

Guidelines for Use of Mobile Phones and Other Devices in Hospitals
– For Secure, Safe Use of Wireless Communication Devices in Hospitals –

August 19, 2014

Electromagnetic Compatibility Conference Japan

1. Objectives and Background to Guidelines

Hospitals (which hereinafter shall include medical clinics with less than 20 hospital beds) have been setting their own rules for using mobile phones and other devices at their facilities, taking into account the regulations concerning the electromagnetic immunity^{*1} of medical electrical equipment^{*2} in accordance with the Pharmaceutical Affairs Act (Act No. 145 of 1960), the guidelines published in 1997 by the Electromagnetic Compatibility Conference Japan, and public manners in a comprehensive way.

In the meantime, we have seen drastic changes in pertinent circumstances, such as the penetration of mobile phones into daily life, the abolishment of second-generation mobile-phone services, and the improvement of medical electrical equipment for electromagnetic immunity.

Since proactive approach to mobile phones and other wireless communication devices in hospitals is expected to offer a significant benefit to both the sophistication and efficiency of medical care and the improvement of convenience and quality of life (QOL) for patients, it is critical to promote the use of such devices while ensuring safety.

These Guidelines have been created in consideration of the above circumstances through a review by experts, medical associations, wireless service providers, and relevant ministries and agencies in order to use mobile phones and other wireless communication devices more securely and safely in hospitals. Hospitals are expected to establish reasonable rules for using mobile phones by reference to these Guidelines.

The Guidelines for the Use of Mobile Handsets to Prevent Electromagnetic interference with medical electrical equipment^{*3} published in 1997 by the Council for Countermeasures Against Unnecessary Electromagnetic Waves shall be abolished along with the release of these Guidelines.

*1: The ability to prevent interference of electromagnetic energy on the device itself from electrical equipment and other devices nearby

*2: Medical equipment driven by electricity that has an electrical circuit and/or a sensor

*3: <http://www.emcc-info.net/others/keitai.html>

2. Coverage of the Guidelines

New regulations are not implemented according to these Guidelines. Individual hospitals are expected to establish their own rules for the proper usage of mobile phones referencing these Guidelines, taking into account their own situations in a comprehensive manner.

While these Guidelines are designed for hospitals, it is desirable to increase recognition among patients, hospital visitors, hospital staff, and relevant business operators extensively to share facts and ideas behind the Guidelines.

As for electromagnetic interference (hereinafter called “EMI”)^{*4} with medical electrical equipment used in a home-care setting, they are not in the direct scope of these guidelines because it is necessary to continue the discussion while considering a variety of electromagnetic environments, as well as the involvement of hospital staff in case radio waves affect these devices. Although, hospitals are expected to work on preventing EMI with medical electrical equipment that is similar to those used in hospitals by reference not only to these Guidelines but also to the information contained in the Report on the Use of Mobile Phones and Other Devices in Hospitals dated August 19, 2014 (hereinafter called the “Report”). To prevent EMI with pacemakers and other implantable medical electrical equipment used not only inside hospitals, hospitals are advised to refer to the Guidelines for Preventing Interference Effects of Radio Waves of Various Devices that Use Radio Waves on Implantable Medical Electrical Equipment^{*5} established by the Ministry of Internal Affairs and Communications (MIC).

*4: Electromagnetic interference: Interruptions, obstructions, degradations or limitations of the performance/function of electronics/electrical equipment caused by electromagnetic fields.

(e.g., the stoppage of medical electrical equipment caused by electric fields emitted from radio equipment.)

*5: <http://www.tele.soumu.go.jp/j/sys/ele/medical/chis/index.htm>

3. Establishing Rules for Using Mobile Handsets Targeted at Users of Hospitals

As mobile handsets (which hereinafter mean to include smartphones and tablets with a built-in cell-phone function) have become increasingly essential to daily life in recent years, it is desirable to allow the use of mobile handsets by patients and hospital visitors in hospitals (hereinafter called “Hospital Users”) to the extent possible for improvement of convenience and quality of life for patients. On the other hand, while medical electrical equipment is required to have a certain level of immunity for electromagnetic fields, their operation may be affected by mobile handsets when they are used in close proximity. Another concern is public manners, such as sounds made during phone calls, of ringtones, of

incoming mail tones, of operation, and of watching TV (hereinafter called “Calls”). Therefore, it is necessary to place certain restrictions on the use of mobile handsets in hospitals and establish proper rules for using them. This chapter describes general precautions and concepts on how to establish rules for using mobile handsets particularly targeted at Hospital Users.

