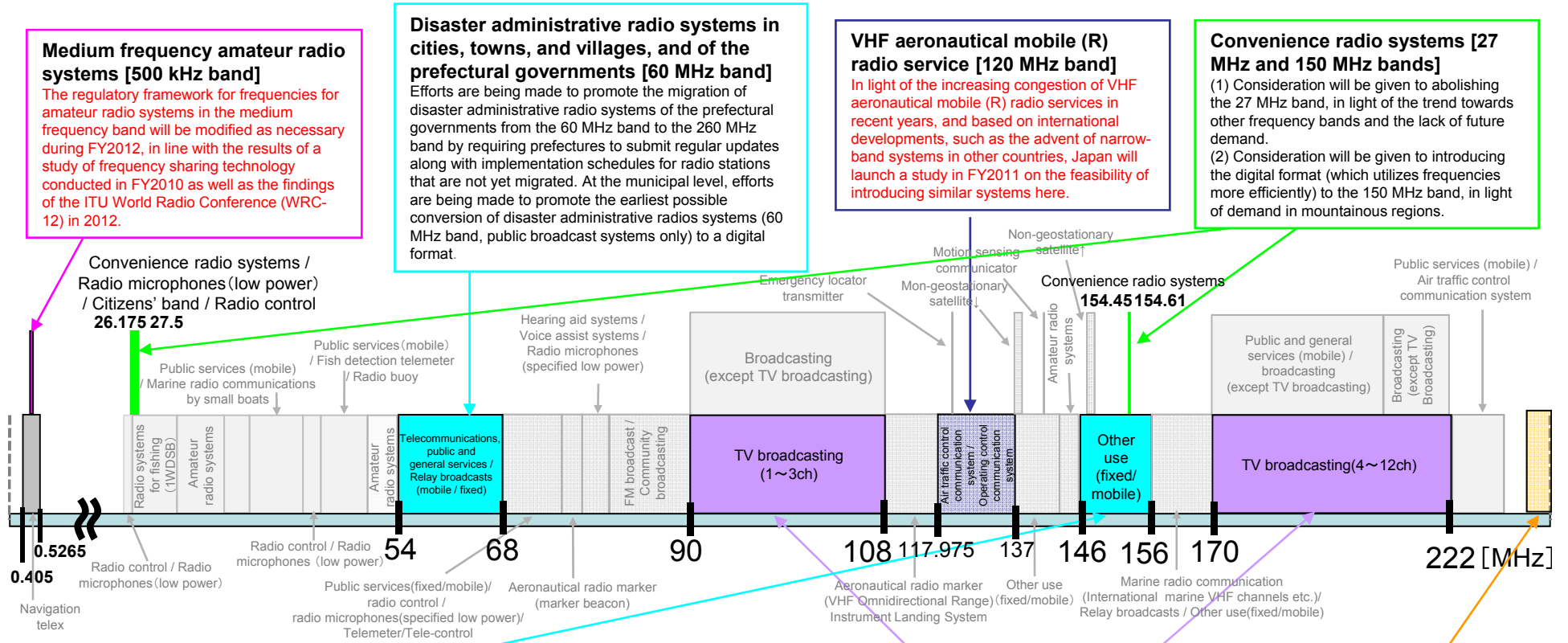


Action Plan for Spectrum Reallocation (revised in September 2011)

【Below 335.4MHz】

- *1 New measures added in this revision are written in red.
- *2 Measures which have progressed from the last revision are written in blue.



Medium frequency amateur radio systems [500 kHz band]

The regulatory framework for frequencies for amateur radio systems in the medium frequency band will be modified as necessary during FY2012, in line with the results of a study of frequency sharing technology conducted in FY2010 as well as the findings of the ITU World Radio Conference (WRC-12) in 2012.

Disaster administrative radio systems in cities, towns, and villages, and of the prefectural governments [60 MHz band]

Efforts are being made to promote the migration of disaster administrative radio systems of the prefectural governments from the 60 MHz band to the 260 MHz band by requiring prefectures to submit regular updates along with implementation schedules for radio stations that are not yet migrated. At the municipal level, efforts are being made to promote the earliest possible conversion of disaster administrative radios systems (60 MHz band, public broadcast systems only) to a digital format.

VHF aeronautical mobile (R) radio service [120 MHz band]

In light of the increasing congestion of VHF aeronautical mobile (R) radio services in recent years, and based on international developments, such as the advent of narrow-band systems in other countries, Japan will launch a study in FY2011 on the feasibility of introducing similar systems here.

