

*Before the
Federal Communications Commission
Washington, D.C. 20554*

In the Matter of)
)
Petition for Rulemaking to Amend the) RM
Band Plan for the 764-776 MHz and)
794-806 MHz Public Safety Bands)
)

To the Secretary of the Federal Communications Commission:

**PETITION for RULEMAKING of
THE NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL**

The National Public Safety Telecommunications Council (NPSTC) submits this Petition for Rulemaking recommending that the Commission amend its rules addressing the band plan and channel assignments for the 700 MHz public safety service. The proposed amendments evolve from the Commission’s recent changes to the 700 MHz band structure and the need to respond to increased public safety on scene operational requirements.

The National Public Safety Telecommunications Council

The National Public Safety Telecommunications Council is a federation of public safety organizations dedicated to improving emergency service communications and has participated throughout the Commission’s 700 MHz band proceedings. Its member organizations and those who participate in its deliberations have plenary responsibility for the range of emergency communications networks dedicated to assisting the citizen in need.

NPSTC pursues a role of resource and advocate for public safety organizations on matters relating to public safety telecommunications. NPSTC has promoted implementing the Public Safety Wireless Advisory Committee (PSWAC) and the 700 MHz Public Safety National Coordination Committee (NCC) recommendations. NPSTC explores technologies and public policy involving public safety agencies, analyzes the ramifications of particular issues, and submits comments to governmental bodies with the objective of furthering public safety communications. NPSTC serves as a standing forum for the exchange of ideas and information for effective public safety telecommunications.

The following 15 organizations participate in NPSTC:

American Association of State Highway and Transportation Officials

American Radio Relay League

Association of Fish and Wildlife Agencies

Association of Public-Safety Communications Officials-International

Forestry Conservation Communications Association

International Association of Chiefs of Police

International Association of Emergency Managers

International Association of Fire Chiefs

International Municipal Signal Association

National Association of State Chief Information Officers

National Association of State Emergency Medical Services Officials

National Association of State Foresters

National Association of State Telecommunications Directors

National Emergency Number Association

National Sheriff's Association

Several federal agencies are liaison members of NPSTC. These include the Department of Homeland Security (the Federal Emergency Management Agency, the Office of Emergency Communications, the Office of Interoperability and Compatibility and the SAFECOM Program), Department of Commerce (National Telecommunications and Information Administration), Department of the Interior, and the Department of Justice (National Institute of Justice, CommTech Program). NPSTC also has a liaison relationship with the Telecommunications Industry Association.

The 700 MHz Public Safety Band

The public safety segment of the 700 MHz band evolved from the transition of television broadcasters to digital operations at other locations in the spectrum. Under the original 1996 upper 700 MHz band plan structure, the 24 MHz of spectrum allotted to four television channels (63, 64, 68, and 69) was reallocated to provide spectrum for public safety narrowband voice and data, and wide band data use. The reallocation provided 12 MHz (TV Channels 63 & 64) for base-to mobile communications, and 12 MHz (TV Channels 68 & 69) for mobile-to-base communications. The near-term availability of the spectrum in the 700 MHz band for public safety use in any particular area depended upon the presence or absence of nearby operating co-channel or first adjacent channel TV broadcast facilities.

With the then-varied and unknown schedules of television broadcasters to transition out of the new public safety band, the Commission properly assumed that one or more of the four 6 megahertz TV channels would be unavailable to public safety during the DTV transition period. As a result, the allocations of narrowband and wideband operations within the 12 MHz blocks were bifurcated, with a portion of each 6 MHz TV channel containing some narrowband and some wideband usage.

The 700 MHz Public Safety Narrowband Channels

The Commission's 700 MHz public safety rules originally delineated four band segments designated for use with narrowband emissions and set forth how each segment was to be used. Each of these segments consists of 3 MHz of spectrum divided into 480 channels with a channel bandwidth of 6.25 kHz.¹ These segments were further designated for use as State License Channels, Narrowband Interoperability Channels, Narrowband Reserve Channels, General Use and Narrowband Low Power Channels Subject to Regional Planning, and Narrowband Low Power Itinerant Channels.

The pool of interoperability channels was split, putting half of the interoperability channel pairs into each of the band segments, ensuring that some interoperability channels would be available as soon as an incumbent television licensee vacated that spectrum. Among other interoperability allocations, two sets of interoperability channels for nationwide calling were established, as well as two sets for low speed data interoperability.

¹ Section 90.531(b) of the Commission's rules.

