

ANNEXURE-II

Proposals from VIGYAN PRASAR
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Submitted to NFAP-2010 Meeting related to
“Amateur Radio Service”

(These proposals refer to WPC's Office Memorandum no. L-14011/255/2004-AMT dated 13.08.2010)

Proposal for Inclusion of Modes of Emissions

HF

Frequency: 10.100-10.150 MHz (30m Band)

Approved Modes in the Frequency/Band	Modes of Emissions Proposed to be included	Reasons
<p>This Band is presently not allotted but proposed as in ANNEXURE-I.</p> <p>During the past few years, from time to time, WPC issued circulars permitting radio amateurs in India to operate in this band only for short duration during which only following modes were approved:</p> <p>A1A J3E</p>	<p>It is proposed that 10.100-10.150 MHz (30m Band) be allotted to <u>Amateur Radio Service permanently on Secondary Shared Basis</u> allowing following Modes of Emission in addition to A1A and J3E:</p> <p>A2A F1B F2B J2B (Data Transmission by AFSK of a SSB transmitter) J2D (Data Transmission by Amplitude Modulation/Single Sideband/Suppressed Carrier without using a modulating subcarrier) G1B (PSK31 Phase Shift Keying)</p>	<p>Due to its location in the centre of the shortwave spectrum, this band (30m) provides significant opportunities for long-distance communication at all points of the solar cycle.</p> <p>In this band, radio amateurs mainly use low bandwidth technology like Morse Code (A1A/A2A) and digital modes of data transmissions for experimentation as well as utility/emergency/disaster communication.</p> <p>A permanent allocation along with inclusion of modes stated in column two on Secondary Shared Basis thus becomes imperative which would be beneficial to the radio amateurs in India experimenting with digital modes along with their counterparts elsewhere in the world.</p>

HF Bands ranging from 1.820 MHz to 29.700 MHz

Approved Modes for General Grade Licencees	Modes of Emissions Proposed to be included	Reasons
A1A A2A A3E H3E J3E R3E F1B F2B F3E F3C A3C A3F	F2D --- Data transmission by frequency modulation of a radio frequency carrier with an audio FSK subcarrier (AFSK) J2B --- FSK Signals generated by audio modulation of a SSB transmitter J2D G1B --- PSK31	<ol style="list-style-type: none"> 1. Digital modes of communication are more efficient allowing efficient and economic utilization of the precious radio frequency spectrum. 2. Works well even in poor propagation condition. 3. In a developing country like India, HF digital modes can be suitably utilized for scientific educational activities as an alternative to Internet. 4. Would encourage Radio and Internet linking Systems for utility communication without any pecuniary interest.

VHF

Frequency: 50-54 MHz (6m)

Approved Modes for General Grade Licencees	Modes of Emissions Proposed to be included in addition to already approved modes	Reasons
F1B F2B F3E F3C	A1A A2A J3E F2D (Data Transmission by AFSK of a FM transmitter) J2B (Data Transmission by AFSK of a SSB transmitter) J2D (Data Transmission by Amplitude Modulation/Single Sideband/Suppressed Carrier <i>without</i> using a modulating subcarrier) G1B (PSK31)	<ol style="list-style-type: none"> 1. A1A and J3E are the primary modes used for long distance propagation experiments in this band. 2. Hams consider this as a 'Magic Band' because of the fascinating nature of propagation exhibited by this band. There are possibilities of all types of propagation at one time or another via Sporadic-E, Tropospheric Ducting, Aurora, Meteors, even F2 layer skip like a HF band frequency for which various modes of emissions are continuously being experimented by hams.

Frequency 144-146 MHz (2m band)

Approved Modes for General Grade Licencees	Modes of Emissions Proposed to be included	Reasons
<p>F1B F2B F3E F3C</p>	<p>A1A J3E F2D (Data Transmission by AFSK of a FM transmitter) G1B (PSK31)</p>	<ol style="list-style-type: none"> 1. Morse Code (A1A) and SSB (J3E) Voice is a preferred mode of communication via many of the ham satellites including Indian ham satellite VO-52 (VUSAT aka HAMSAT), i.e. satellite using linear transponders. As per ISRO and AMSAT India guidelines, it is highly recommended to use Morse Code (A1A) or SSB Voice (J3E) instead of FM (F3E) while communicating through the Indian ham satellite VO-52 and ham satellites using linear transponders to avoid damage to the transponders. 2. Ham satellites are mostly with UHF and VHF Uplink/Downlink but instead of F3E, A1A and J3E modes are used. Indian ham satellite VO-52 has its UPLINK on 435.250 MHz Mode: LSB(J3E)/CW(A1A) DOWNLINK 145.900 MHz Mode USB(J3E)/CW(A1). And some even have provision for HF and many have A1A beacons (including Indian ham satellite VO-52) So inclusion of modes (e.g. A1A, J3E) which are in general used for terrestrial communication is also necessary for satellite communication. 3. Nowadays, real-time keyboard to keyboard text communication is a popular mode (e.g. PSK31: G1B) which allows effective communication to take place using low bandwidth technology and at very low power (QRP) even under bad propagation conditions. 4. Packet Radio (AX.25 Protocol) and

		<p>Automatic Packet Reporting System (APRS-Registered Trade Mark of Bob Bruninga,WB4APR,US Naval Academy) are widely used across the world by the amateur radio community. Inclusion of F2D/ J2B/J2D etc. would legalize these digital modes.</p>
<p>UHF</p>		
<p>Frequency: 434-438 MHz (70cm band)</p>		
<p>Modes approved:</p> <ol style="list-style-type: none"> 1. F1B 2. F2B 3. F3E 4. F3C 	<p>Modes Proposed to be included in (in addition to an expansion of 430-440 MHz) addition those already approved:</p> <ol style="list-style-type: none"> 5. A1A 6. J3E 7. F2D (Data Transmission by AFSK of a FM transmitter) 8. G1B (PSK31) 	<p>- Do -</p>