

Outline of Proposed Amendment to Ministerial Ordinance

1 Item

Partial amendment of the Ordinance for Enforcement of the Radio Act etc.

2 Amendment to ministerial ordinance

- Ordinance for Enforcement of the Radio Act
- Ordinance Regulating Radio Equipment
- Ordinance on Technical Regulations Conformity Certification of Specified Radio Equipment

3 Reasons for amendment

Japan will amend the current technical regulations for mobile telecommunications radio equipment and BWA (broadband wireless access system) radio equipment for LTE/NR considering following needs.

- Available for use the repeater for TDD-NR.
- Available for use the femtocell base station for FDD-NR, TDD-LTE and TDD-NR.
- Relaxation of the upper limit of antenna power of UE (user equipment) for NR.
etc.

4 Outline of the amendment

Technical requirements of radio equipment

(The following items written in red indicate are points to change. The items that are not listed, there are no changes or they are compliant with 3GPP.)

(1) Mobile telecommunications BS (base station) and UE radio equipment for FDD-LTE

Item	Technical requirements
Frequency Band	BS (DL): 770-803MHz, 860-890MHz, 945-960MHz, 1475.9-1510.9MHz, 1805-1880MHz, 2110-2170MHz UE (UL): 715-748MHz, 815-845MHz, 900-915MHz, 1427.9-1462.9MHz, 1710-1785MHz, 1920-1980MHz

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1427.9-1462.9MHz, 1920-1980MHz	180kHz, 1.08MHz, 5MHz, 10MHz, 15MHz, 20MHz												
Duplex	FDD												
Modulation	N/A												
Maximum Antenna Power	BS: N/A*1 UE: 200mW												
Maximum Antenna Gain	BS: N/A*2 UE: 3dBi*3												
Unwanted Emission Level	BS: Compliant with 3GPP												
	UE:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Unwanted emission level (average power)</th> </tr> </thead> <tbody> <tr> <td>1884.5MHz-1906.6MHz</td> <td>-30dBm/MHz</td> </tr> <tr> <td>1906.6MHz-1910MHz</td> <td>-25dBm/MHz (1920-1980MHz, 10MHz channel bandwidth only) -30dBm/MHz (other)</td> </tr> <tr> <td>1910MHz-1915.7MHz</td> <td>-25dBm/MHz (1920-1980MHz, 5MHz channel bandwidth only) -30dBm/MHz (other)</td> </tr> <tr> <td>Other</td> <td>Compliant with 3GPP</td> </tr> </tbody> </table>		Frequency	Unwanted emission level (average power)	1884.5MHz-1906.6MHz	-30dBm/MHz	1906.6MHz-1910MHz	-25dBm/MHz (1920-1980MHz, 10MHz channel bandwidth only) -30dBm/MHz (other)	1910MHz-1915.7MHz	-25dBm/MHz (1920-1980MHz, 5MHz channel bandwidth only) -30dBm/MHz (other)	Other	Compliant with 3GPP
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Other	Compliant with 3GPP												

*1 Up to 100mW for femtocell base station.

*2 Up to 0dBi for femtocell base station.

*3 Within the range in which the EIRP is 26 dBm or less, it is possible to compensate for the reduction in antenna power.

(2) Mobile telecommunications BS (excluding femtocell base station) and UE radio equipment for FDD-NR

Item	Technical requirements
Frequency Band	BS (DL): 773-803MHz, 860-890MHz, 945-960MHz, 1475.9-1510.9MHz, 1805-1880MHz, 2110-2170MHz UE (UL): 718-748MHz, 815-845MHz, 900-915MHz, 1427.9-1462.9MHz, 1710-1785MHz, 1920-1980MHz
Channel Bandwidth	5MHz, 10MHz, 15MHz, 20MHz
Duplex	FDD
Modulation	N/A
Allowable Maximum Antenna Power	BS: N/A UE: 200mW
Allowable Maximum Antenna Gain	BS: N/A UE: 3dBi*1

*1 Within the range in which the EIRP is 26 dBm or less, it is possible to compensate for the reduction in antenna power.