These were reasoned decisions as the near-term availability of the spectrum in the 700 MHz band for public safety use in any particular area depended upon the presence or absence of nearby operating TV broadcast facilities.

The Congress has established February 17, 2009, as the final date for broadcast television stations to vacate this spectrum. The Commission's recent Second Report and Order addressing the 700 MHz band subsequently made several changes to the structure of the commercial and public safety bands.² These changes include relocating and consolidating the existing public safety narrowband allocations to the upper half of the 700 MHz Public Safety Band. This structural change affords opportunity to reexamine how the segment's channel alignment and a channel's designated purpose can best promote effective public safety communications. Timely action will allow improvements to be in place prior to the February 19, 2009, television broadcast transition date when the 700 MHz spectrum is completely cleared for public safety use nationwide.

NPSTC Recommendations for 700 MHz Narrowband Channels

1. A Single National Interoperability Calling Channel

The varied and unknown schedules of television broadcasters to transition to digital operations served as the premise behind establishing the two sets of nationwide interoperability calling channels. With the Commission's recent consolidation of the narrowband channels, two sets of Nationwide Interoperability Calling Channels are no longer necessary. In fact, NPSTC believes that having two sets of Calling Channels

² In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands et al., *Second Report and Order*, FCC 07-132 (August 10, 2007).

would be detrimental to nationwide interoperability because local/state agencies would not know which channel to monitor and/or use in any particular area of the country.

NPSTC thus recommends that there be a single set of 700 MHz nationwide interoperability calling channels. NPSTC proposes that Section 90.531(b)(1)(ii) should be amended to designate the lower pair of channels, 39/99 and 40/1000, for nationwide interoperability calling. With the relocation of the 700 MHz public safety narrowband channels and an established television broadcast transition date, one pair of channels is adequate for this purpose. This proposal is visually shown in Figure 1 of the attached slides.

2. Redesignate the Remaining Calling Channel as a “Travel Channel”

NPSTC proposes that the upper set of channels currently reserved for Interoperability Calling, 681/1641 and 682/1642, be reassigned and designated as a “Nationwide Interoperability Travel Channel.” This proposal is visually shown in Figure 1 of the attached slides.

At incidents requiring additional resources, particularly those of a specialized character, assets and personnel must be transported, often at significant distances, into the area. Frequently this movement is by ground transportation in vehicle convoys. Coordination with and among these units would be enhanced by a designated travel channel. The channel could permit first responders and equipment to be deployed to an area directly instead of having to first travel to a staging area. It will provide Incident Commanders advanced notice of the resources arriving at a particular time so that areas

most in need of assistance can receive relief immediately. Such a reserved designation and use will enhance flexibility, efficiency and speed in deploying resources.

3. Relax Use Restriction on One Narrowband Data Interoperability Channels

Relocation of the 700 MHz narrowband channels and the definitive broadcast transition date similarly tempers the need for two nationwide narrowband data interoperability channel sets. With the demand for communications supporting tactical operations continuing to expand, NPSTC recommends that Section 90.531(b)(1)(i) of the Commission's rules be amended to allow tactical voice communications on a secondary basis on channels 921/1881 and 922/1882. This will promote more effective and extensive use of the channels while preserving their prime purpose when required for data use. This proposal is visually shown in Figure 1 of the attached slides.

4. Designate Reserved Channels for Deployable Trunked Systems

Responding to the need to deploy communications capability expeditiously when legacy infrastructure has been overloaded or devastated, NPSTC recommends that the current 700 MHz narrowband reserve channels be designated to promote deployment of mobile trunked infrastructure that can be transported into the incident area.

The Commission extensively examined Hurricane Katrina and the challenges encountered when a region's entire infrastructure is destroyed. It has emphasized the critical need to restore communications expeditiously.³ The ability to transport

³ In the Matter of Recommendation of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Notice of Proposed Rulemaking*, EB Docket No. 06-119, FCC 06-83 (June 19, 2006) at paragraphs 2, 6 and 8.

deployable infrastructure capable of operating for more than a temporary time over a wide area is a reality. The Commission's designation of the current 700 MHz narrowband reserve channels would assist these operational initiatives immeasurably and meet a prime objective the Commission itself has established.