Convenience radio systems [27 MHz and 150 MHz bands]

(1) Consideration will be given to abolishing the 27 MHz band, in light of the trend towards other frequency bands and the lack of future demand.
 (2) Consideration will be given to introducing the digital format (which utilizes frequencies more efficiently) to the 150 MHz band, in light of demand in mountainous regions.

Disaster administrative radio systems in cities, towns, and villages, and of the prefectural governments [150 MHz band]

- (1) Under the frequency assignment plan, the use of the 150 MHz band by fire station in the Public and the General Services is allowed only until 31 May, 2016, so these services will be migrated to the 260 MHz band.
- (2) Disaster administrative radio systems in cities, towns, and villages (150 MHz band), and of the prefectural governments (150 MHz band) will be migrated to the 260 MHz band in conjunction with equipment replacement. Consideration will be given to imposing an expiry date on the 150 MHz band, based on factors such as the findings of a FY2011 study of spectrum usage and the progress of restoration work after the Great East Japan Earthquake.
- (3) The number of radio stations migrating to the 260 MHz band will be monitored in order to facilitate the migration process.

Making effective use of newly released frequencies via the digitalization of terrestrial television broadcasting [90 - 108 MHz and 170 - 222 MHz]

- (1) Under the frequency assignment plan, after July 25, 2011, usage will be limited to public safety and security systems (including non-televisual broadcasting) used by police, fire and emergency services.
- (2) A regulatory framework for usage by police, fire and emergency services was instituted in August 2010 to prepare the way for the introduction of public broadband mobile communication systems.
- (3) With respect to broadcasting uses, regulatory frameworks will be provided for both V-High multimedia broadcasting (207.5 - 222 MHz) and V-Low multimedia broadcasting (90 - 108 MHz). For V-High multimedia broadcasting in particular, approval procedures for program supplying broadcasters will be pursued for mobile reception terrestrial broadcasting. For V-Low multimedia broadcasting, meanwhile, consideration will be given to the regulatory framework based on an analysis of public submissions and the findings of a market entry survey.

Sensor networks [280 MHz band]

A regulatory framework including technical standards will be formulated during FY2012 to provide approximately 5 MHz worth of frequencies in the 280 MHz band for use by sensor networks.

[335.4-770MHz]

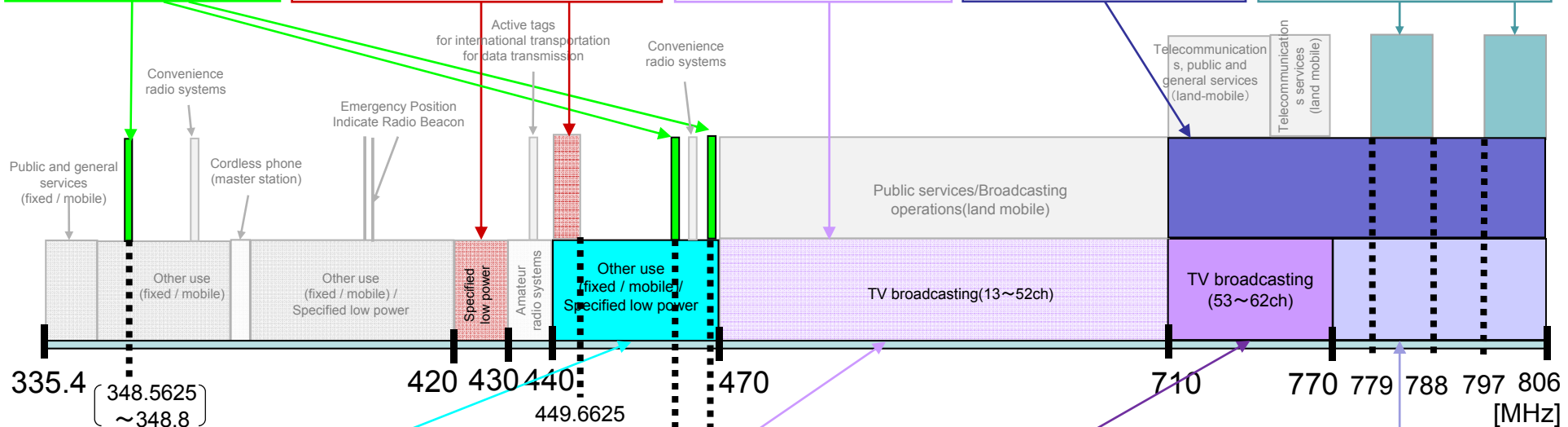
Convenience radio systems [350 MHz and 400 MHz bands]
 Efforts will be made to promote the use of digital convenience radio systems based on the technical requirements formulated in August 2008, with analog convenience radio systems to be phased out by November 30 2022.