(3) Mobile telecommunications femtocell base station radio equipment for FDD-NR

Item	Technical requirements
Frequency Band	773-803MHz, 860-890MHz, 945-960MHz, 1475.9-1510.9MHz, 1805-1880MHz, 2110-2170MHz
Channel Bandwidth	5MHz, 10MHz, 15MHz, 20MHz
Duplex	FDD
Modulation	N/A
Allowable Maximum Antenna Power	100mW

Allowable Maximum Antenna Gain	0dBi		
Allowable Deviation of Frequency	$\pm(0.25\text{ppm} + 12\text{Hz})$		
Allowable Deviation of Antenna Power	-47% to +87%		
Allowable Unwanted Emission Level	Frequency	Tolerance	
	1884.5-1915.7MHz	-41dBm/300kHz	
	2010-2025MHz	-52dBm* ¹	
	other	-13dBm* ¹	
Allowable Adjacent Channel Leakage Ratio	-13dBm/MHz or -44.2dBc		
Spectrum Mask	Offset Frequency (Δf)	Tolerance	Reference Bandwidth
	$0.05 \leq \Delta f < 5.05\text{MHz}$	$-5.5\text{dBm} - 7/5 \times (\Delta f - 0.05)\text{dB}$	100kHz
	$5.05 \leq \Delta f < 10.05\text{MHz}$	-12.5dBm	100kHz
	$10.05\text{MHz} \leq \Delta f$ (if use 773-803MHz, 860-890MHz or 945-960MHz)	-13dBm	100kHz
	$10.5\text{MHz} \leq \Delta f$ (if use 1475.9-1510.9MHz, 1805-1880MHz or 2110-2170MHz)	-13dBm	1MHz
Allowable Leak Radiation from Receiver Circuit	Frequency	Leak Radiation from Receiver Circuit	
	30MHz-1000MHz	-57dBm/100kHz	
	1000MHz-12.75GHz (Excluding 2010-2025MHz)	-47dBm/MHz	
	2010-2025MHz	-52dBm/MHz	

*1 The reference bandwidth is follows:

Frequency	Reference Bandwidth
9kHz-150kHz	1kHz
150kHz-30MHz	10kHz
30MHz-1000MHz	100kHz
1000MHz-12.75GHz	1MHz

(4) Mobile telecommunications LPR (low-power repeater) radio equipment for FDD-LTE and FDD-NR

Item	Technical requirements												
Frequency Band	DL: 770-803MHz, 860-890MHz, 945-960MHz, 1475.9-1510.9MHz, 1805-1880MHz, 2110-2170MHz UL: 715-748MHz, 815-845MHz, 900-915MHz, 1427.9-1462.9MHz, 1710-1785MHz, 1920-1980MHz												
Channel Bandwidth	3MHz, 5MHz, 10MHz, 15MHz, 20MHz												
Duplex	FDD												
Modulation	N/A												
Allowable Maximum Antenna Power	DL: 250mW UL: 400mW												
Maximum Antenna Gain	DL: 0dBi*2 UL: 9dBi												
Allowable Unwanted Emission Level	<p>DL:</p> <table border="1"> <thead> <tr> <th>Frequency</th> <th>Unwanted emission level (average power)</th> </tr> </thead> <tbody> <tr> <td>1884.5MHz-1915.7MHz</td> <td>-41dBm/300kHz (if use 1475.9-1510.9MHz, 1805-1880MHz or 2110-2170MHz) -13dBm/MHz (other)</td> </tr> <tr> <td>Other</td> <td>Compliant with 3GPP</td> </tr> </tbody> </table> <p>UL:</p> <table border="1"> <thead> <tr> <th>Frequency</th> <th>Unwanted emission level (average power)</th> </tr> </thead> <tbody> <tr> <td>1884.5MHz-1915.7MHz</td> <td>-41dBm/300kHz (if use 1427.9-1462.9MHz, 1710-1785MHz or 1920-1980MHz) -13dBm/MHz (other)</td> </tr> <tr> <td>Other</td> <td>Compliant with 3GPP</td> </tr> </tbody> </table>	Frequency	Unwanted emission level (average power)	1884.5MHz-1915.7MHz	-41dBm/300kHz (if use 1475.9-1510.9MHz, 1805-1880MHz or 2110-2170MHz) -13dBm/MHz (other)	Other	Compliant with 3GPP	Frequency	Unwanted emission level (average power)	1884.5MHz-1915.7MHz	-41dBm/300kHz (if use 1427.9-1462.9MHz, 1710-1785MHz or 1920-1980MHz) -13dBm/MHz (other)	Other	Compliant with 3GPP
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Other	Compliant with 3GPP												

*1 Within the range in which the EIRP is 24 dBm or less, it is possible to compensate for the reduction in antenna power.

