35 (due to the additional combiner required for 2 Downlink) instead of 1.3. We believe this amendment will not affect the performance of the system as it's only 0.027dB in actual difference on the Rx path |
| | | | Reply | No change in specifications. |
| 36 | 15 | 7.1.(m) Mpeg2/MPE G4/DVB prof IRD Specification | Query | Symbol rate as mentioned in the table should be other way i. e 1.5 to 30 M symbol/sec should be with DVB(S) and 1.0 to 44.5 M symbol/sec with DVB (S-2) |
| | | | Reply | No change in specifications. As this is the minimum limit only. Firm can offer equipments with higher performance. |

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| 37 | 15 | 7.1 MPEG 2 / MPEG 4 / DVB Prof. IRD Specifications | Query | Required specifications Our IRD Model HVD6100 can store up to 16 channels. We would like you to modify the number of channels from 20 to 16 channels. |
| | | | Reply | Please see amendment no 7. |
| 38 | 15 | 7.1 RF Parameter (h) Image Rejection | Query | We do not specify this figure in our specification. Please delete this item. |
| | | | Reply | Firm may give typical measured value in the factory. |
| 39 | 15 | (j) Noise Figure | Query | We do not specify this figure in our specification. Please delete this item. |
| | | | Reply | Firm may give typical measured value in the factory. |
| 40 | 15 | 7.2 Audio and Video Decompression Parameters (a) Video Resolution | Query | Our IRD Model HVD6100 does not support the following resolutions. Please delete those resolutions. 704 x 576 544 x 576 480 x 576 352 x 576 |
| | | | Reply | No change in the specification |
| 41 | 15 | (d) Audio Decompression Type | Query | Our IRD Model HVD6100 does not support "Joint stereo", "Digital AAC (HE Mode) and AC-3 Pass through.. Please delete those specifications. |
| | | | Reply | NO change in specifications. |
| 42 | 16 | 7.4.2 Video Performance Specifications (a) Frequency Response | Query | Our IRD Model HVD6100 supports the following figures. 4 to 4.8 MHz: -1/+ 0.5 dB 4.8 to 5.8 MHz: -4/+ 0.5 dB We would like you to modify the descriptions. |
| | | | Reply | No change in specification |
| 43 | 16 | (e) Line Time Distortion | Query | We do not specify this figure in our specification. Please delete this item. |
| | | | Reply | Firm may give typical measured value in the factory. |
| 44 | 16 | (f) Short Time Distortion | Query | Our IRD Model HVD6100 supports "<10%". We would like you to modify this specification from "<2%" to "10%". |
| | | | Reply | No change in specification |
| 45 | 16 | (g) Differential Gain | Query | Our IRD Model HVD6100 supports "<5%, Typical 2%". We would like you to modify this specification from "<4%" to "<5%, Typical 2%". |
| | | | Reply | No change in specification |
| 46 | 16 | (h) Differential Phase | Query | Our IRD Model HVD6100 supports "<5 degree, Typical 2 degree". We would like you to modify this specification from "<2 degree" to "<5 degree, Typical 2 degree". |
| | | | Reply | No change in specification |
| 47 | 16 | (i) Signal to Noise Ratio | Query | We do not specify this figure in our specification. Please delete this item. |

