

基于 5G 技术的医院网络建设标准 (MEC 分册)

Specification for Hospital Network
Construction Based on 5G Technology
(MEC)

()

5G

		1
1		5
2	187 <</MCID.4.....	6
3		7
4	5G	8
4.1	5G	
4.2	5G	
4.3	MEC 5G	
4.4	5G	
5	5G 5G 5G	12
6	5G MEC	13
6.1		
6.2	]73?ú99.....187 <</MCID.....187 <</MCID 4..	
6.3	172.1</MCID.....172.1</MCID.4....172.1</MCID 4..	
6.4	BA>24</MCID.....BA>24</MCID.4..BA>24</MCID 4..	
6.5	B...9/MCID.....B...9/MCID.4.....B...9/MCID 4..	
6.6		
6.7		
7	5G	16
7.1		
7.2		

8.1 多模多频段要求

8.2

8.3

8.4

8.5

8.6 5G

1



2

GB/T 1.1-2009	1		
GB/T 20000.1-2014	1		
GB/T 20000.2-2009	2		
GB/T 20000.3-2014	3	2002	116

2010 1046 2010

2011 102 2010

GB3096-2008

ETSI EN 300 019-1-1 Classification of environmental conditions Storage

ETSI EN 300 019-1-2 Classification of environmental conditions
Transportation

ETSI EN 300 019-1-3 Classification of environmental conditions
Stationary use at weatherprotected locations

3

	3 rd Generation Partnership Project	3GPP
	5 th Generation Cellular Telecommunication Technologies	5G
5G	5G Radio Access Network	5G RAN
5G	5G Core	5GC
	Multi-access Edge Computing	MEC
	Network Address Translation	NAT
	User Plane Function	UPF
	Data Network Name	DNN
	Access Point Name	APN
	Digital Indoor System	DIS
5G	gNodeB	gNB
	Cell	Cell
	User Plane	UP
	Control Plane	CP
	Operation and Maintenance	O&M