Medical telemetry in the 400 MHz band [400 MHz band]
 To promote effective usage of frequencies by medical telemetry in the 400 MHz band, a technical study will be conducted into technological advances, such as interactive communication, based on ongoing developments in international standardization, such as the IEEE802.15.6 standard. Technical standards will be formulated by FY2014 with a view to commercial implementation in FY2015.

UHF band area one-segment broadcast systems [470 - 770 MHz]
 The necessary rules and procedures will be set up during FY2011 to allow area one-segment broadcasting systems to utilize white space in the UHF band (terrestrial television broadcast frequency band).

700 MHz band mobile radio communication systems [710 - 806 MHz]
 In conjunction with technical studies on mobile radio communication systems, efforts will be made to facilitate fast and efficient frequency migration in relation to the introduction of mobile radio communication systems, in line with the Radio Law amended by legislation promulgated on June 1, 2011.

Specified radio microphones [770 - 806 MHz]
 Efforts will be made to investigate frequency migration and implement work associated with the migration of specified radio microphones frequencies to candidate frequencies within white space in the terrestrial television broadcasting frequency band or in the 1.2 GHz band, including technical studies of frequency migration.



Disaster administrative radio systems in cities, towns, villages and of the prefectural governments [400 MHz band]
 (1) Efforts will be made to promote the transition to the 260 MHz band in conjunction with equipment replacement, and consideration will be given to imposing an expiry date on the 400 MHz band, based on factors such as the findings of a FY2011 study of spectrum usage and the progress of restoration work after the Great East Japan Earthquake.
 (2) The number of radio stations migrating to the 260 MHz band will be monitored in order to facilitate the migration process.

Digitalization of terrestrial television broadcasting [470 - 710 MHz]
 Support will be provided for the repacking of digital relay stations (reallocation of digital channels after analog broadcasting is switched off) in the form of financial assistance towards ongoing costs, such as the maintenance of transmission equipment and reception-related expenses associated with channel reallocation. Consideration will also be given to channel switching strategies designed to facilitate repacking.

ITS vehicle-to-vehicle and vehicle-to-road communication systems [710 - 770 MHz]
 Technical standards for vehicle-to-vehicle and vehicle-to-road communication systems (which allow on-board vehicle units to transfer position and speed information via two-way communication with other vehicles and roadside units) will be formulated during FY2011 as part of the development of vehicle safety systems designed to help prevent traffic accidents at intersections and other points.
 A frequency bandwidth of around 10 MHz within the 710 - 770 MHz band will be allocated as soon as practicable, in line with the basic principles of frequency allocation in the 700/900 MHz band, and bearing in mind also the need to provide a guard band around existing systems.

800 MHz band FPU [770 - 806 MHz]
 Technical study for frequency migration of 800 MHz FPU (Field Pick-up Unit) will be carried out, considering 1.2 GHz and/or 2.3 GHz band as candidate bands for migration.

[770-960MHz]

800 MHz band mobile radio communication systems [815 - 890 MHz]

Spectrum reallocation is currently underway in response to growth in the use of mobile radio communication involving migration from 2G mobile communication systems to 3G mobile communication systems (including 3.5G upgraded systems and 3.9G systems(LTE)), and this will be complete by July 24, 2012.