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| | | | Reply | Firm may give typical measured value in the factory. |
| 48 | 17 | 7.4.3 VBI Signal Reinsertion Specifications | Query | Our IRD is not capable of handling VBI signals. Please delete this specification. |
| | | | Reply | No change in specification. |
| 49 | 17 | 7.5 Audio Output 7.5.1 Analog audio | Query | Our IRD Model HVD6100 output the monaural audio to either left or right channel. We would like you to modify the description accordingly. Also, "Joint stereo" is not supported, and we would like you to delete this specification. |
| | | | Reply | No change in specifications. |
| 50 | 17 | (7.5.1.1) a | Query | Peak Output Level : + 18 dBm in to 6000 (Balance), it appears to be a typing error, it should be 600 Ohm. |
| | | | Reply | As per specification it is 600 Ohm only |
| 51 | 17 | (7.5.2.1) (a) | Query | Output Impedance : 6000 (Balance), it appears to be a typing error, it should be 600 Ohm. |
| | | | Reply | As per specification it is 600 Ohm (balance) only |
| 52 | 17 | 7.5.2.1 (b) Clipping Level | Query | Our IRD Model HVD6100 does not support this function. Please delete this item. |
| | | | Reply | No change in specification. |
| 53 | 17 | (c) Sampling Rates | Query | Our IRD Model HVD6100 supports only 48KHz. We would like you to delete 32 and (44.1 KHz. |
| | | | Reply | Please see amendment list at serial no 8. |
| 54 | 17 | (d) Frequency Response, (e) THD, (f) Dynamic range, (g) Cross talk at 1 KHz and (i) Signal to noise ratio | Query | We do not specify those figures in our specification. Please delete this item. |
| | | | Reply | Firm may give typical measured value in the factory. |
| 55 | 17 | 7.5.2.1 (d) - Frequency Response | Query | The Frequency Response may please be amended to 20Hz-to 18KHz +/-0.5dB as this standard is more applicable for contribution with narrower range of tolerance (instead of +/- 2dB) to provide more stable performance. |
| | | | Reply | It can not be changed. |
| 56 | 17 | 7.1 (e) - Input Impedance | Query | The input impedance may please be amended to 50Ω/ 75Ω to provide the flexibility to supplier. As Advent is using 50Ω 50R IFL Cable and 50R LNB N-type O/P, we will have to provide the matching N-Type 50Ω 50R Connector. In any case, 50Ω cables are best used for Flyaway application all thanks to its higher flexibility as compared to 75Ω cable. |
| | | | Reply | It can not be changed due to compatibility requirements with existing equipments in the Doordarshan network. |
| 57 | | | Query | Box thickness |

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| | | | Reply | Please see enclosed amendment at sr no 1. |
| 58 | | | Query | Is it required to offer Gen set ? |
| | | | Reply | Gen set is not required |
| 59 | 18 | 7.9.1 Audio/Video Monitoring | Query | Kindly clarify the exact specification to monitor , Analog & HD, SD/SDI monitoring of video signal |
| | | | Reply | Please see enclosed amendment at sr no. 9, 12 and equipment list. |
| 60 | 18 | 7.6 LNB Power Supply & Control (a) LNB Voltage | Query | Our IRD Model HVD6100 only supports “Off / +13 V/ + 18V selectable” and “19 V fixed” is not supported. Please delete “19 V fixed”. |
| | | | Reply | No change in specification. |
| 61 | 18 | (b) Power Consumption | Query | Our IRD Model HVD6100 supports up to 300 mA (Max). We would like you to modify this specification. |
| | | | Reply | No change in specification. |
| 62 | 18 | (c) Over Current protection | Query | Our IRD Model HVD6100 supports “ Current Alarm”. We would like you to modify the specification. |
| | | | Reply | Question is not clear. Under this specification it is desired that IRD power supply unit should isolate LNBC if it tries to draws more current. |
| 63 | 18 | 7.8 | Query | Specification is missing. |
| | | | Reply | OK, it is deleted. |
| 64 | 24 | Redundancy System | Query | As per the equipment list and Schematic Diagram of C band Flyaway DSNG (page no.30 of the RFP), the redundnancy controller is asked with TWT(HPA) and Up Converter only. This would ensure switching over of TWT and Upconverter in case a fault occur . How about if there is a fault in the Encoder and Modulator . How the switching over from faulty Modulator /encoder shall be taken care. Pl. advise. |
| | | | Reply | Redundacny is expected between two chains of Encoder + Modulator + Upconverter, i.e. one chain at a time. |
| 65 | 23 & 24 | 1 (j) & 8 (b) equipment list | Query | Satellite tracker is mentioned at both the points. Please clarify. |
| | | | Reply | Please see enclosed amendment at sr no. 10 and equipment list. |
| 66 | 24 | 7 (b), 7 (c), 7 (e), 7 (f), 7 (g), 7 (h) & 7 (i) equipment list | Query | Monitoring set up: Please clarify equipments monitoring set up are HD and SD compatible or SD compatible only. If HD, what will be the requisite technical parameters for the same. |
| | | | Reply | Requirement is for HD and SD monitoring along with audio bar graph for 2 AES/EBU per channel monitoring.Please see enclosed amendment at sr no. 12 and equipment list. |
| 67 | | | Query | TLT |
| | | | Reply | Please see enclosed amendment at sr no. 13 and equipment list. |
| 68 | | Para 2.3.3(c) : | Query | Please confirm if the frequency stability to be read as ± 1 KHz. It is given $<+1$ KHz (all causes over 10 years) in the specifications. |
| | | | Reply | The frequency stability may be read as ± 1 KHz |