4 5G

4.1 5G

5G

1

Ö

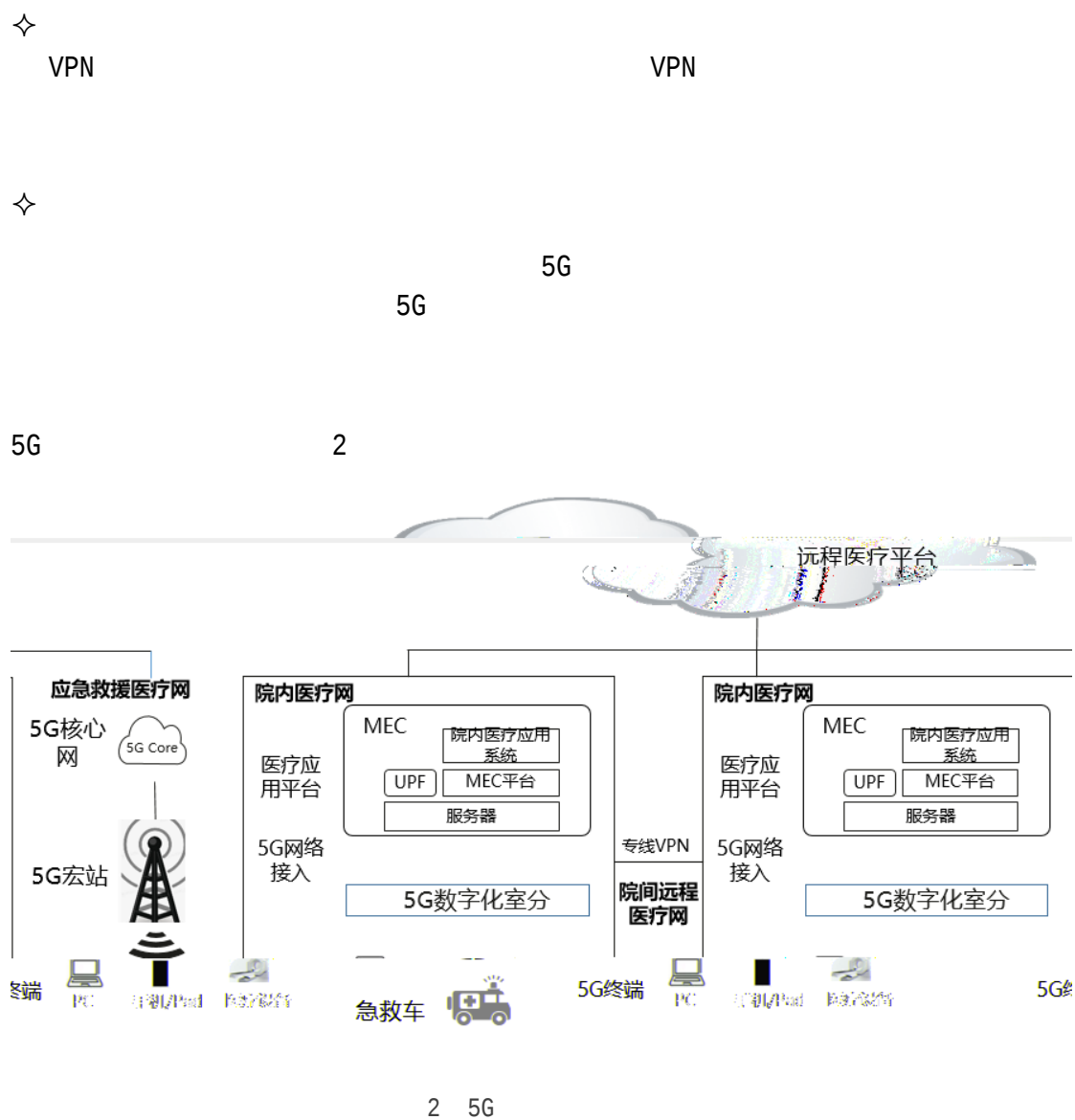
1

5G

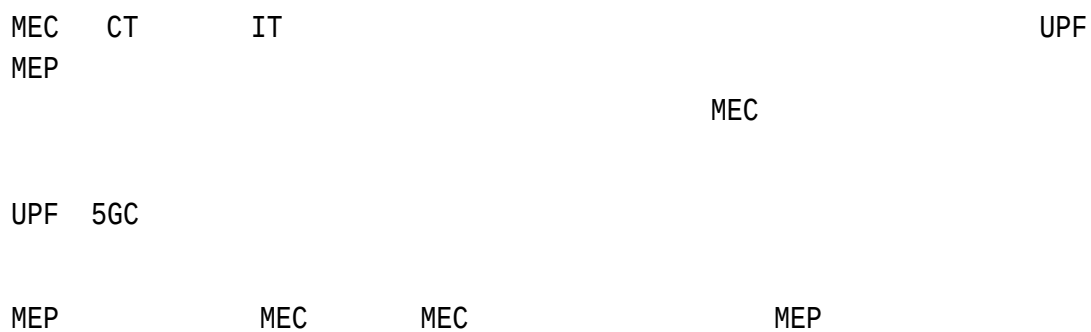