Several federally supported state and local emergency response plans now envision transporting wireless infrastructure with trunking capability to the incident area with other emergency equipment and supplies. These preparedness initiatives frequently provide for infrastructure and equipment to be air lifted to the scene. The assets are staged and maintained in a ready state for swift deployment. These "trunking systems on wheels" reflect already committed public resources that will make a tangible difference. Alternatively, mounting these trunking systems aboard an aircraft would allow for immediate use in an impacted area as soon as the aircraft reached the scene above the disaster. NPSTC envisions such air support being offered in the states through the National Guard and nationally through the Federal Emergency Management Agency or by other Federal assets.

This predesignation of trunking channels would allow 700 MHz subscriber radios across the country to be programmed with these systems at all times, negating the need during a disaster to reprogram radios in the field or distribute cached radios, both of which are time consuming and may be impossible depending upon the nature of the emergency.

Readiness will thus be enhanced significantly if channels were designated to assist this purpose.

As shown in Figure 2 of the attached slides, the reserve channels referenced in Section 90.531(b)(2) should be designated as Interoperability Channels for use in Deployable Infrastructure. NPSTC proposes that these 24 channels be grouped into four sets of 6 channels each, allowing for the nationwide designation of four 6-channel deployable trunking groups.

These channels must also meet the challenge of ensuring that the subscriber equipment is compatible with the infrastructure. As required for all 700 MHz voice interoperability channels, the infrastructure equipment should comply with ANSI/TIA-102 (Project 25) standards so communications across agencies is possible. NPSTC proposes that mobiles and portables would be licensed by rule. Transportable “fixed” (base / relay) stations would be individually licensed as “temporary” with the owner of the infrastructure designating an area of operation, up to and including nationwide.

Technical coordination of these systems on a nationwide basis presents a challenge. NPSTC has already presented this concept to the Project 25 Steering Committee and the Private Radio Section of the Telecommunications Industry Association (TIA), both of whom are involved in developing the ANSI/TIA-102 standards series with significant public safety user input and review. If this deployable system concept is approved by the Commission, NPSTC will work expeditiously with these organizations to address issues and standards related to unique system IDs, identification of subscriber radios, and related technical requirements. Importantly, we

recommend that the Commission seek the counsel of these technical groups before making the specific designation of which sets of six channels are associated with which of the four trunking systems, and potentially other technical parameters that must be established before finalizing the rules for these deployable systems.

5. Revise Rules on Low Power Itinerant Interoperability Channels

Finally, the Commission's rules addressing low power itinerant operations should be revised to allow agencies, particularly fire service users encountering high noise levels, to have the communications capability the rules envisioned.

In Sections 90.531(b)(3) and 90.531(b)(4), the Commission designated channels for low power operations to be coordinated by the regional planning committees as well as for itinerant operations. The Commission recognized that low power capability contributed to effective and flexible communications at an incident scene, particularly for fire service operations. The Commission's rules recognized and broadly accommodated the technical challenges digital modulation encountered in such environments.⁴

Since release of the original 700 MHz rules, it has been found that the vocoder in digital radios becomes overloaded in high ambient noise environments, such as those encountered in fire ground operations, often resulting in severe transmission distortion. The distortion is so significant that it renders the radios unusable in their native digital mode during times of critical communications need. Thus, a number of fire departments

⁴ The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, *Third Memorandum Opinion and Order, Third Report and Order*, WT Docket 96-86, FCC 00-348 (October 10, 2000) at paragraphs 35-40.

have refused to use digital radios. This is problematic for the 700 MHz band where the only usable choice for systems is currently digital modulation. An extensive study of this problem is underway,⁵ and while it may be possible to reduce the level of noise interference with audio and radio design modifications, initial findings are that such interference is to some degree inherent with digital radio design and is not present with analog modulation.

Further, since the narrowband low power rules where analog modulation is permitted were promulgated for the 700 MHz band, experience has profiled that current power levels are inadequate to provide effective communications in several on scene environments, fire ground operations being one of those.

As shown in Figure 1 of the attached slides, NPSTC thus recommends that the Commission amend Sections 90.531(b)(3) and 90.531(b)(4) to permit analog (11K3F3E) operations at power levels of 20 Watts ERP on channels 1–8/961–968 (Narrowband low power channels subject to regional planning), and 9–12/969–972 (Narrowband low power itinerant channels) for on-scene incident response purposes using mobiles and portables only (no base/fixed stations). This revision would allow the Commission's rules to preserve the value of low power analog operations by providing power levels that ensure effective on-scene communications in critical life-safety environments.