(5) Mobile telecommunications BS and UE radio equipment for TDD-LTE

Item	Technical requirements	
Frequency Band	2010-2025MHz	2330-2370MHz, 3.4-3.6GHz
Channel Bandwidth	5MHz, 10MHz, 15MHz	5MHz, 10MHz, 15MHz, 20MHz
Duplex	TDD	TDD
Modulation	N/A	N/A
Allowable Maximum Antenna Power	BS: N/A*1 UE: 200mW	BS: N/A*1 UE: 200mW
Allowable Maximum Antenna Gain	BS: N/A*2 UE: 0dBi*3	BS: N/A*2 UE: 3dBi*4

*1 Up to 100mW for femtocell base station.

*2 Up to 0dBi for femtocell base station.

*3 Within the range in which the EIRP is 23 dBm or less, it is possible to compensate for the reduction in antenna power.

*4 Within the range in which the EIRP is 26 dBm or less, it is possible to compensate for the reduction in antenna power.

(6) Mobile telecommunications BS (excluding femtocell base station) and UE radio equipment for TDD-NR

Item	Technical requirements	
Frequency Band	2330-2370MHz, 3.4-4.1GHz, 4.5-4.9GHz*1	27-29.5GHz*1
Channel Bandwidth	BS: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz UE:	50MHz, 100MHz, 200MHz, 400MHz

	10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz							
Duplex	TDD	TDD						
Modulation	N/A	N/A						
Allowable Maximum Antenna Power	BS: N/A UE: <table border="1" data-bbox="424 595 1110 931"> <thead> <tr> <th>Frequency</th> <th>Maximum Antenna Power</th> </tr> </thead> <tbody> <tr> <td>2330-2370MHz, 4.0-4.1GHz, 4.6-4.8GHz</td> <td>200mW</td> </tr> <tr> <td>3.4-4.0GHz, 4.5-4.6GHz, 4.8-4.9GHz</td> <td>800mW (plurality of antenna terminals) 400mW (single antenna terminal)</td> </tr> </tbody> </table>	Frequency	Maximum Antenna Power	2330-2370MHz, 4.0-4.1GHz, 4.6-4.8GHz	200mW	3.4-4.0GHz, 4.5-4.6GHz, 4.8-4.9GHz	800mW (plurality of antenna terminals) 400mW (single antenna terminal)	BS: N/A UE: 3.16W
Frequency	Maximum Antenna Power							
2330-2370MHz, 4.0-4.1GHz, 4.6-4.8GHz	200mW							
3.4-4.0GHz, 4.5-4.6GHz, 4.8-4.9GHz	800mW (plurality of antenna terminals) 400mW (single antenna terminal)							
Allowable Maximum Antenna Gain	BS: N/A UE: 3dBi*2	BS: N/A UE: 20dBi*3						

*1 4.6-4.9GHz and 28.2-29.1GHz are for local 5G.

*2 Within the range in which the EIRP is 32dBm (when the transmission frequency is 2330-2370MHz, 4.0-4.1GHz or 4.6-4.8GHz, it is assumed to be 26dBm.) or less, it is possible to compensate for the reduction in antenna power.

*3 Within the range in which the EIRP is 55dBm or less, it is possible to compensate for the reduction in antenna power.