Since the kinds of medical electrical equipment and facilities differ among hospitals, hospitals are expected to set specific rules properly by reference to these Guidelines, considering their individual circumstances.

(1) General Precautions

See the following key matters that require attention when hospitals set rules:

(a) Setting a Separation

Since radio waves from mobile handsets are attenuated as we separate from handsets, we can prevent EMI with medical electrical equipment by ensuring that there is a certain level of separation. On the other hand, it is necessary to avoid putting mobile handsets on medical electrical equipment as it may greatly interfere with the operation of such devices. By reference to the recommended separation distance^{*6} used in the international standards for the electromagnetic compatibility of medical electrical equipment^{*7}, a general suggestion of the proper separation distance^{*8} would be to separate mobile handsets about one meter^{*9} from the medical electrical equipment that may be affected^{*10}. If hospitals have confirmed safety based on their own test results, information from the instruction manual for specific medical electrical equipment, and other sources^{*11}, they may set a separation lower than one meter.

If patients using medical electrical equipment (e.g., users of external pacemakers) are in the vicinity, it is also necessary to set a certain level of separation from medical electrical equipment.

*6: Although JIS T 0601-1-2:2012 uses a term “the recommended separation distance,” these Guidelines use another term “general suggestion of proper separation distance,” which is also used in the guidelines set by the Council for Countermeasures Against Unnecessary Electromagnetic Waves, the MIC’s Guidelines for Preventing Electromagnetic Interference of Various Devices Using Radio Waves with Implantable Medical electrical equipment.

*7: It refers to as IEC 60601-1-2, based on which JIS T 0601-1-2 (standards in Japan) has been created. Versions 2001 (Ver. 2), 2004 (Ver. 2.1), and 2007 (Ver. 3) of IEC 60601-1-2 may be considered nearly equivalent to JIS T 0601-1-2:2012 (Ver. 2). Similarly, Version 1993 (Ver. 1) of IEC 60601-1-2 may be considered nearly equivalent to JIS T 0601-1-2: 2002 (Ver. 1). Some imported items adopt EN (European Norm) and other standards. Medical electrical equipment manufactured and sold in Japan must comply with these standards in accordance with the Pharmaceutical Affairs Act.

*8: We have not confirmed the occurrence of any impacts that keep medical professionals from attaining their purpose of medical care with this level of distance, whereas it should be noted that certain nuisances, such as an abnormal noise from speakers and an effect on the display, possibly occur even though they do not interfere with the purpose of medical care.

*9: A general suggestion of the proper separation distance in these Guidelines has been established based on the result of an experiment using actual equipment (which was conducted for the formation of these guidelines), the standards for electromagnetic compatibility of medical electrical equipment (JIS T 0601-1-2:2012), and other sources. According to the wireless access system for current mobile phones in Japan, the recommended separation distance is specifically 1.15 m (calculated with a relative gain of 0 dB) if we apply peak power output of 250 mW to the formula in the standards for computing the recommended separation distance. Still, the general suggestion of the proper separation distance has been set to around one meter because (1) the recommended separation distance would be 0.92 m if we take into account the relative gain for actual mobile handsets (approximately -2 dB); (2) the maximum distance for interference effects on medical practice (except for abnormal noises, blurring on the display, etc.) in the experiment (which was limited to the medical electrical equipment that may be affected and not exhaustive) was 18 cm; and (3) the level of separation should be easy-to-understand for Hospital Users. Just to be on the safe side, we need to pay attention to older medical electrical equipment placed in hospitals {e.g., JIS T 0601-1-2:2002 (Ver. 1) compliant products that have not been evaluated with all frequencies used for current mobile phones, older products that do not have corresponding JIS versions.} Refer to the Report for more detailed measurement outcomes and concepts of separation.

*10: The medical electrical equipment of particular concern include general-purpose infusion pumps, syringe pumps, blood purifiers, external pacemakers, artificial ventilators, balloon pump driving apparatuses for auxiliary circulation, percutaneous cardiopulmonary driving apparatuses, auxiliary artificial heart driving apparatuses, and closed circuit stationary infant incubators.

*11: Refer to 2.2.1. "Reference: Examples of How to State the Recommended Separation Distance (Separations)" and Footnote No. 11 in 2.2.3 in the Report.

(b) Public Manners

Since Calls using mobile handsets in shared space may disturb the rest of other patients, it is appropriate for hospitals to place use restrictions from a perspective of public manners. They are advised to examine and set specific rules in consideration of their circumstances.