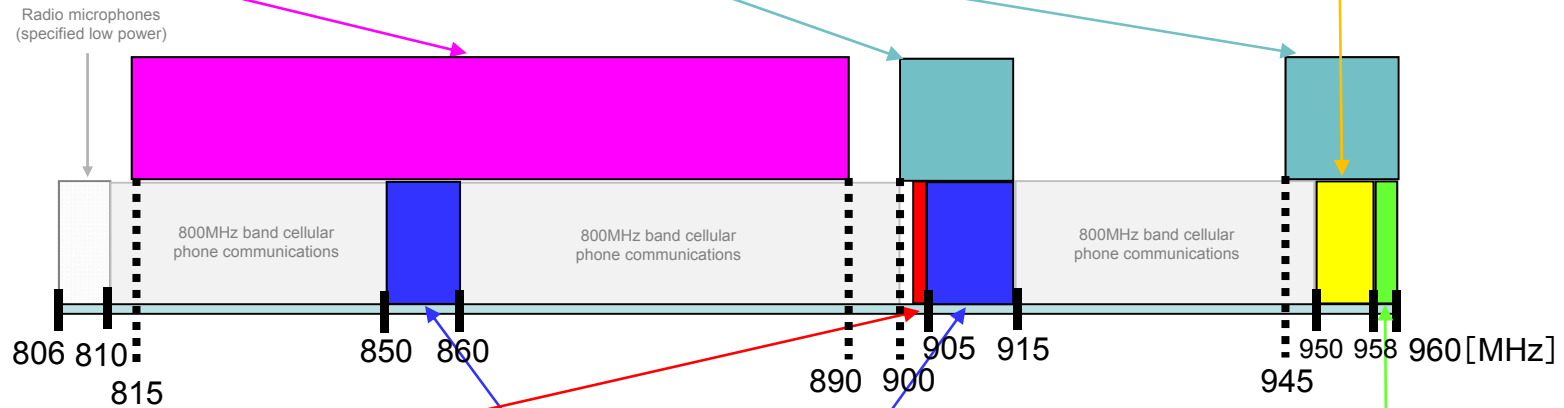
900 MHz band mobile radio communication systems [900 - 915 MHz and 945 - 960 MHz]

A regulatory framework will be established during 2011 to facilitate the introduction of mobile radio communication systems from July 25, 2012. In relation to the introduction of mobile radio communication systems, efforts will be made to facilitate fast and efficient frequency migration in line with the Radio Law amended by legislation promulgated on June 1, 2011.

950 MHz band radio frequency identification tag systems [950 MHz band]

(1) Efforts will be made to promote frequency migration for radio frequency identification tag systems to the 920 MHz band (915 - 928 MHz), based on trends in frequency migration of other wireless systems in the 900 MHz and the state of frequency allocation in Europe and the United States. (The spectrum will be increased to approximately 5 MHz of bandwidth in line with demand associated with sensor network systems such as smart meters.) To this end, the necessary rules and procedures, including the formulation of technical standards in the relevant frequency band and a detailed migration schedule and preparation of a migration work structure, will be carried out during FY2011, in order to enable migration to commence in July 25, 2012. The existing frequency band will be shut down on March 31, 2018.

(2) In order to monitor the progress of frequency migration, the number of radio stations (except those exempt from licensing requirements) will be checked and trends in the number of radio stations will be monitored.



Personal radio systems [903 - 905 MHz]

(1) In light of the impending introduction of mobile radio communication systems in the relevant frequency band from 2012, the decline in the number of personal radio stations (900 MHz band convenience radio stations), and the existence of an alternative system in the form of convenience digital radio stations registered in the 400 MHz band (together with an associated regulatory framework), personal radio will be shut down at the November 30, 2015.

(2) The number of radio stations will be checked and trends in the number of radio stations will be checked.

800 MHz band MCA land mobile communication [850 - 860 MHz and 905 - 915 MHz]

(1) rules and procedures to enable the migration of mobile station frequencies for MCA land mobile communication systems (from 905 - 915 MHz to 930 - 940 MHz) to commence on July 25, 2012 will be established during 2011. These include the formulation of technical standards in the relevant frequency band and a detailed migration schedule, and the preparation of a migration work structure. The existing frequency band will be shut down on March 31, 2018.

(2) In order to monitor the progress of frequency migration, the number of radio stations will be checked and trends in the number of radio stations will be monitored.

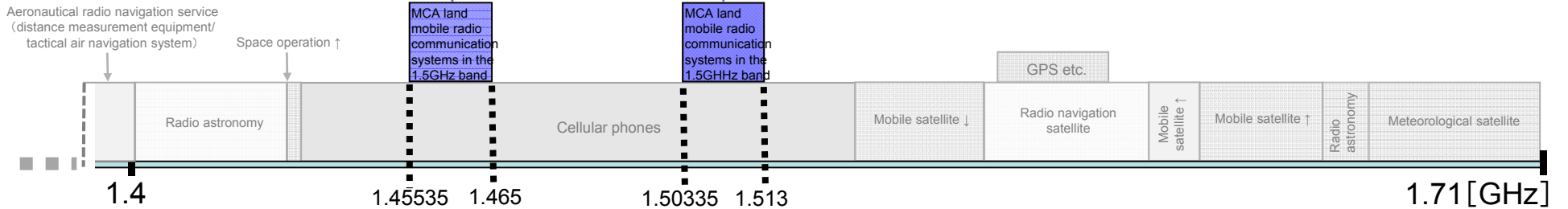
950 MHz band voice STL/TTL [958 - 960 MHz]

In view of the impending introduction of full-scale 900 MHz band mobile radio communication systems, the current situation of this band use and the expiration of radio station licenses, migration to M band (6570 - 6870 MHz) and N band (7425 - 7750 MHz) frequencies will be completed by the November 30, 2015. If migration to M band and N band is not possible, then frequencies will be migrated to the 60 MHz and 160 MHz bands.