(7) Mobile telecommunications femtocell base station radio equipment for TDD-NR

Item	Technical requirements	
Frequency Band	3.4-4.1GHz, 4.5-4.9GHz*1	27.0-29.1GHz*1
Channel Bandwidth	10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz	50MHz, 100MHz, 200MHz, 400MHz
Duplex	TDD	TDD
Modulation	N/A	N/A
Allowable Maximum Antenna Power	100mW	400mW

Allowable Maximum Antenna Gain	0dBi	0dBi																						
Allowable Deviation of Frequency	$\pm(0.25\text{ppm} + 12\text{Hz})$	$\pm(0.25\text{ppm} + 12\text{Hz})$																						
Allowable Deviation of Antenna Power	-50% to +100% (With antenna terminal) -55% to +124% (Without antenna terminal)	-70% to +224%																						
Allowable Unwanted Emission Level	-13dBm* ¹ (With antenna terminal) -4dBm* ¹ (Without antenna terminal)	-13dBm* ²																						
Allowable Adjacent Channel Leakage Ratio	-13dBm/MHz or -44.2dBc (With antenna terminal) -4dBm/MHz or -43.8dBc (Without antenna terminal)	-10.3dBm/MHz or -25.7dBc																						
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32.5GHz-41.5GHz	-15dBm/10MHz																							
41.5GHz-	-20dBm/10MHz																							

*1 The reference bandwidth is follows:

Frequency	Reference Bandwidth
9kHz-150kHz	1kHz
150kHz-30MHz	10kHz

30MHz-1000MHz	100kHz
1000MHz-	1MHz

*2 The reference bandwidth is follows:

Frequency	Reference Bandwidth
30MHz-1000MHz	100kHz
1000MHz-	1MHz

*3 TF is transmission bandwidth.

(8) Mobile telecommunications LPR radio equipment for TDD-NR

Item	Technical requirements	
Frequency Band	3.4-4.1GHz, 4.5-4.9GHz*1	27-29.5GHz*1
Channel Bandwidth	DL: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz UL: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz	50MHz, 100MHz, 200MHz, 400MHz
Duplex	TDD	TDD
Modulation	N/A	N/A
Allowable Antenna Power	250mW*2	200mW
Allowable Antenna Gain	DL: 0dBi UL: 9dBi*2	20dBi
Allowable Deviation of Frequency	$\pm(0.1\text{ppm} + 12\text{Hz})$	$\pm(0.1\text{ppm} + 12\text{Hz})$
Allowable Deviation of Antenna Power	-50% to +100%	-74% to +224%

Allowable Adjacent Channel Leakage Ratio	DL: -13dBm/MHz or -44.2dBc*3 UL: -30.2dBc*4	DL: -13dBm/MHz or -25.7dBc UL: -14.7dBc																
Allowable Unwanted Emission Level	DL: -13dBm*5 UL: <table border="1"> <thead> <tr> <th>Frequency</th> <th>Unwanted Emission Level</th> </tr> </thead> <tbody> <tr> <td>< 1000MHz</td> <td>-36dBm*5</td> </tr> <tr> <td>1000MHz ≤</td> <td>-30dBm*5</td> </tr> </tbody> </table>	Frequency	Unwanted Emission Level	< 1000MHz	-36dBm*5	1000MHz ≤	-30dBm*5	DL: -13dBm*6,*7 UL: <table border="1"> <thead> <tr> <th>Frequency</th> <th>Unwanted Emission Level</th> </tr> </thead> <tbody> <tr> <td>6GHz ≤</td> <td>-13dBm/MHz*8</td> </tr> </tbody> </table>	Frequency	Unwanted Emission Level	6GHz ≤	-13dBm/MHz*8						
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30MHz-1000MHz	-57dBm/100kHz																	
1000MHz ≤	-47dBm/MHz																	

*1 4.6-4.9GHz and 28.2-29.1GHz are for local 5G.

*2 If 3.9-4.1GHz or 4.5-4.6GHz is used outdoors, the EIRP must be less than or equal to 29dBm (3.9-4.0GHz), 22dBm (4.0-4.1GHz) or 30dBm (4.5-4.6GHz).

*3 -43.8dBc for a passband width greater than or equal to 30MHz.

*4 -29.8dBc for a passband width greater than or equal to 30MHz.

*5 The reference bandwidth is follows:

Frequency	Reference Bandwidth
9kHz-150kHz	1kHz
150kHz-30MHz	10kHz
30MHz-1000MHz	100kHz
1000MHz ≤	1000MHz

*6 The reference bandwidth is follows:

Frequency	Reference Bandwidth
30MHz-1000MHz	100kHz
1000MHz \leq	1000MHz

*7 From 23.6 to 24 GHz, it is -9dBm/200MHz.