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| 69 | 24 | Para 12 – Equipment List Item 7 (h) | Query | – Audio Embedder: Please clarify if two Embedder cards (with 2 AES/ EBU channels per card) are required in one cabinet? Can two standalone embedders also be offered? |
| | | | Reply | yes, firm can offer stand alone embadders or cards in a chasis. |
| 70 | 26 | Item 7(i): | Query | Three nos of analog video to SDI converter are required. Can they be offered as cards fitted in one cabinet or three separate standalone units are required? This item is not shown in the Block Schematic diagram on page 26. |
| | | | Reply | Yes, firm can offer cards in one cabinet or separate stand alone unit. |
| 71 | | Item 8 (b) | Query | Handheld Satellite Tracker is shown at item 1(i) and also under 8(b). Please clarify if two satellite trackers are required. If yes, do both have to be equivalent to Horizon Global/ Prodig. |
| | | | Reply | Please see amendment at sl no.10 & 11 |
| 72 | | 1.4, 1.5 | Query | From a reading of paras 1.4, 1.5 and others we feel that the tender is open for foreign bidders like ourselves. Our offer is proposed to be on FOB basis as per requirements of tender terms and conditions, including Annexure III. However we find from Delivery Instructions given in Annexure IV that the prices should be on FOR Destination basis for delivery at the five locations given therein. Kindly clarify whether the delivery instruction in Annexure IV will apply to foreign bidders also or they will be exempted from the requirement that prices should be on FOR |
| | | | Reply | Foreign Bidders should quote firm FOB Price as per terms and conditions of the tender document. |
| 73 | | | Query | In the invitation to bid, it is stated that for EMD the Bank Guarantee issued by a Public Sector Bank only. |
| | | | Reply | Bank guarantee/Demand Draft in equivalent freely convertible foreign currency in case of foreign supplier, in favour of PBBCI, DIRECTOR GENERAL: DOORDARSHAN, NEW DELHI or in lieu thereof bid bond in the enclosed Performa at appendix 3, from an Indian commercial Bank & rate specified in clause 1.5 of Invitation to Bid. In case of Bank Guarantee is obtained from the foreign Bank it should be guaranteed by an Indian Commercial Bank and must be governed by Indian Laws subject to jurisdiction of court of New Delhi. |

Sub: Amendment in Specifications for C Band DSNG.

| S. No | Pg. | Item No. | | Description |
|-------|-----|----------|---------------|---|
| 1 | 3 | 1-vii) | Existing text | VIII. The full complement of the DSNG system should be packed in lightweight weather proof; shockproof containers (Hard cases) made of Carbon Fibre with Honey Comb Structure of thickness 20 mm Minimum of suitable size for airfreight, meeting the IATA accompanied baggage requirements to ensure reliable operation. |

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| | | | Amended text | VIII. The full complement of the DSNG system should be packed in lightweight weather proof; shockproof containers (Hard cases) made of <u>Carbon Fiber with Honey Comb Structure of thickness 15 mm Minimum</u> of suitable size for airfreight, meeting the IATA accompanied baggage requirements to ensure reliable operation. <u>Alternatively, front & back side opening Hard rack cases made of High Density Polyurethane, Alluminium alloy rack frame manufactured by Pelican or Hardigg or Thermodyne or equivalent can also be offered for equipment.</u> |
| 2 | 5 | 2.1.6 | Existing text | 1080X 1920/1440 i25 720x 1280/50p |
| | | | Amended text | 1920x1080/50i; 1440x1080/50i; 1280X 720/50p |
| 3 | 7 | Section 2.2.3 SD MPEG-2 Low Latency figures: | Existing text | 2.2.3 2. Low delay For MPEG-2 - 100msec |
| | | | Amended text | 2.2.3 2. Low delay For MPEG-2 - 200msec |
| 4 | 7 | 2.2.6 (A) Video Compression Parameters Video Resolutions (PAL) | Existing text | 2.2.6 Video Compression Parameters Parameter Specification (a) Video Resolutions (PAL) 720 x 480, 720 x 576, 704 x 576, 544 x 576, 480 x 576, 352 x 576, |
| | | | Amended text | 2.2.6 Video Compression Parameters Parameter Specification (a) Video Resolutions (PAL) 720 x 576, 544 x 576, |
| 5 | 10 | 2.3.4 (8) – 1dB compression output | Existing text | Output Gain 0 dBm + 5 dBm |
| | | | Amended text | output gain 0 to +5 dBm |
| 6 | 14 | 5.1 (10) – Cross Polarization Isolation | Existing text | 10. Cross Polar Isolation : 35 dB relative to co-polar gain within 1 dB Contour (Factory test report to be submitted at the time of inspection along with spectrum plots) |
| | | | Amended text | 10. Cross Polar Isolation : 30 dB relative to co-polar gain within 1 dB Contour (Factory test report to be submitted at the time of inspection along with spectrum plots) |
| 7 | 15 | 7. MPEG 2 / MPEG 4 / DVB Prof. IRD Specifications | Existing text | The IRD should have a front panel display and one should be able to enter or edit all the parameters for a perfect reception of the signals. There should be provision for observing the BER of the signal and signal level on the front panel. IRD should be able to descramble BISS mode 1 and BISS-E signals. Also the IRD should be able to store at least 20 channels in memory. |
| | | | Amended text | The IRD should have a front panel display and one should be able to enter or edit all the parameters for a perfect reception of the signals. There should be provision for observing the BER of the signal and signal level on the front panel. IRD should be able to descramble BISS mode 1 and BISS-E signals. Also the |