[960MHz-2.7GHz]

1.5 GHz band digital MCA land mobile communication

- (1) In preparation for the introduction of mobile radio communication systems (including 3.5G upgraded systems and 3.9G systems) in the 1.5 GHz band, 1.5 GHz band digital MCA land mobile communication systems have been shut down in certain regions as of March 2009 (where feasible), given that user numbers are declining, in order to free up the spectrum for mobile radio communication systems from the current 25 MHz bandwidth x 2 to 35 MHz bandwidth x 2. The final phase-out will be implemented on March 31, 2014.
- (2) To facilitate frequency migration by the phase-out deadline, attention will be given to trends in radio stations.
- (3) Consideration will be given to moving forward the phase-out deadline in specific regions, based on factors such as spectrum demand from mobile radio communication systems and usage trends.

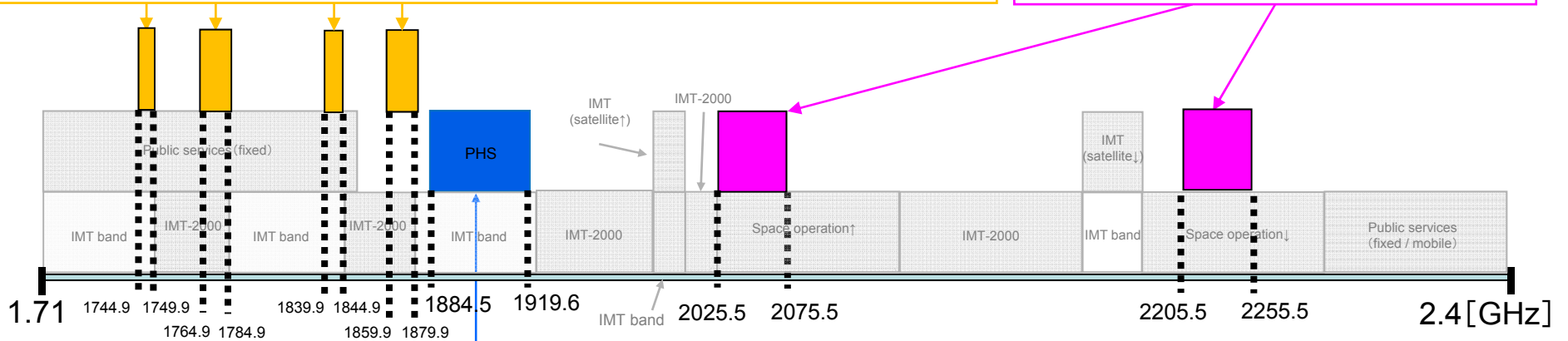


1.7 GHz band mobile radio communication systems [1744.9 - 1749.9 MHz/1839.9 - 1844.9 MHz and 1764.9 - 1784.9 MHz/1859.9 - 1879.9 MHz]

In order to satisfy spectrum demand, 10 MHz of bandwidth will be provided during 2012 (1744.9 - 1749.9 MHz/1839.9 - 1844.9 MHz). At the same time, frequency bands that are currently confined to Tokyo, Osaka and Nagano (1764.9 - 1784.9 MHz/1859.9 - 1879.9 MHz) will be made available in other regions as well.

Rural subscriber radio [2025.5 - 2075.5 MHz and 2205.5 - 2255.5 MHz]

In order to ensure effective spectrum utilization, the size of the frequency bandwidth used by rural subscriber radio will be reduced and a study will be conducted into the feasibility of new systems for utilizing radio wave resources.