*8 From 23.6 to 24 GHz, it is 1dBm/200MHz.

(9) Mobile telecommunications repeater (excluding LPR) radio equipment for TDD-NR

Item	Technical requirements	
Frequency Band	3.4-3.6GHz, 4.8-4.9GHz*1	27-29.5GHz*1
Channel Bandwidth	DL: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz UL: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz	50MHz, 100MHz, 200MHz, 400MHz
Duplex	TDD	TDD
Modulation	N/A	N/A
Allowable Antenna Power	N/A	N/A
Allowable Antenna Gain	N/A	N/A
Allowable Deviation of Frequency	$\pm(0.1\text{ppm} + 12\text{Hz})$	$\pm(0.1\text{ppm} + 12\text{Hz})$
Allowable Deviation of Antenna Power	-50% to +100%	-74% to +224%

Allowable Adjacent Channel Leakage Ratio	DL: -13dBm/MHz or -44.2dBc*2 UL: -30.2dBc*3	DL: -13dBm/MHz or -25.7dBc UL: -14.7dBc										
Allowable Unwanted Emission Level	DL: -13dBm*4 UL: <table border="1"> <thead> <tr> <th>Frequency</th> <th>Unwanted Emission Level</th> </tr> </thead> <tbody> <tr> <td>< 1000MHz</td> <td>-36dBm*4</td> </tr> <tr> <td>1000MHz ≤</td> <td>-30dBm*4</td> </tr> </tbody> </table>	Frequency	Unwanted Emission Level	< 1000MHz	-36dBm*4	1000MHz ≤	-30dBm*4	DL: -13dBm*5,*6 UL: <table border="1"> <thead> <tr> <th>Frequency</th> <th>Unwanted Emission Level</th> </tr> </thead> <tbody> <tr> <td>6GHz ≤</td> <td>-13dBm/MHz*7</td> </tr> </tbody> </table>	Frequency	Unwanted Emission Level	6GHz ≤	-13dBm/MHz*7
Frequency	Unwanted Emission Level											
< 1000MHz	-36dBm*4											
1000MHz ≤	-30dBm*4											
Frequency	Unwanted Emission Level											
6GHz ≤	-13dBm/MHz*7											
Allowable Out-of-band Gain	N/A	N/A										
Allowable Leak Radiation from Receiver Circuit	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Leak Radiation from Receiver Circuit</th> </tr> </thead> <tbody> <tr> <td>30MHz-1000MHz</td> <td>-57dBm/100kHz</td> </tr> <tr> <td>1000MHz ≤</td> <td>-47dBm/MHz</td> </tr> </tbody> </table>	Frequency	Leak Radiation from Receiver Circuit	30MHz-1000MHz	-57dBm/100kHz	1000MHz ≤	-47dBm/MHz	N/A				
Frequency	Leak Radiation from Receiver Circuit											
30MHz-1000MHz	-57dBm/100kHz											
1000MHz ≤	-47dBm/MHz											

*1 4.8-4.9GHz and 28.2-29.1GHz are for local 5G.

*2 -43.8dBc for a passband width greater than or equal to 30MHz.

*3 -29.8dBc for a passband width greater than or equal to 30MHz.

*4 The reference bandwidth is follows:

Frequency	Reference Bandwidth
9kHz-150kHz	1kHz
150kHz-30MHz	10kHz
30MHz-1000MHz	100kHz
1000MHz ≤	1000MHz

*5 The reference bandwidth is follows:

Frequency	Reference Bandwidth
30MHz-1000MHz	100kHz
1000MHz ≤	1000MHz

*6 From 23.6 to 24 GHz, it is -9dBm/200MHz.

*7 From 23.6 to 24 GHz, it is 1dBm/200MHz.

(10) BWA BS and UE radio equipment for WiMAX R2.1AE / XGP ver2.3

Item	Technical requirements
Frequency Band	2545-2645MHz
Channel Bandwidth	1.4MHz, 2.5MHz, 5MHz, 10MHz, 20MHz
Duplex	TDD
Modulation	N/A
Allowable Maximum Antenna Power	BS: 20W ^{*1,*2} UE: 800mW
Allowable Maximum Antenna Gain	BS: 17dBi ^{*3} UE: 4dBi ^{*4}

*1 Up to 40W if the channel spacing is 20MHz.