TM ¶ e, ° & X

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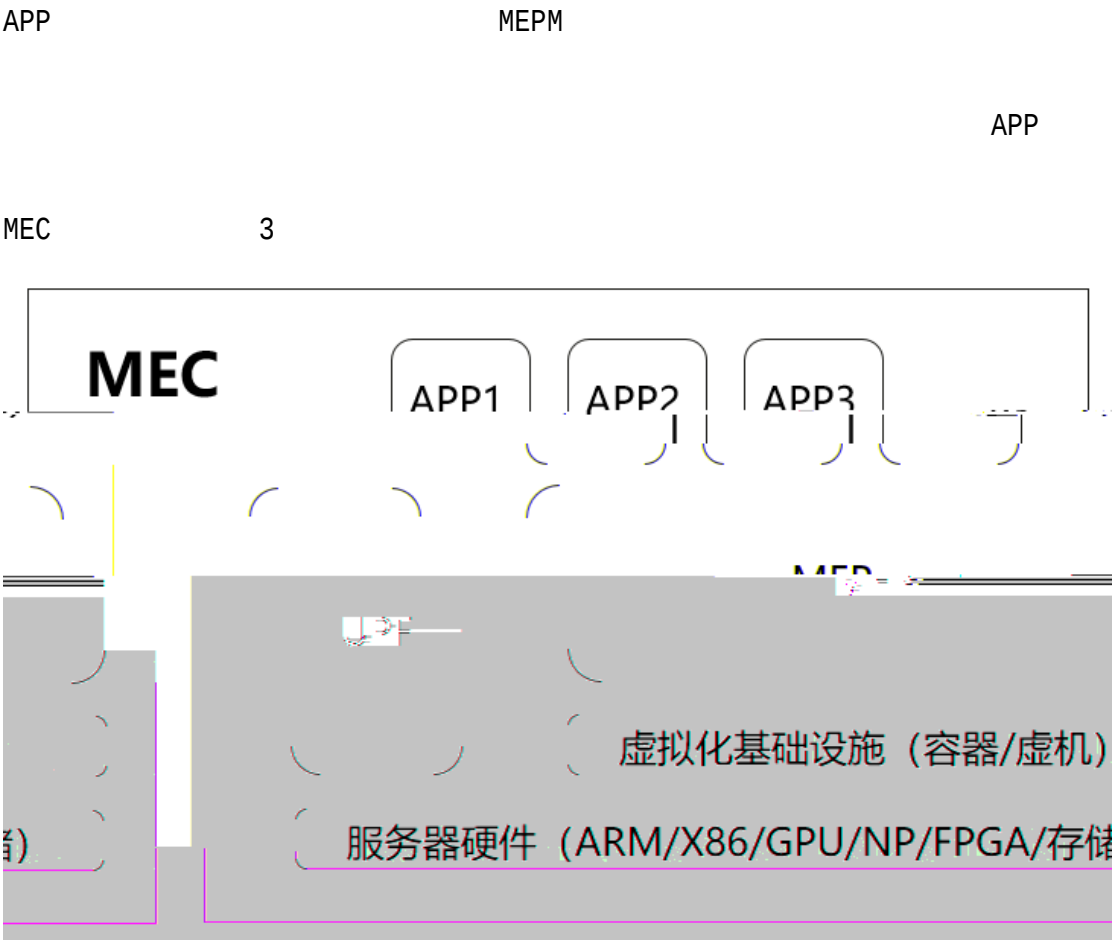
MEC