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| | | | | IRD should be able to store at least 15 channels in memory. |
| 8 | 17 | 7.5.2.1(c) Sampling Rates | Existing text | Sampling Rates 32, 44.1 and 48 KHz |
| | | | Amended text | Sampling Rates 48 KHz |
| 9 | 18 | 7.9.1 Audio/Video Monitoring | Existing text | Specifications for Monitors 1. Display (Viewing Area) 5" or more 2. Resolution (Pixels) 480H x 234V (min) 3. Dot Pitch 0.171mm x 0.264mm (min) 4. Brightness Better than 250cd/m2 5. Aspect ratio 4: 3 and 16:9 6. Composite Video I/P per monitor One 7. Video Input SDI Embedded and Analog SDI |
| | | | Amended text | Specifications for Monitors 1. Display (Viewing Area) 5" or more 2. Resolution (Pixels) 800H x 480V (min) 3. Dot Pitch 0.190 mm x 0.190 mm (min) 4. Brightness Better than 250cd/m2 5. Aspect ratio 16:9 6. Video Input SD / HD-SDI Embedded 7. Viewing Angle 140 Degree (H), 120 Degree (V) |
| 10 | 23 | 1 (j) Equipment List | Existing text | Hand held GPS receiver (Equivalent to Garmin) and Satellite tracker (equivalent to Horizon Global, Prodig) |
| | | | Amended text | Hand held GPS receiver (Equivalent to Garmin) |
| 11 | 23 | 8 (b) Equipment List | Existing text | Handheld Satellite tracker |
| | | | Amended text | Hand held Satellite tracker (equivalent to Horizon Global, Prodig) |
| 12 | 23 | 7 (b), 7 (c), 7 (e), 7 (f), 7 (g), 7 (h) & 7 (i) equipment list | Existing text | b DUAL Picture TFT monitor with size 5" to 6" (which can fit in the 19" rack) with SDI, CCVS, AES EBU inputs) c Dual AES and Dual Analogue Audio Monitor with bar graph & Speakers (which can be fit in the 19" rack below the TFT monitor) (Two stereo Audio per video) (AAC 5.1 for HD DSNG) e. SDI equalizer (up to 200 meter length) (MIRANDA, KRAMER, GVG, or equivalent.) f. SDI / (AES/EBU) input matrix switcher 4X4 (for Video with associated Audio) (LEITCH, NETWORK, Probel, Kramer or equivalent) g. Colour bar and tone generator (Tektronix, KRAMER , R&S or equivalent) h. Audio (analogue and Digital) Embedder (similar to Miranda, Crystalvision, Snell & Wilcox etc.) (2 AES/ EBU channels per card) i Analog Video to SDI Converter |
| | | | Amended text | b DUAL Picture TFT monitor with size 5" to 6" (which can fit in the 19" rack) with HD SDI, AES/EBU inputs)c Dual AES and Dual Analogue Audio Monitor with bar graph & Speakers (which can be fit in the 19" rack below the TFT monitor) (Two stereo Audio per video) e. HD SDI equalizer (up to 200 meter length) (MIRANDA, KRAMER, GVG, or equivalent.)f. HD SDI / (AES/EBU) input matrix switcher 4X4 (for Video with associated Audio)(LEITCH, NETWORK, |

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|----|--|-----------|---------------|--|
| | | | | Probel, Kramer or equivalent)g. HD/SD SDI Colour bar and tone generator (Tektronix, KRAMER , R&S or equivalent)h. Audio (analogue and Digital) Embedder (similar to Miranda, Crystalvision, Snell & Wilcox etc.) (2 AES/ EBU channels per card) i Analog Video to SD SDI Converter |
| 13 | | New Entry | Existing text | TLT |
| | | | Amended text | Please see enclosed spec sheet and equipment list for TLT specifications. |