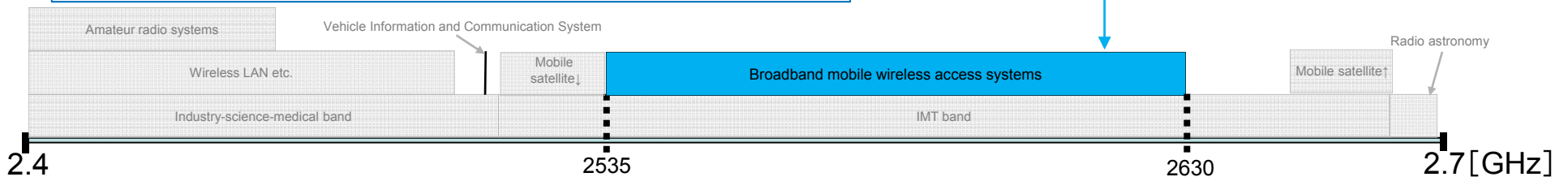


PHS [1884.5 - 1919.6 MHz]

- (1) Attention will be given to ensuring that the migration of PHS control frequencies is completed by May 31, 2012 in order to increase the spectrum available for a part of 2 GHz band mobile radio communication from the current 15 MHz bandwidth x 2 to 20 MHz bandwidth x 2.
- (2) To facilitate frequency migration by the completion deadline, attention will be given to trends in radio stations.

Broadband mobile wireless access systems (BWA) [2535 MHz - 2630 MHz]

Technical standards to enable more advanced BWA and expanded spectrum availability (2625 - 2655 MHz) will be formulated during 2012.



【2.7GHz-4.4GHz】

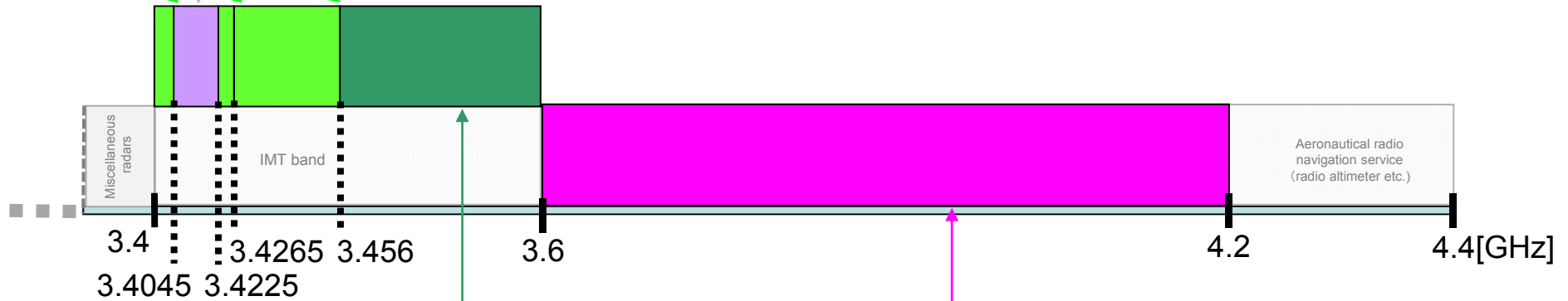
3.4 GHz band voice FPU [3.4045 - 3.4225 GHz]

The ITU World Radiocommunication Conference 2007 (WRC-07) resolved to set aside 3.4 - 3.6 GHz frequencies for IMT (International Mobile Telecommunications) and complete the process of developing standards for 4G mobile communication systems (IMT-Advanced) by FY2011. In order to facilitate the introduction of 4G services, frequency migration to either B band (5850 - 5925 MHz) or D band (6870 - 7125 MHz) will be completed by no later than November 30, 2022. In light of the planned introduction of 4G mobile communication systems in 2015, and taking into account the level of use of voice STL/TTL/TSL services as at the end of FY2011, consideration will be given to bringing forward the migration deadline in regions where 4G mobile communication systems could be introduced earlier. Recommendations on this issue will be provided by FY2012.

3.4 GHz band voice STL/TTL/TSL [3.4265 - 3.456 GHz]

Monitoring and control lines [3.4 - 3.4045 GHz and 3.4225 - 3.4265 GHz]

The ITU World Radiocommunication Conference 2007 (WRC-07) resolved to set aside 3.4 - 3.6 GHz frequencies for IMT (International Mobile Telecommunications) and complete the process of developing standards for 4G mobile communication systems by FY2011. In order to facilitate the introduction of 4G services, the migration of 3.4 GHz band voice STL/TTL/TSL to either M band (6570 - 6870 MHz) or N band (7425 - 7750 MHz) will be completed the end of November 2022. In light of the planned introduction of 4G mobile communication systems in 2015, and taking into account the level of use of voice STL/TTL/TSL services as at the end of FY2011, consideration will be given to bringing forward the migration deadline in regions where 4G mobile communication systems could be introduced earlier. Recommendations on this issue will be provided by FY2012.