*2 Up to 200mW for femtocell base station.

*3 Up to 4dBi for femtocell base station.

*4 Within the range in which the EIRP is 33dBm or less, it is possible to compensate for the reduction in antenna power.

(11) BWA BS (excluding femtocell base station) and UE radio equipment for NR (WiMAX R3.0 / XGP ver4.0)

Item	Technical requirements
Frequency Band	2545-2645MHz
Channel Bandwidth	10MHz, 20MHz, 30MHz, 40MHz, 50MHz
Duplex	TDD
Modulation	N/A
Allowable Maximum Antenna Power	BS: 20W/10MHz UE: 800mW (plurality of antenna terminals) 400mW (single antenna terminal)

Allowable Maximum Antenna Gain	BS: 17dBi UE: 4dBi*1
--------------------------------	-------------------------

*1 Within the range in which the EIRP is 33dBm or less, it is possible to compensate for the reduction in antenna power.

(12) BWA femtocell base station radio equipment for NR (WiMAX R3.0 / XGP ver4.0)

Item	Technical requirements	
Frequency Band	2545-2645MHz	
Channel Bandwidth	10MHz, 20MHz, 30MHz, 40MHz, 50MHz	
Duplex	TDD	
Modulation	N/A	
Allowable Maximum Antenna Power	200mW	
Allowable Maximum Antenna Gain	4dBi	
Allowable Deviation of Frequency	± 3ppm	
Allowable Deviation of Antenna Power	-50% to +100%	
Allowable Unwanted Emission Level	Frequency	Unwanted Emission Level
	9kHz-2505MHz,	-13dBm*1
	2505MHz-2635MHz	-42dBm/MHz
	2655MHz-	-13dBm/MHz
Allowable Adjacent Channel Leakage Ratio	Channel Bandwidth / Detuning Frequency	Adjacent Channel Leakage Ratio
	10MHz	3dBm/10MHz
	20MHz	6dBm/20MHz
	30MHz	8dBm/30MHz
	40MHz	9dBm/40MHz
	50MHz	10dBm/50MHz

Spectrum Mask	Channel Bandwidth	Detuning Frequency	Tolerance
	10MHz	10MHz-25MHz	-13dBm/MHz
	20MHz	30MHz-50MHz	-13dBm/MHz
	30MHz	45MHz-75MHz	-13dBm/MHz
	40MHz	60MHz-100MHz	-13dBm/MHz
	50MHz	75MHz-125MHz	-13dBm/MHz
Allowable Leak Radiation from Receiver Circuit	Frequency	Leak Radiation from Receiver Circuit	
	30MHz-1000MHz	-36dBm/100kHz	
	1000MHz-	-30dBm/MHz	

*1 The reference bandwidth is follows:

Frequency	Reference Bandwidth
9kHz-150kHz	1kHz
150kHz-30MHz	10kHz
30MHz-1000MHz	100kHz
1000MHz-	1MHz

(13) BWA LPR radio equipment for NR (WiMAX R3.0 / XGP ver4.0)

Item	Technical requirements
Frequency Band	2545-2645MHz
Channel Bandwidth	10MHz, 20MHz, 30MHz, 40MHz, 50MHz
Duplex	TDD
Modulation	N/A
Allowable Antenna Power	200mW*1,*2
Allowable Antenna Gain	4dBi
Allowable Deviation of Frequency	± 3ppm