Equipment List (BOM)

| S. No. | DESCRIPTION | QTY per Unit | MAKE | MODEL |
|----------|--|--------------|------|-------|
| 1 | FLYAWAY 1.8 Mtr to 2 Mtr Antenna System | 1Set | | |
| a | Lightweight 1.8 / 2 meter segmented antenna and 3 axis mount system | 1 | | |
| b | C band 3 port feed (Tx range 5.7 to 6.2GHz)* | 1 | | |
| c | Diplexer for 3 port operation | 1 | | |
| d | Transmit reject filter (With > 80 db isolation) | 1 | | |
| e | Cross axis waveguide kit | 1 | | |
| f | Interconnecting cables | 1 set | | |
| g | System tools | 1 | | |
| h | Compass | 1 | | |
| i | Inclinometer | 1 | | |
| j | Hand held GPS receiver (Equivalent to Garmin) | 1 | | |
| k. | Antenna flight case (Hard case –Carbon Fiber) | 1 set | | |
| L | NOCC Clearance of above Antenna System | 1 set | | |
| m | Essential Additional Item (if any) to Complete the antenna System | | | |
| | * (Factory test report for cross pole isolation to be submitted at the time of inspection along with spectrum plots) | | | |
| 2 | HIGH POWER AMPLIFIER | 1Set | | |
| a | 400 watt (350watt flange) C band TWT amplifier (outdoor unit) | 2 | | |
| b | Lineariser for 400 watt C band TWT amplifier | 2 | | |
| c | Amplifier Redundancy controller | 1 | | |
| d. | Wave guide Switch for 1+1 redundancy & Dummy load. | 1 | | |
| e. | RF Equipment case (Hard case –Carbon Fiber or Pelican or Hardigg or Thermodyne or equivalent) | 1 | | |
| f. | Essential Additional Item (if any) to Complete the HPA System | 1 set | | |
| 3 | Upconveter or BUC | 2 | | |
| b | Up converter Redundancy Switch (controller) | 1 | | |
| c | Essential additional items (if any) for Up converter system | 1set | | |
| d | Hard case for transportation | 1 set | | |
| 4 | Digital Equipment ** | | | |
| a | Encoder (for SD MPEG-4 & MPEG-2) | 2 | | |
| b | BISS-E scrambling (H/W & S/W) for Encoders | 2 | | |
| c | 4:2:2 option for encoder | 2 | | |
| d | Modulator # | 2 | | |
| c | Digital Equipment Case (Hard case –Carbon Fiber or Pelican or Hardigg or Thermodyne or equivalent) | 1 set | | |

