# Report of the Technology Task Force

## ARRL Board of Directors
## 2005 Second Annual Meeting
## Windsor Locks, Connecticut
## July 15, 2005

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| Members: | Howard Huntington, K9KM Chair |
| | Tom Frenaye, K1KI |
| | Mike Raisbeck, K1TWF |
| | Paul Rinaldo, W4RI |
| ARRL Staff Liaison | Ed Hare, W1RFI |

**Technology Task Force.**

The TTF reviewed applications for the Technical Awards relative to the Terms of Reference for the awards. The candidates are doing work very beneficial to amateur radio and providing valuable service to their community however the TTF did not reach consensus that the candidates had met a broad range of the exemplary service examples cited in the Terms of Reference. The committee did agree that the Technical Awards program needs some attention to improve publicity for the awards and to optimize supporting documentation from the candidates.

SDR Working Group Chairman Doug Smith, KF6DX, found it necessary to request that a new SDR Chairman be appointed to the SDR Working Group. After some discussion the TTF agreed to nominate Bob McGwier, N4HY, as the new chairman. With the agreement of President Jim Haynie, W5JBP, we were pleased to announce Bob's appointment. We also thank Doug for his service to the SDR Working Group.

New members were also appointed to the HSMM and SDR Working Groups.

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| HSMM WG | Brandon Field, KC8YHE |
| HSMM WG | Jim Kvochick, WB8AZP |
| SDR WG | John Stephensen, KD6OZH |
| SDR WG | Frank Brickle, AB2KT |
| SDR WG | Matt Ettus, N2MJI |

The ARRL Expo area at Dayton Hamvention included a Technology Task Force table and provided the opportunity for members to discuss the activities of the TTF and working groups.

The TTF also presented a forum at Dayton Hamvention on Sunday moderated by Howard Huntington, K9KM with about 25 persons present. Many other had expressed interest in the forum at the Expo table but were not able to attend the forum on Sunday. An excellent presentation by Joe Taylor, K1JT provided some background of the development of WSJT software and the exciting capabilities to extract information at -20 to -30 dB signal to noise ratio for EME and other weak signal applications. More outstanding work is expected from Joe in a future *QEX* publication. Thanks to Doug Smith for arranging for Joe to present at the forum. Paul Rinaldo, W4RI spoke about the purpose of TTF and acknowledged the efforts of many volunteers who have contributed to advancing technology within amateur radio. Yoshi Nishimura, JA6UHL of the digital voice working group spoke about digital voice and the AOR ADR9800. Bob McGwier, N4HY spoke about SDR advancements and the excellent global cooperation developing open source software and available commercial hardware.

**TTF Working Groups**

**1. High Speed and Multimedia Working Group.**

Construction of OFDM modems capable of 2 MHz bandwidth at 70 cm is underway within the HSMM WG and should be in use this year to evaluate high speed data at UHF. This work is tightly tied to the SDR WG to combine the two technologies.

The HSMM group had prepared a justification paper to allow off the shelf security measures readily available for data transmissions above 50 MHz. At Minute 29 of the July, 2004 meeting the Board authorized a petition to the FCC to address this issue at the earliest opportunity and so far that opportunity is not yet apparent as the petition has not been filed.

For almost three years the HSMM group has been exploring possibilities for high speed data at HF and has proposed various suggestions of additional bandwidth for testing in the hostile multipath HF environment. Not unexpectedly, the recent report of HSMM respectfully suggests some accommodation for channels of greater bandwidth to include in the Regulation by Bandwidth proposal, for example a single 20 kHz channel in the 80m band shared by other lower speed data users and to be used to develop advanced modulation schemes. The combination of SDR and Cognitively defined radio has promise to allow multiple digital modes to coexist without interference.

**2. Software Designed Radio Working Group.**

The SDR WG has involvement in many exciting areas of evolving technology that promise to affect how we communicate in the future. In his report, Bob McGwier, N4HY mentions many of the areas of new development. Flex Radio SDR1000, LINRAD and GnuRadio are making rapid advances together to focus on high performance narrowband HF and wideband VHF/UHF. DCP-1 is connected with the HSMM WG to develop high speed data at UHF. AMSAT is using SDR in many if

not all of the communications devices of the future. Cognitively defined radio and Smart Antennas promise to automate much of what we do now and achieve much improved results. Bob cites the example to analyze wave propagation from known FM broadcast stations to predict ionospheric phenomena. We can expect some rapid advances from the SDR WG.

**3. Digital Voice Working Group.**

The DV group has not generated much email traffic. Other than Yoshi's participation in the Dayton Hamvention forum, there ahs not been much activity. Yoshi did suggest at Dayton a need for standards though that may not be an activity for the WG.

Respectfully submitted,

Howard Huntington, K9KM
Chairman, Technology Task Force