(c) Protecting Personal and Medical Information

While many mobile handsets have recording and camera functions, it is appropriate to avoid the use of such functions in hospitals in light of protecting personal information and preventing the

leakage of medical information as a rule. Therefore, hospitals are advised to examine and set specific rules in consideration of their circumstances as necessary.

(d) Improving a Structure for EMC^{*12}

In hospitals, it is preferable to put someone in charge of realizing a favorable EMC environment. The EMC Personnel is responsible for establishing rules for using mobile handsets working with other relevant departments while improving a management system for EMC at his/her facilities. For specific efforts, the EMC Personnel should refer to Chapter 7 “Improving a Management Structure in Hospitals” and consider the specific circumstances of the facilities.

*12: Electromagnetic compatibility: A status that two or more instruments operate normally without receiving EMI mutually when either or both emit electromagnetic fields.

(2) Setting Area-specific Rules for Use

Since the kinds of medical electrical equipment, the need for using mobile handsets, and the need for consideration of others appear to differ greatly among specific areas in hospitals, hospitals need to set area-specific rules. For the areas where the use of mobile handsets is allowed, they also need to set up the conditions for use (e.g., separations, precautions for use). See the following approach to the establishment of area-specific rules for examining and setting rules in hospitals based on the above guidelines:

(a) Waiting Lounges, Lobbies, Cafeterias, Corridors, Elevator Halls, etc.

Since there is no medical electrical equipment in this area normally, hospitals may allow the use of mobile handsets, including Calls, while reminding Hospital Users of public manners. If a patient using medical electrical equipment is in this area, mobile handsets in use should be separated by at least the specified separation from medical electrical equipment. If this area is in the vicinity of the restricted areas, hospitals should set restrictions on the use of mobile handsets as necessary. Hospitals should remind Hospital Users to avoid using mobile handsets while walking (“texting while walking”) as it is a dangerous act.

(b) Patient rooms

As medical electrical equipment used in this area is usually limited, the level of interference effects of the use of mobile handsets on medical electrical equipment appears to be relatively low. Therefore, mobile handsets may be used in this area. In case there is medical electrical equipment that may be affected in this area, mobile handsets in use should be separated by at least the specified separation from medical electrical equipment. If a patient using medical electrical equipment is in this area, mobile handsets in use should be separated by at least the specified separation from medical electrical equipment. Since Calls could disturb the rest of other patients in a patient room for multiple patients, it is preferable to set certain restrictions. While the

use of e-mail, Web, and other applications that do not emit a sound is unlikely to disturb the rest of other patients in the room, hospitals are expected to set restrictions as necessary, such as prohibiting the use of such applications at night.

(c) Consultation Rooms

It is desirable to avoid the use of mobile handsets in examination rooms so as not to disturb doctor’s work and other patients. Even if noise and other events occur, the potential effects on medical practices are limited as much of the medical electrical equipment used in this area are diagnostic devices. Examination rooms are under the control of hospital staff. If the use of mobile handsets should affect medical electrical equipment, hospital staff would acknowledge the effects and deal with the situation by, for example, keeping mobile handsets away from medical electrical equipment. This means that Hospital Users do not need to turn off their mobile handsets in this area, provided that, in the case that there are patients using medical electrical equipment, any mobile handsets in use are separated by at least the specified separation from the medical electrical equipment.

(d) Operating Rooms, Intensive Care Units (ICUs), Laboratories, Treatment Rooms, etc.

Much of the medical electrical equipment used in this area, such as life-support devices, carry a significant risk if radio waves interfere with such equipment. We should therefore prohibit the use of mobile handsets as a rule. Mobile handsets should be turned off (or switch to airplane or offline mode) since they may transmit signals even in the standby state.

(e) Mobile Phone Space, Rooms Designated for Mobile Phone Use, etc.

If hospitals have little space where mobile handsets may be used, it is desirable to set up space for the use of mobile handsets in the appropriate location for the convenience and quality of life for Hospital Users. Any type of use, including Calls, should be allowed in this area.