4.3 MEC 5G



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3 MEC

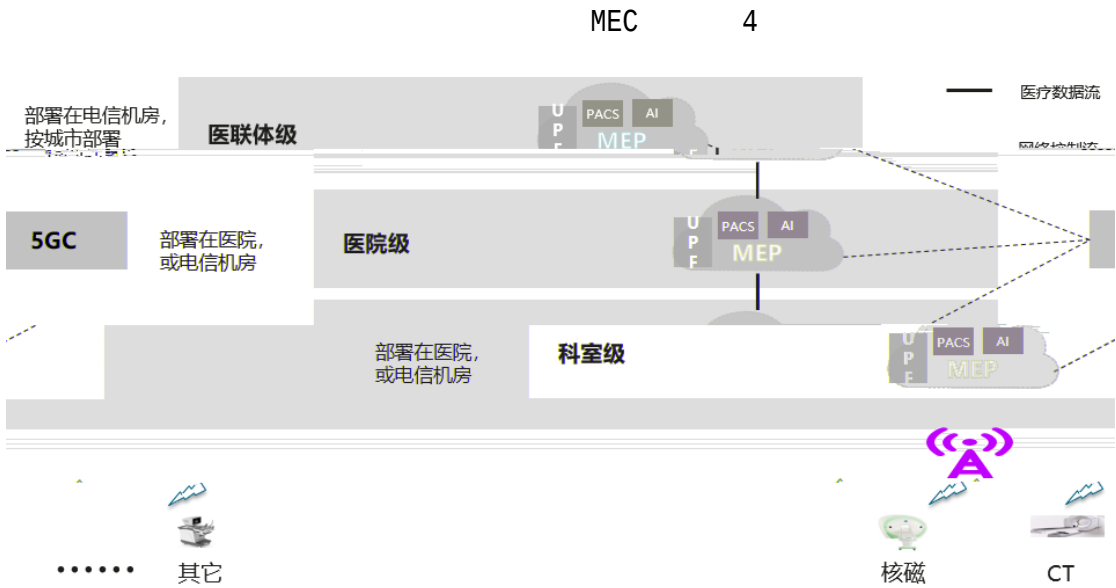
MEC

AI

MEC		1	MEC
			MEC
1			
2			
3			
4			

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5			
6			
7			



4 MEC

MEC

MEC, MEC

UPF

MEP

/

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/

MEC

4.4 5G

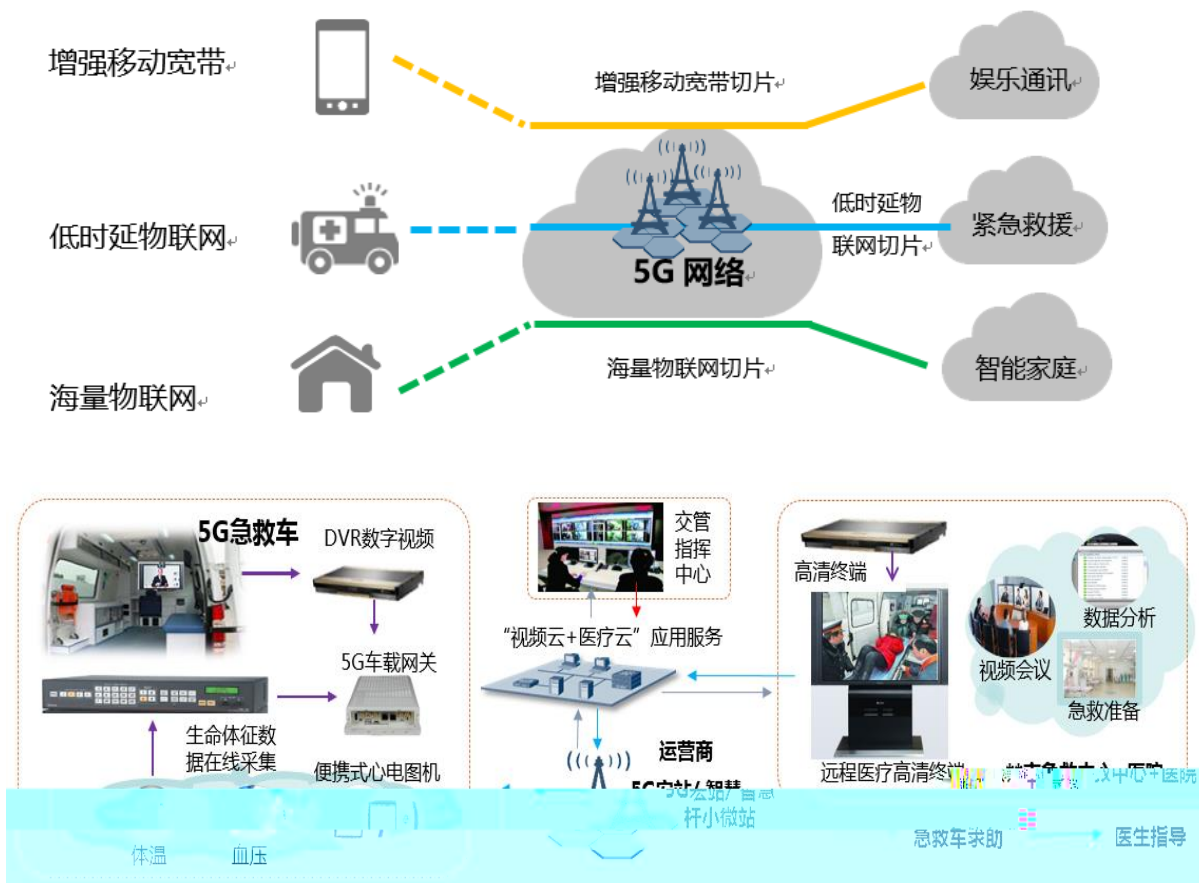
5G

eMBB

5G

5

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5

5G

5 5G

5G

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/5G

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5G

5G

5G

SIM

FlexE
SLA /

6 5G MEC

6.1

- MEC
- 1. UPF
 - 1)
 - 2)
 - 2.
 - 1) PACS AI MEC
 - 2) MEC
 - a) MEC
 - b) MEC ACL DDOS
 - c) MEC
 - 3)
 - 4) AI
 - 5) NAT MEC NAT
- L2-LAN

6.2

MEC

- 1. MEC 1
- 2. 10Gbps
- 3. MEC APP MEC APP
10

6.3

MEC

- 1. /
WAN LAN UPF MEP MEC APP ; MEC
- 2.
- 3. web
MEC

6.4

MEC

- 1. N+1 1+1
 - 2. 150%
90%
 - 3. MEC 99.9997%
2
2
- | | |
|----|------------|
| HA | ≥ 99.9997% |
|----|------------|

MTBF	≥ 150000h
MTTR	≤ 0.5h
	≥ 95%

6.5

MEC

- 1.
- 2.
- 3.

6.6

MEC

- 1.

3

3

MEC	15	30	0	45	40	65	20	90	
MEC	0.4m				1.5m		2m	MEC	
			48h		15		0.4m		
			20						

- 2.

1) >5 m ≤ 3 × 10^4 /m3

- 3.