Allowable Deviation of Antenna Power	-47% to +87%		
Allowable Adjacent Channel Leakage Ratio	Channel Bandwidth / Detuning Frequency	Adjacent Channel Leakage Ratio	
	10MHz	2dBm/10MHz	
	20MHz	3dBm/20MHz	
	30MHz	5dBm/30MHz	
	40MHz	6dBm/40MHz	
	50MHz	7dBm/50MHz	
Allowable Unwanted Emission Level	Frequency	Unwanted Emission Level	
	9kHz-2505MHz,	-13dBm* ³	
	2505MHz-2530MHz	-30dBm/MHz	
	2530MHz-2535MHz	-25dBm/MHz	
	2535MHz-2655MHz	-30dBm/MHz	
	2635MHz-	-13dBm/MHz	
Spectrum Mask	Channel Bandwidth	Detuning Frequency	Tolerance
	10MHz	10MHz-15MHz	-13dBm/MHz
		15MHz-20MHz	-25dBm/MHz
	20MHz	15MHz-30MHz	-13dBm/MHz
		30MHz-35MHz	-25dBm/MHz
	30MHz	20MHz-45MHz	-13dBm/MHz
		45MHz-50MHz	-25dBm/MHz
	40MHz	25MHz-60MHz	-13dBm/MHz
		60MHz-65MHz	-25dBm/MHz
	50MHz	30MHz-75MHz	-13dBm/MHz
75MHz-80MHz		-25dBm/MHz	
Allowable Out-of-band Gain	Detuning Frequency from the Transmit Frequency Band	Out-of-band Gain	
	5MHz	35dB	
	10MHz	20dB	
	40MHz	0dB	

Allowable Leak Radiation from Receiver Circuit	Frequency	Leak Radiation from Receiver Circuit
	30MHz~1000MHz	-36dBm/100kHz
	1000MHz ≤	-30dBm/MHz

*1 In the case of the non-regeneration relay system, it is the sum of the electric power of all carriers.

*2 In the case of the regenerative relay system, it is the electric power per one carrier wave. The sum of transmitted power must be less than or equal to 600mW.

*3 The reference bandwidth is follows:

Frequency	Reference Bandwidth
9kHz-150kHz	1kHz
150kHz-30MHz	10kHz
30MHz-1000MHz	100kHz
1000MHz ≤	1000MHz

(14) Mobile telecommunications repeater (excluding LPR) radio equipment for NR (WiMAX R3.0 / XGP ver4.0)

Item	Technical requirements
Frequency Band	2545-2645MHz
Channel Bandwidth	10MHz, 20MHz, 30MHz, 40MHz, 50MHz
Duplex	TDD
Modulation	N/A
Allowable Antenna Power	DL: 20W/10MHz UL: 800mW (plurality of antenna terminals) 400mW (single antenna terminal)
Allowable Antenna Gain	DL: 17dBi UL: 4dBi*1.
Allowable Deviation of Frequency	±3ppm
Allowable Deviation of Antenna Power	DL: -50% to +100% UL: -79% to +100%

Allowable Adjacent Channel Leakage Ratio	DL:	
	Channel Bandwidth / Detuning Frequency	Adjacent Channel Leakage Ratio
	10MHz	3dBm/10MHz
	20MHz	6dBm/20MHz
	30MHz	8dBm/30MHz
	40MHz	9dBm/40MHz
	50MHz	10dBm/50MHz
	UL:	
	Channel Bandwidth / Detuning Frequency	Adjacent Channel Leakage Ratio
	10MHz	2dBm/10MHz
	20MHz	3dBm/20MHz
	30MHz	5dBm/30MHz
40MHz	6dBm/40MHz	
50MHz	7dBm/50MHz	
Allowable Unwanted Emission Level	DL:	
	Frequency	Unwanted Emission Level
	9kHz-2505MHz,	-13dBm ^{*2}
	2505MHz-2535MHz	-42dBm/MHz
	2655MHz-	-13dBm/MHz
	UL:	
	Frequency	Unwanted Emission Level
	9kHz-2505MHz,	-13dBm ^{*2}
	2505MHz-2530MHz	-30dBm/MHz
	2530MHz-2535MHz	-25dBm/MHz
	2535MHz-2655MHz	-30dBm/MHz
	2655MHz-	-13dBm/MHz

Spectrum Mask	DL:																													
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*1 Within the range in which the EIRP is 33dBm (30dBm if it has a single antenna terminal) or less, it is possible to compensate for the reduction in antenna power.

*2 The reference bandwidth is follows:

Frequency	Reference Bandwidth
9kHz-150kHz	1kHz
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30MHz-1000MHz	100kHz
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5 Proposed date of entry into force

May, 2024