[Reference Cases: Establishment of Rules for Using Mobile Handsets by Area]

Areas	Calls	E-mail, Web, and Other Applications	Area-specific Precautions
(1) Cafeterias, waiting rooms, corridors, elevator halls, etc.	Allowed	Allowed	<ul style="list-style-type: none"> ● Mobile handsets in use should be separated by at least the specified separation from

			<p>medical electrical equipment.</p> <ul style="list-style-type: none"> ● Use should be restricted as necessary if mobile handsets in use are in the vicinity of the restricted areas. ● Texting while walking is dangerous and should be avoided.
(2) Patient rooms, etc.	Partially allowed ^{*13}	Allowed	<ul style="list-style-type: none"> ● Mobile handsets in use should be separated by at least the specified separation from medical electrical equipment. ● In a patient room for multiple patients, certain consideration is necessary from a perspective of public manners, such as placing restrictions on Calls.

(3) Consultation rooms	Not allowed	Partly allowed (No need to switch off)	<ul style="list-style-type: none"> ● There is no need to turn off mobile handsets (provided that mobile-phone users keep distance from medical electrical equipment for at least the specified separation.) ● Consideration is necessary. For example, use should be avoided to prevent the disturbance to medical examination or other patients.
(4) Operation rooms, ICUs, laboratories, treatment rooms, etc.	Not allowed	Not allowed	<ul style="list-style-type: none"> ● Mobile handsets should not be used and should be turned off. (Or they should be switched to the mode that does not emit radio waves.
(5) Space for mobile phones, etc.	Allowed	Allowed	

*13: Which matters should require attention from a perspective of public manners cannot be decided in a single uniform way. Note that the above cases are for reference only; specific rules are left to the

discretion of individual hospitals.

4. Establishing Rules for Using Mobile Handsets Targeted at Hospital staff

It is necessary to set rules specifically targeted at hospital staff when hospitals establish rules for using mobile handsets at their facilities.

Considering that the use of mobile handsets for medical practice contributes to the swift and optimum operation of medical services, the use thereof, including Calls, may be allowed in principle, on the condition that hospital staff is fully educated about the prevention of interference with medical electrical equipment. It is important, however, that each hospital confirm that the use of mobile handsets does not affect medical electrical equipment, in areas, such as operation rooms, where there is medical electrical equipment with a significant risk of interference based on the test result if they have conducted a test on their own, information from the instruction manual for specific medical electrical equipment, and other sources. Another effective measure is to introduce a system with low power output for medical practice {e.g., the personal handy phone system (PHS) for medical purposes}.

If hospitals use mobile handsets for medical practice, it is necessary to take a measure to avoid confusion among Hospital Users, such as attaching a dedicated strap to these mobile handsets.

As for the use of mobile handsets for private purposes by hospital staff, it is appropriate to apply the same rule as that of Hospital Users in the areas where both hospital staff and Hospital Users are present. Mobile handsets may be used in the areas where access is limited to hospital staff (e.g., nurses' stations, and staff lounges, medical offices, and other staff rooms) because there is no medical electrical equipment that may be affected by radio waves or Hospital Users to whom consideration should be given in terms of public manners.

5. Keeping People Informed about the Rules for Using Mobile Handsets in Hospitals

It is necessary to fully inform Hospital Users, hospital staff, and relevant business operators of the content of the rules for using mobile handsets to ensure compliance with the rules. Hospitals should carefully explain the rules to patients orally and through leaflets when admitted, and post signs on the content of the rules for use in an easy-to-understand manner in a highly visible location in each area inside their facilities. Signs should contain rules for using mobile handsets for Calls as distinguished from e-mail, Web, and other applications in a straightforward manner. (See reference examples in the exhibit.)

Hospital staff and relevant business operators are expected to take the lead in complying with the rules. Therefore, hospitals should ensure that these individuals are particularly well informed about the rules by, for example, distributing memos and posting alert messages.

6. Using Wireless Communications Systems other than Mobile Handsets

With the development of information and communications technologies (ICT) and the application thereof to medical services in recent years, the use of wireless communication devices as a system for medical purposes has rapidly gained popularity, and opportunities for use are expected to increase in the future. See the following approach to the usage of wireless communications systems. (Note: Refer to the Report for details on advanced cases on the application of ICT to medical services using wireless communications systems.)

(1) PHS

Actually, Personal Handy-phone System (PHS) handsets manufactured with low output power for hospital staff have already been implemented at many hospitals. While these handsets may be used in hospitals, in principle, hospitals should confirm that the use of PHS handsets does not affect any medical electrical equipment in such areas as operation rooms and ICUs based on the test result if they have conducted a test on their own, information from the instruction manual for specific medical electrical equipment, and other sources. However, putting PHS handsets on medical electrical equipment should be prohibited.