Video STL/TTL/TSL (A band) [3.456 - 3.6 GHz]

Video STL/TTL/TSL (A band) (3456 - 3600 MHz) will be migrated to another microwave for broadcasting band by the end of November 2012.

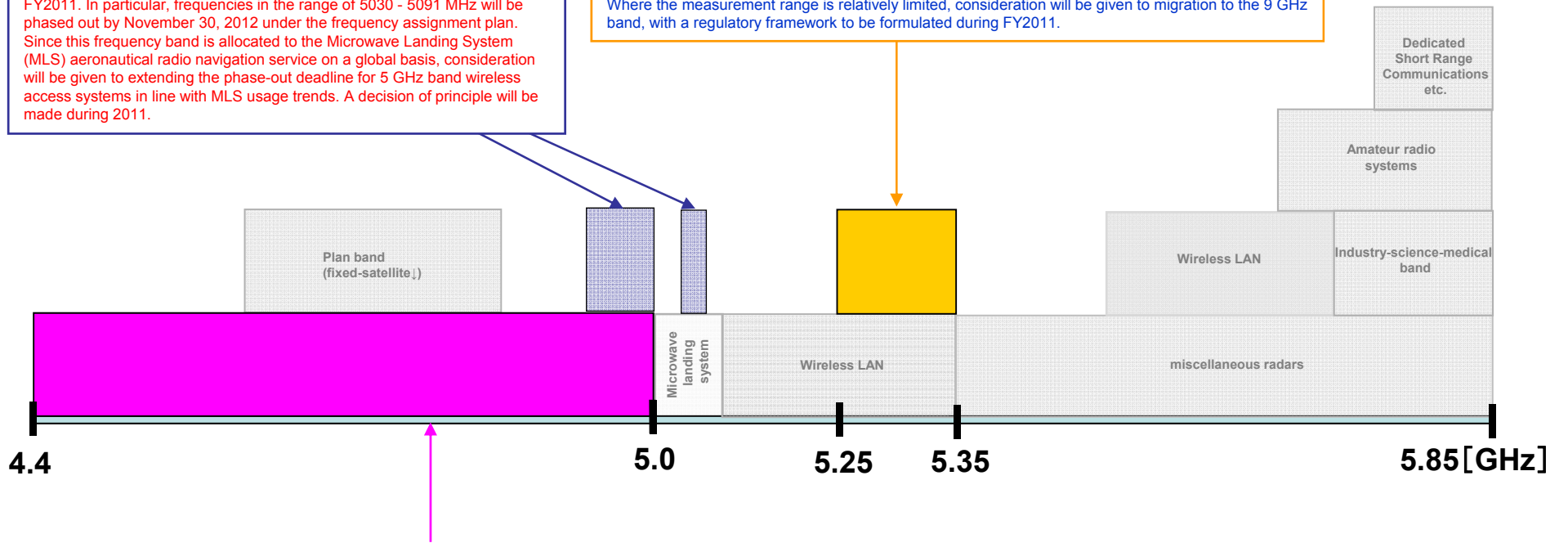
4 GHz band fixed wireless commercial telecommunications systems [3.6 - 4.2 GHz]

In order to facilitate the transition to optical fiber and migration to frequency bands at 6 GHz and above by November 30, 2012, trends in numbers of radio stations will be monitored.

【4.4-5.85GHz】

5 GHz band wireless access systems [4.9 - 5.0 GHz, 5.030 - 5.091 GHz]
 5 GHz band wireless access systems are used extensively although usage is limited to on-land applications. A study on extending 5 GHz band wireless access systems to a wider range of fields, including maritime applications, will be conducted, with a regulatory framework to be established by the end of FY2011. In particular, frequencies in the range of 5030 - 5091 MHz will be phased out by November 30, 2012 under the frequency assignment plan. Since this frequency band is allocated to the Microwave Landing System (MLS) aeronautical radio navigation service on a global basis, consideration will be given to extending the phase-out deadline for 5 GHz band wireless access systems in line with MLS usage trends. A decision of principle will be made during 2011.