⁵ A special study group has been convened by the International Association of Fire Chiefs (IAFC) to further identify this issue and propose alternatives, solutions and best practices for mitigation. Members of the group include users, manufacturers and technology experts from the Department of Commerce Institute for Telecommunications Sciences.

Conclusion

The Commission's important work addressing the 700 MHz band and improving public safety communications has been vital. As it moves to implement its recent decisions, NPSTC recommends that it pursue several amendments to the current 700 MHz public safety band segment that will enhance first responder on scene communications.

Respectfully submitted,



Vincent R. Stile, Chair
NATIONAL PUBLIC SAFETY
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February 8, 2008

Attachment

On February 8, 2008, an Original and Four Copies of the above *Petition for Rulemaking* of the National Public Safety Telecommunications Council was filed with the Secretary of the Commission at its offsite facility. A copy was also filed electronically in Commission proceedings addressing the 700 MHz Band, WT Docket 96-86, WT Docket 06-150, and PS Docket 06-229.

/S/ John E. Logan

Figure 1: Interoperability Channel Changes



ONLY MOBILE (HIGH) SIDE OF CHANNEL PAIRS SHOWN

20w ERP itinerant, analog or digital

Single 700 MHz Calling channel

960 Narrowband Mobile Channels (6.25 kHz each, aggregate to 25 kHz)

799 MHz

1361	1281	1201	1121	1041	961
1362	1282	1202	1122	1042	962
1363	1283	1203	1123	1043	963
1364	1284	1204	1124	1044	964
1365	1285	1205	1125	1045	965
1366	1286	1206	1126	1046	966
1367	1287	1207	1127	1047	967
1368	1288	1208	1128	1048	968
1369	1289	1209	1129	1049	969
1370	1290	1210	1130	1050	970
1371	1291	1211	1131	1051	971
1372	1292	1212	1132	1052	972
1373	1293	1213	1133	1053	973
1374	1294	1214	1134	1054	974
1375	1295	1215	1135	1055	975
1376	1296	1216	1136	1056	976
1377	1297	1217	1137	1057	977
1378	1298	1218	1138	1058	978
1379	1299	1219	1139	1059	979
1380	1300	1220	1140	1060	980
1381	1301	1221	1141	1061	981
1382	1302	1222	1142	1062	982
1383	1303	1223	1143	1063	983
1384	1304	1224	1144	1064	984
1385	1305	1225	1145	1065	985
1386	1306	1226	1146	1066	986
1387	1307	1227	1147	1067	987
1388	1308	1228	1148	1068	988
1389	1309	1229	1149	1069	989
1390	1310	1230	1150	1070	990
1391	1311	1231	1151	1071	991
1392	1312	1232	1152	1072	992
1393	1313	1233	1153	1073	993
1394	1314	1234	1154	1074	994
1395	1315	1235	1155	1075	995
1396	1316	1236	1156	1076	996
1397	1317	1237	1157	1077	997
1398	1318	1238	1158	1078	998
1399	1319	1239	1159	1079	999
1400	1320	1240	1160	1080	1000
1401	1321	1241	1161	1081	1001
1402	1322	1242	1162	1082	1002
1403	1323	1243	1163	1083	1003
1404	1324	1244	1164	1084	1004
1405	1325	1245	1165	1085	1005
1406	1326	1246	1166	1086	1006
1407	1327	1247	1167	1087	1007
1408	1328	1248	1168	1088	1008
1409	1329	1249	1169	1089	1009
1410	1330	1250	1170	1090	1010
1411	1331	1251	1171	1091	1011
1412	1332	1252	1172	1092	1012
1413	1333	1253	1173	1093	1013
1414	1334	1254	1174	1094	1014
1415	1335	1255	1175	1095	1015
1416	1336	1256	1176	1096	1016
1417	1337	1257	1177	1097	1017
1418	1338	1258	1178	1098	1018
1419	1339	1259	1179	1099	1019
1420	1340	1260	1180	1100	1020
1421	1341	1261	1181	1101	1021
1422	1342	1262	1182	1102	1022
1423	1343	1263	1183	1103	1023
1424	1344	1264	1184	1104	1024
1425	1345	1265	1185	1105	1025
1426	1346	1266	1186	1106	1026
1427	1347	1267	1187	1107	1027
1428	1348	1268	1188	1108	1028
1429	1349	1269	1189	1109	1029
1430	1350	1270	1190	1110	1030
1431	1351	1271	1191	1111	1031
1432	1352	1272	1192	1112	1032
1433	1353	1273	1193	1113	1033
1434	1354	1274	1194	1114	1034
1435	1355	1275	1195	1115	1035
1436	1356	1276	1196	1116	1036
1437	1357	1277	1197	1117	1037
1438	1358	1278	1198	1118	1038
1439	1359	1279	1199	1119	1039
1440	1360	1280	1200	1120	1040