(2) Wireless LAN

Since wireless LAN devices generally used in Japan have lower output power than mobile handsets, they are less likely to interfere with medical electrical equipment. That is why it is considered appropriate to use them in hospitals, and have already been implemented at many hospitals. Hospitals should, however, confirm that the use of wireless LAN devices does not affect any medical electrical equipment in such areas as operation rooms and ICUs based on the test result if they have conducted a test on their own, information from the instruction manual for specific medical electrical equipment, and other sources. Putting wireless LAN devices on medical electrical equipment should be prohibited.

As smartphones, tablets, game consoles, mobile routers, and other devices with embedded wireless LAN connectivity have rapidly gained popularity, the use of such wireless LAN devices by Hospital Users may cause interference and other problems to the wireless LAN used inside hospitals.

Therefore, hospitals with wireless LAN connectivity need to take such measures as placing restrictions on the use of wireless LAN devices brought by hospital visitors and recommending the use of the LAN made available by hospitals to general visitors. Attention should be given particularly to those who use smartphones and similar devices embedded with both wireless LAN and mobile phone capabilities.

To implement a wireless LAN, it is necessary to check that radio equipment conforms to the technical

standards in Japan by checking the presence of radio equipment conformity certification marks such as the Technical Conformity Mark (㊦).

(3) Establishing Femtocell Base Stations^{*14}

Establishing femtocell base stations is likely to expand coverage inside hospitals when they have poor signal quality. Around a femtocell base station, the transmitted power of mobile handsets accessing the base station becomes lower under specific conditions compared with accessing a distant base station. This means that there is less EMI by radio waves from mobile handsets on surrounding medical electrical equipment. Hospitals are advised to consult professional operators about specific installation plans in harmony with these Guidelines since the improvement of the electromagnetic environment is possibly limited and as the effect mentioned above may be achieved only through the precise configuration of the coverage area.

^{*14}: Small base stations that cover a small area with low output

(4) Others

RFID, ZigBee, Bluetooth, and other technologies have become widely used to identify and manage medical electrical equipment. In implementing any of these technologies, hospitals should check the interference effects of such technologies on medical electrical equipment based on the test result if they have conducted a test on their own, information from the instruction manual for specific medical electrical equipment, and other sources. Since some types of RFID readers may emit strong electromagnetic waves, interference effects need to be checked carefully in the process of implementing RFID.

7. Improving a Management Structure in hospitals

By establishing rules for using mobile handsets by reference to these Guidelines, hospitals are more capable to properly manage and operate wireless communication devices in their facilities. To make wireless communication devices available more safely and securely along with further development of ICT for medical services, hospitals need to pay more attention to the management of the EMC environment by reference to these Guidelines. In particular, advanced treatment hospitals, where many advanced medical electrical equipment, such as life-support devices, are expected to address the following matters actively using examples from the efforts made in medically advanced countries^{*14}:

^{*14}: One example is the Recommendations for EMC/EMI in Healthcare Facilities (2010) put out by the US Food and Drug Administration. Refer to the Report for details.

(1) Deploying EMC Managers

It is preferable to assign someone (EMC Managers) to work on EMC in hospitals on an ongoing

basis. Clinical Engineering Technologists or safety management supervisors for medical equipment can also serve as EMC Managers. It is desirable to assign Certified Clinical Engineering Specialists or someone who has knowledge about EMC.

(2) Case Examples of Efforts Expected of EMC Managers

To support the utilization of ICT and the prevention of EMI with medical electrical equipment at the same time, it is preferable that EMC Managers work with relevant departments and play a central role in promoting the matters described below:

(a) Evaluating EMC for Wireless Communication Devices and Medical Electrical Equipment Used in Hospitals

Hospitals should identify which wireless communications terminals are under their control and which ones are not (e.g., mobile handsets brought from outside) and then sort out the users of these terminals. They are also expected to understand the areas where medical electrical equipment that requires focused control in terms of EMC is in use and examine rules for using these terminals to ensure safety.

If medical electrical equipment shows a sign of interference apparently caused by radio waves, hospitals should work in collaboration with the manufacturer of the medical electrical equipment, take tentative measures such as tightening controls on the use of mobile handsets in the surrounding area, and record and analyze the situation to identify the cause.

(b) Evaluating and Improving the Electromagnetic environment

Generally, the better the radio wave reception, the less the output power of radio waves from mobile handsets. Therefore, improving radio wave conditions can be effective in improving the EMC environment. Hospitals are advised to identify areas with poor signal quality and take measures as necessary. Examples of measures to improve radio wave conditions include the installation of base stations inside the hospitals and indoor repeaters. Hospitals should consult professional operators for specific steps.