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|----------|----|--|--------------|--|--|
| | d | Essential additional items (if any) for Encoder& Modulator | 1 set | | |
| | | # Tenderer can also quote encoder cum modulator | | | |
| 5 | | Digital Equipment ** | | | |
| | a | Encoder (for HD MPEG-4) | 2 | | |
| | b | BISS-E scrambling (H/W & S/W) for Encoders | 2 | | |
| | c | Hard case for Transportation (Carbon fiber or Pelican or Hardigg or Thermodyne or equivalent) | 1 | | |
| | | **Two DSNGs will have 1 set of HD-MPEG-4 Encoders in 1+1 mode in addition to SD encoders. (Other 3 DSNGs should have blank space for 2 encoders of 1 RU each for future upgrade as and when required) \$ HD encoders should be supplied as separate units in separate hard case, so that HD encoders can be shifted to other DSNGs in case of requirements. | | | |
| 6 | | Receiving Setup equipment | 1 Set | | |
| | a | IRD (Integrated Receiver Decoder) for MPEG-2 & MPEG-4(H.264) (4:2:0 for HD MPEG-4 , SD MPEG-2 & MPEG-4 and 4:2:2 for HD MPEG-4 & SD MPEG-2) with BISS-E De-scrambling Facility and SDI output | 2 | | |
| | b | LNBC (3.625 GHz to 4.2 GHz) | 2 | | |
| | c | Essential additional item (if any) to complete the receive set up | 1 set | | |
| 7 | | Monitoring Set up consisting of | | | |
| | a | C-band Uplink frequency to L Band Down Converter (TLT) | 1 | | |
| | b | DUAL Picture TFT monitor with size 5" to 6" (which can fit in the 19" rack) with HDSDI, CCVS, AES EBU inputs) | 1 | | |
| | c | Dual AES and Dual Analogue Audio Monitor with bar graph & Speakers (which can be fit in the 19" rack below the TFT monitor) (Two stereo Audio per video) (AAC 5.1 for HD DSNG) | 1 | | |
| | d | Waveform Monitor Hand held for HD-SDI input (similar to WFM 5000 or equivalent) | 1 | | |
| | e. | HDSDI equalizer (up to 200 meter length) (MIRANDA, KRAMER, GVG, or equivalent.) | 2 | | |
| | f. | HDSDI / (AES/EBU) input matrix switcher 4X4 (for Video with associated Audio) (LEITCH, NETWORK, Probel, Kramer or equivalent) | 1 | | |
| | g. | HD / SD SDI Colour bar and tone generator (Tektronix, KRAMER , R&S or equivalent) | 1 | | |
| | h. | Audio (analogue and Digital) Embedder (similar to Miranda, Crystalvision, Snell & Wilcox etc.) (2 AES/ EBU channels per card) | 2 | | |
| | i | Analog Video to SD SDI Converter (MIRANDA, KRAMER, GVG or equivalent.) | 3 | | |
| | j | Hard case for Transportation (Carbon fiber or Pelican or Hardigg or Thermodyne or equivalent) | 1 | | |
| 8 | | Measuring Equipment | | | |
| | a | Handheld Spectrum Analyzer (100KHz to 3GHz with standard Accessories), which should be able to resolve the Telemetry of INSAT series of satellite in C-band (Down converted to L band.) (Noise floor should be better than -105 dB at 1khz RBW) (With LCD Display) | 1 | | |
| | b | Handheld satellite tracker (equivalent to Horizon Global, Prodig) | 1 | | |
| | d | Hard case for Transportation (Carbon fiber or Pelican or Hardigg or Thermodyne or equivalent) | 1 | | |
| 9 | | Maintenance Tool Kit | 1 Set | | |
| | a | Set of Tools for maintenance including soldering station | 1 set | | |

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| | (similar to Weller make) | | | |
| b | Flexible wave guide with flange (1 meters each) (Additional) | 5 | | |
| c | Tool box (Hard case type) | 1 | | |
| d | Essential Additional items (if any) for maintenance work | 1 set | | |
| e | Hard case for transportation of Audio-Video cables as per IATA regulation | 1 | | |
| 10 | a UPS of 5.0 KVA (Min) with 15 Min backup | 1 | | |
| | b Essential additional item (if any) to complete the UPS system | 1 set | | |
| | e Hard case for Transportation (Carbon fiber or Pelican or Hardigg or Thermodyne or equivalent) | 1 set | | |
| 11 | a System Integration & System Engineering | 1 set | | |
| 12 | Manuals & CDs (for S/w) of all The Equipments offered | | | |
| | a CD ROM for all the software required in the System | 1 set | | |
| | b System Manuals (Operation and Maintenance/ Service Manuals) | 1 set | | |
| | c Software upgrades within two year of installation should be supplied free of cost. | | | |
| 13 | Training | | | |
| | a Training for 6 Doordarshan Engineers in India at each consignee's site for one week | 1 job | | |
| 14 | Any other item to Complete the Specification, Installation and commissioning of the system. | | | |

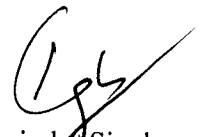
Specification for Test Loop Translator (TLT) from C-band U/L frequency to L-band

Test Loop Translator (C-band uplink frequency to L-band) is to be used to check the monitoring output of Upconverters & HPAs. Monitoring ports of Upconverter and HPAs will be fed to TLT. Output of TLT will be fed to IRD through L-band input. The specifications are detailed below

| | |
|---------------------------|-------------------------------------|
| 1. Input Frequency | 5.85 GHz to 6.425 GHz |
| 2. Output Frequency range | 950 MHz to 1450 MHz |
| 3. Input return loss | : 18 db minimum |
| 4. Out put return loss | : 18 db minimum |
| 5. Phase Noise | IESS308/309 compliant |
| 6. Spurious | -40 dBc modulated (carrier related) |
| | -55 dBm unmodulated (Non carrier) |

It may also be noted that tender opening has been extended, now the tender will be opened on 27.07.2010 at 12:00 Hrs. the tender submission time is 11:30 Hrs. on 27.07.2010.

Yours faithfully



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For Director General
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