0.01 10000MHZ 140dB V/m

4 0.01 100MHz

4							
MHz		dB VA					
0.01	0.8	-21.05logf+67.9					
0.8	100	70					
1 f	MHz						
2 dB	A	A					

6.7

MEC

1.
2.
- 1)
- 2)

7 5G

5G 5G

7.1

5G 5G

		4K (GB)
		>20Mbps
		>5Mbps
		<100ms
		99.999%
		<20ms

7.2

5G		5G
		GB
		>2Mbps
		>20Mbps
		<100ms
		99.999%
		<20ms

7.3

5G		5G
		>10Mbps
		>10Mbps
		<200ms
		99.999%
		<20ms

7.4

5G		5G
		APP
		GB
		>2Mbps
		>20Mbps
		<100ms
		99.999%
		<20ms

7.5

5G

5G

		4K (GB) VR/AR
		>50Mbps
		>80Mbps
		<80ms
		99.999%
		<20ms

7.6

5G

5G

		4K (GB)
		>20Mbps
		>20Mbps
		<100ms
		99.999%
		<20ms

7.7

5G

5G

		4K GB
		>50%
		>50Mbps
		>80Mbps

		<80ms
		99.999%
		<20ms

8 5G

8.1 多模多频段要求

5G 5G/4G 5G NSA/SA UE NR

5 5G

n41	2496 MHz – 2690 MHz	2496 MHz – 2690 MHz	TDD	
n78	3300 MHz – 3800 MHz	3300 MHz – 3800 MHz	TDD	
n79	4400 MHz – 5000 MHz	4400 MHz – 5000 MHz	TDD	

NSA

EN-DC

6 EN-DC

EN-DC
DC_1A_n78A
DC_3A_n78A
DC_5A_n78A
DC_8A_n78A
DC_1A-3A_n78A
DC_3C_n78A
DC_1A_3C_n78A
DC_3A_n41A
DC_39A_n41A
DC_40A_n41A
DC_8A_n41A
DC_3A_n79A
DC_39A_n79A
DC_8A_n79A

4G

LTE

7 5G

4G

TD-LTE	Band 34	2010-2025MHz	2010-2025MHz	
	Band 39	1880-1920MHz	1880-1920MHz	

	Band 40	2300-2400MHz	2300-2400MHz	
	Band 41	2496-2690MHz	2496-2690MHz	
LTE FDD	Band 3	1710-1785MHz	1805-1880MHz	
	Band 7	2500-2570MHz	2620-2690MHz	
	Band 8	880-915MHz	925-960MHz	
	Band 1	1920-1980MHz	2110-2170MHz	
	Band 4	1710-1755MHz	2110-2155MHz	
	Band 12	699-716MHz	729-746MHz	
	Band 17	704-716MHz	734-746MHz	
	Band 20	832-862MHz	791-821MHz	

8.2

SA/NSA

8

5G SA	Option 2	
5G NSA	Option3x	

8.3

5G

I/O

5-2

2.8mm

1

LGA M.2

L LGA M M.2

2

* mm*mm

3

A 3.3-4.2V B 3.1-4.4V

4 I/O

A 2.8-3V B 1.8V

5

A B

6

GNSS

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GNSS_ANT		GNSS	I	
PCIE_CLK_REQ	PCie	PCie	0	
PCIE_HOST_RST		PCie	0	
PCIE_HOST_WAKE		PCie	I	
PCIE_CLK_P		PCie	0	
PCIE_CLK_M		PCie	0	
PCIE_TX_P		PCIE_	0	
PCIE_TX_M		PCIE_	0	
PCIE_RX_P		PCIE_	I	
PCIE_RX_M		PCIE_	I	
GPIO			I/O	
I2C_SCL			I/O	
I2C_SDA			I/O	
SPI_CS	SPI	SPI	0	
SPI_MISO		SPI MISO	I	
SPI_MOSI		SPI MOSI	0	
SPI_SCLK		SPI SCLK	0	
USB_VBUS	USB	USB 4.5V 5.25V	I	
USB_DN		USB	I/O	
USB_DP		USB	I/O	
USB_ID		USB ID	I	
PWRKEY		/	I	
STATUS			0	
FLIGHTMODE			I	
NETLIGHT			0	
RESET_N			I	
WAKEUP_IN		5G	I	
WAKEUP_OUT		5G	0	
ADC	AD	AD	I/O	

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PCM_SYNC	PCM	PCM	0	
PCM_DIN		PCM	I	
PCM_DOUT		PCM	0	
PCM_CLK		PCM	I	
I2S_WS	I2S	I2S	0	
I2S_DIN		I2S	I	
I2S_DOUT		I2S	0	
I2S_CLK		I2S	0	
I2S_MCLK		I2S	0	

8.6 5G

10 SA

	100MHz 256 QAM	1.485Gbps
	100MHz 256QAM SUL SRS	2.3Gbps

11 NSA

	NR	100MHz 256QAM	1.635Gbps
	LTE	20MHz 64QAM	
	NR	100MHz 256QAM	240Mbps
	LTE	20MHz 16QAM SUL SRS	