(c) Formulating Rules for Hospital Users and Hospital staff on the Use of Mobile Handsets

Hospitals are expected to establish a structure for examining EMC matters (e.g., EMC Committee) composed of persons in charge from relevant departments by reference to these Guidelines, and formulate rules for both Hospital Users and hospital staff while taking into account the individual situations of hospitals in a comprehensive manner. Members of the EMC committee should share information on an ongoing basis and review any matters as necessary.

(d) Building a Structure for Procuring, Implementing, Operating, and Managing Medical

Electrical Equipment and Wireless Communication Devices to Build a Favorable EMC Environment

EMC Managers play a central role in establishing administrative rules for handling medical electrical equipment and wireless communication devices to build a favorable EMC environment. In the process, a sufficient structure for communication and coordination should be built among EMC Managers, the personnel in charge of procuring and managing wireless communication devices, and the personnel in charge of procuring and managing medical electrical equipment.

When hospitals plan to introduce some medical electronic equipment or wireless communications equipment for the first time, they should obtain sufficient information from the manufacturers of medical electrical equipment and other sources, and estimate the required separation by conducting a test if necessary to maintain and improve their EMC environment. As medical electrical equipment with built-in wireless communication capabilities has become widely used in recent years, hospitals should work with relevant departments in particular when they introduce such equipment for the first time.

(e) Keeping Hospital Users Informed and Educating Hospital staff

Rules for using mobile handsets should be communicated through signs posted on the wall, handouts, floor maps, etc. Hospital staff is educated as well on the necessary knowledge about EMC.

(f) Collecting Latest Technical Information on an Ongoing Basis

EMC Managers are expected to collect latest information, such as the electromagnetic immunity of wireless communication devices and medical electrical equipment, from the manufacturers of such devices, relevant ministries and agencies, and other sources, and attempt to improve their efforts as needed based on the aforementioned information.

8. Matters Expected of Manufacturers of Medical Electrical Equipment

JIS T 0601-1-2 stipulates that the manufacturers of medical electrical equipment must explain precautions and other matters in instruction manuals, while the second version of JIS T 0601-1-2:2012 further states that they must document an explanation including the recommended separation distance in technical briefing papers.

As the application of ICT to medical services becomes more common in the future, it is anticipated that there will be an increasing need for improvement of the EMC environment in hospitals to continue to ensure security and safety. This means that necessary information should be fully communicated to EMC Managers of hospitals more than ever.

The manufacturers of medical electrical equipment are therefore advised to promote efforts to provide the information on EMC of medical electrical equipment that helps EMC Managers make decisions, such as data on separation from mobile handsets, in an easier-to-understand manner based on the intent of the aforementioned standards and these Guidelines. In particular, they are expected to present in an easy-to-understand fashion information on risks and warnings for cases such as the placing of mobile handsets closer to the equipment and older medical electrical equipment. They are also expected to respond to inquiries from hospitals about the said information as promptly as possible, and work cooperatively with hospitals and other parties to identify the cause if hospitals inform them of interference on the delivered medical electrical equipment apparently caused by electromagnetic waves. They examine the possibility of gaining cooperation from mobile-service operators as needed.

Since there is a need for future development of medical electrical equipment with higher electromagnetic immunity, the manufacturers of medical electrical equipment should work actively on this area.

9. Matters Expected of Mobile Service Providers^{*15}

Based on these Guidelines, wireless service providers are expected to actively keep its users informed about precautions for use of mobile handsets in hospitals through their websites, instruction manuals, etc. They are also expected to work cooperatively with the manufacturers of medical electrical equipment and other parties to identify the cause if hospitals inform of interference apparently caused by electromagnetic waves.

*15: Mobile service providers herein mean any business operators involved in the sales and manufacturing of mobile handsets, and the operation of telecommunications networks.

Exhibit: Examples of Signs Used in hospitals



Use of Mobile Phones: Allowed

- Separate mobile handsets away from medical electrical equipment for at least one meter.
- Users may make calls, e-mail, or browse.



Use of Mobile Phones: Partly Allowed

- Separate mobile handsets away from medical electrical equipment for at least one meter.
- Users may e-mail or browse. No phone calls, please.



Turn Off Mobile Phones

Note: The above signs are for illustration purposes only. Hospitals are recommended to refer to these examples and create proper signs that show their rules in an easy-to-understand fashion.