5 GHz band weather radar and 5 GHz band airport weather radar systems [5.25 - 5.35 GHz]
 A study will be conducted into early implementation of technology for effective use of frequencies and migration within the 5 GHz band, based on a study of technology for effective use of radar frequencies, such as the 5 GHz band, conducted between FY2009 and FY2010, and bearing in mind the costs associated with conversion to narrowband and demand for wireless LAN in the 5 GHz band. Where the measurement range is relatively limited, consideration will be given to migration to the 9 GHz band, with a regulatory framework to be formulated during FY2011.



5 GHz band telecommunications services fixed wireless systems [4.4 - 4.9 GHz]
 To ensure that frequency migration is properly completed by November 30, 2012, trends in the number of radio stations will be monitored.

【Above 5.85GHz】

9 GHz band weather radar [9.7 - 9.8 GHz]

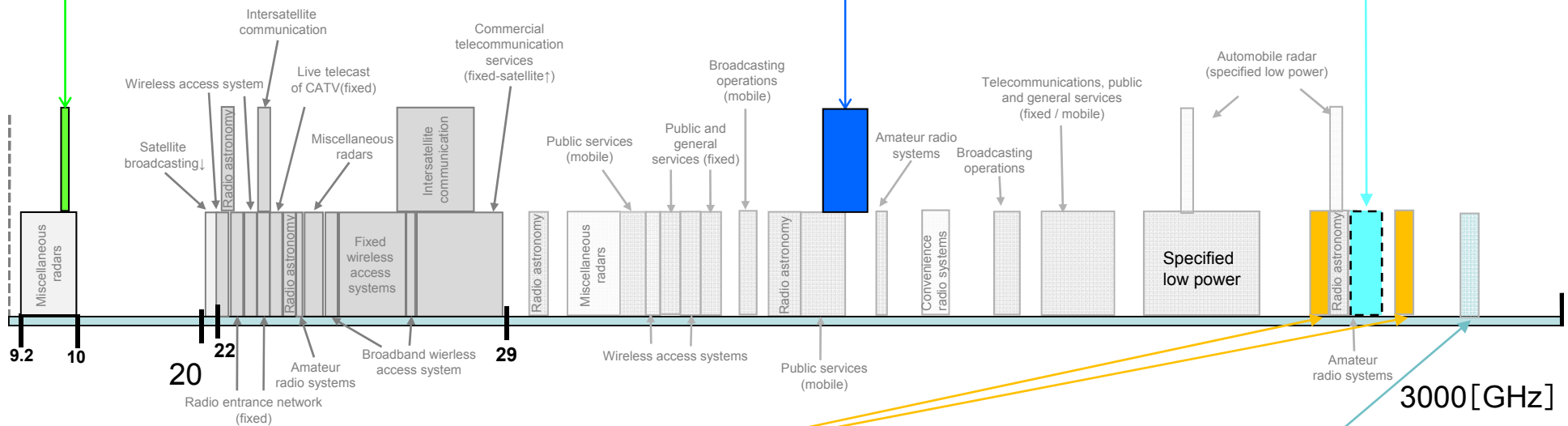
In cases where the measurement range is relatively limited, consideration will be given to migration from the 5 GHz band to the 9 GHz band, based on a study of technology for effective use of radar frequencies, such as the 5 GHz band, conducted between FY2009 and FY2010. A regulatory framework will be formulated during FY2011.

Millimeter wave band railway and aeronautical radio systems [40 GHz band]

A technical study of the feasibility of using the 40 GHz band to enable more powerful and broadband-based railway and aeronautical radio applications is currently underway, taking into account research and development, and use trends. This study will be used as the basis for technical standards to be formulated during FY2013.

Introduction of high-resolution sub millimeter wave and millimeter wave band radar systems [79 GHz band]

A study of technical requirements associated with the introduction of new high-resolution radar systems in the 79 GHz band has been underway since FY2007. Technical standards will be formulated during FY2011, taking into account factors such as trends in international standardization and spectrum allocation in other countries, as well as coordination with radio astronomy activities.



80 GHz band high-speed wireless transmission systems [71 - 76 GHz, 81, 86 GHz]

A regulatory framework will be formulated during FY2011 for high-speed wireless transmission systems in the 80 GHz band with the capacity for gigabit-level data transfers between specific points, which could be used to supplement optical cable and support the transmission of uncompressed high-resolution video data.

120 GHz band super-high-resolution video transmission systems [116 - 134 GHz]

A regulatory framework including technical standards will be formulated during FY2012 to enable the introduction of ultra high definition video transmission systems in the 120 GHz band, based on the findings of a technical study, etc. of frequency sharing for next-generation broadcast systems conducted in FY2010.