802 MHz

Nationwide "Travel Channel"

802 MHz

1841	1761	1681	1601	1521	1441
1842	1762	1682	1602	1522	1442
1843	1763	1683	1603	1523	1443
1844	1764	1684	1604	1524	1444
1845	1765	1685	1605	1525	1445
1846	1766	1686	1606	1526	1446
1847	1767	1687	1607	1527	1447
1848	1768	1688	1608	1528	1448
1849	1769	1689	1609	1529	1449
1850	1770	1690	1610	1530	1450
1851	1771	1691	1611	1531	1451
1852	1772	1692	1612	1532	1452
1853	1773	1693	1613	1533	1453
1854	1774	1694	1614	1534	1454
1855	1775	1695	1615	1535	1455
1856	1776	1696	1616	1536	1456
1857	1777	1697	1617	1537	1457
1858	1778	1698	1618	1538	1458
1859	1779	1699	1619	1539	1459
1860	1780	1700	1620	1540	1460
1861	1781	1701	1621	1541	1461
1862	1782	1702	1622	1542	1462
1863	1783	1703	1623	1543	1463
1864	1784	1704	1624	1544	1464
1865	1785	1705	1625	1545	1465
1866	1786	1706	1626	1546	1466
1867	1787	1707	1627	1547	1467
1868	1788	1708	1628	1548	1468
1869	1789	1709	1629	1549	1469
1870	1790	1710	1630	1550	1470
1871	1791	1711	1631	1551	1471
1872	1792	1712	1632	1552	1472
1873	1793	1713	1633	1553	1473
1874	1794	1714	1634	1554	1474
1875	1795	1715	1635	1555	1475
1876	1796	1716	1636	1556	1476
1877	1797	1717	1637	1557	1477
1878	1798	1718	1638	1558	1478
1879	1799	1719	1639	1559	1479
1880	1800	1720	1640	1560	1480
1881	1801	1721	1641	1561	1481
1882	1802	1722	1642	1562	1482
1883	1803	1723	1643	1563	1483
1884	1804	1724	1644	1564	1484
1885	1805	1725	1645	1565	1485
1886	1806	1726	1646	1566	1486
1887	1807	1727	1647	1567	1487
1888	1808	1728	1648	1568	1488
1889	1809	1729	1649	1569	1489
1890	1810	1730	1650	1570	1490
1891	1811	1731	1651	1571	1491
1892	1812	1732	1652	1572	1492
1893	1813	1733	1653	1573	1493
1894	1814	1734	1654	1574	1494
1895	1815	1735	1655	1575	1495
1896	1816	1736	1656	1576	1496
1897	1817	1737	1657	1577	1497
1898	1818	1738	1658	1578	1498
1899	1819	1739	1659	1579	1499
1900	1820	1740	1660	1580	1500
1901	1821	1741	1661	1581	1501
1902	1822	1742	1662	1582	1502
1903	1823	1743	1663	1583	1503
1904	1824	1744	1664	1584	1504
1905	1825	1745	1665	1585	1505
1906	1826	1746	1666	1586	1506
1907	1827	1747	1667	1587	1507
1908	1828	1748	1668	1588	1508
1909	1829	1749	1669	1589	1509
1910	1830	1750	1670	1590	1510
1911	1831	1751	1671	1591	1511
1912	1832	1752	1672	1592	1512
1913	1833	1753	1673	1593	1513
1914	1834	1754	1674	1594	1514
1915	1835	1755	1675	1595	1515
1916	1836	1756	1676	1596	1516
1917	1837	1757	1677	1597	1517
1918	1838	1758	1678	1598	1518
1919	1839	1759	1679	1599	1519
1920	1840	1760	1680	1600	1520

805 MHz

General Use	Low Power
Interoperability	2ndary Trunking
Reserve	I/O Nationwide Cal
State License	I/O Low Speed Data

Data primary, voice secondary



Figure 2: Deployable Trunking Systems

ONLY MOBILE (HIGH) SIDE OF CHANNEL PAIRS SHOWN

960 Narrowband Mobile Channels (6.25 kHz each, aggregate to 25 kHz)

