

## SCHEDA TECNICA

### Fornitura di una infrastruttura per la realizzazione della rete 5G NR NSA

Facendo riferimento a quanto indicato nella Relazione Tecnico Illustrativa, di seguito viene indicata la lista delle componenti hardware/software necessarie alla realizzazione della rete sperimentale basata su tecnologia 5G, nonchè i siti di installazione nel territorio della città di Cagliari.

#### Infrastruttura 5G

Di seguito viene riportata l'infrastruttura propria per la realizzazione della rete 5G NR NSA:

5G based on AAU		1
<b>Hardware</b>		
<b>Main Equipment</b>		
WD2M0BBU5900	BBU5900 Box	1
WD2DUMPTG200	Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg2)	1
WD2DUBBPG2A0	Universal Baseband Processing Unit g2a	1
WD7MQTRA3000	AAU5613 TX3400-3600MHz/RX3400-3600MHz 64T64R 200W	2
<b>Hardware License</b>		
<b>RTU for 5000 series RU</b>		
NROS0MMPWL00	Massive MIMO 20W Power License for 5000 Series RF Module (NR)	18
NROS0MMCBC00	Massive MIMO 10MHz Cell Bandwidth License for 5000 Series C-band RF Module (NR)	20
NROSMMRFMD00	Massive MIMO Multimode License for 5000 Series RF	2

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 Cap. Soc. € 2.110.300,00 i.v. - Cod. Fiscale P. Iva e Registro Imprese di Cagliari n. 01983460922

	Module (NR)	
<b>RTU for Baseband Unit</b>		
NR0S0DLEPU00	Massive MIMO DL 2-Layers Extended Processing Unit License (NR)	4
NR0S0ULEPU00	Massive MIMO UL 2-Layers Extended Processing Unit License (NR)	2
NR0S000SPE00	RE(Resource Element) License (NR)	50
NR0S0RRCUL00	RRC Connected User License (NR)	50
NR0SBPMMBW00	UBBP Massive MIMO Operating Bandwidth 1*20MHz License (NR)	10
NR0SBPMMEC00	UBBP Massive MIMO Extended Channel 1*16T16R License (NR)	6
NR0S00UMMG00	UBBP First-Mode license (NR)	1
<b>Auxiliary</b>		
<b>Site Material</b>		
QWMP0010GE00	XGE Optical Transmission Materials	1
QW7PAAUCAP01	RU Cable Package for AAU (<=100m)	4
NR0P25CPRS00	CPRI Optical Transmission Materials(25G)(Single Mode,Short Distance)	2
WD2AODM03D01	Outdoor Distribution Module ODM03D	2
WD5P0INSMT59	Installation Materials for DBS5900	1
<b>Site Auxiliary</b>		
E0001GU00	Grounding Unit	1
GM5M0MSLPU00	Monitoring Signal Lightning Protection Unit (1~16 Boolean Alarm)	1
A000GPS04	GPS Antenna/Feeder Package	1
<b>Software</b>		
<b>NR Basic Software</b>		
NR0S0BASIC01	gNodeB Basic Software, V100R002 (per Cell)	2

<b>NR Optional Software</b>		
<b>Massive MIMO Capacity</b>		
NR0S00MUMM00	MU-MIMO Basic Pairing (per Cell)	2
<b>Massive MIMO Coverage</b>		
NR0SBSC3DC00	3D Coverage Pattern (per Cell)	2
<b>Massive MIMO User Experience</b>		
NR0S0PREUM00	SU-MIMO Multiple Layers (per Cell)	2
<b>High Order Modulation</b>		
NR0S0DUQAM00	DL 256QAM (per Cell)	2
<b>DC&amp;CA</b>		
NR0S00IBCA00	Intra-band CA (per Cell)	2
<b>Interoperability</b>		
NR0SRATMNE00	Inter-RAT Mobility from NG-RAN to E-UTRAN (per Cell)	2
<b>Voice</b>		
NR0S00EPSF00	Voice Fallback (per Cell)	2
<b>Transmission Improvement</b>		
NR0S0TNDER00	Transmission Network Detection and Reliability Improvement (per gNodeB)	1
NR0S00STTN00	Network Synchronization (per gNodeB)	1
NR0S0IPSEC00	IPsec (per gNodeB)	1
<b>RAN Sharing</b>		
NR0S00MULS00	Multi-Operator Sharing (per Cell)	2
<b>Energy Saving</b>		
NR0S0GNBPS00	gNodeB Power Saving (per Cell)	2
<b>SON</b>		
NR0S0AUTNE00	Automatic Neighbour Relation (ANR) (per Cell)	2
<b>5G based on RRU</b>		<b>1</b>
<b>Hardware</b>		
<b>Main Equipment</b>		
WD2M0BBU5900	BBU5900 Box	1

WD2DUMPTG200	Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg2)	1
WD2DUBBPG2A0	Universal Baseband Processing Unit g2a	1
WD5MPRUGHA00	RRU5258 for Multi-Mode 3400MHz~3600MHz	2
WD2ME2PDU01D	Power Distribution Unit	1
WD2M2EPU02D	Boost Voltage DC distribution box(with 2 BDU modules)	1
<b>Hardware License</b>		
<b>RTU for 5000 series RU</b>		
NR0S0PWRFM00	20W Power License for 5000 Series RF Module (NR)	22
NR0S0CBCBM00	10MHz Cell Bandwidth License for 5000 Series C-band RF Module (NR)	20
NR0S5000FMRR	First Mode License for 5000 Series RF Module (NR)	2
<b>RTU for Baseband Unit</b>		
NR0S000SPE00	RE(Resource Element) License (NR)	50
NR0S0RRCUL00	RRC Connected User License (NR)	50
NR0SBBPABW00	UBBP Antenna Bandwidth 3*20MHz*2T2R License (NR)	14
NR0S00UMMG00	UBBP First-Mode license (NR)	1
<b>Auxiliary</b>		
<b>Site Material</b>		
QWMP0010GE00	XGE Optical Transmission Materials	1
A12FDBL08	8 Channel Jumper 1/2"	2
QW7PRRUCAP02	RRU Cable Package (TOC >= 160W RRU, <= 100m)	2
NR0P25CPRS00	CPRI Optical Transmission Materials(25G)(Single Mode,Short Distance)	2
WD5P0INSMT59	Installation Materials for DBS5900	1
<b>Site Auxiliary</b>		

E000IGU00	Grounding Unit	1
GM5M0MSLPU00	Monitoring Signal Lightning Protection Unit (1~16 Boolean Alarm)	1
A000GPS04	GPS Antenna/Feeder Package	1
<b>Software</b>		
<b>NR Basic Software</b>		
NR0S0BASIC01	gNodeB Basic Software, V100R002 (per Cell)	2
<b>NR Optional Software</b>		
<b>Massive MIMO Capacity</b>		
NR0S00MUMM00	MU-MIMO Basic Pairing (per Cell)	2
<b>Massive MIMO Coverage</b>		
NR0SBSC3DC00	3D Coverage Pattern (per Cell)	2
<b>Massive MIMO User Experience</b>		
NR0S0PREUM00	SU-MIMO Multiple Layers (per Cell)	2
<b>High Order Modulation</b>		
NR0S0DUQAM00	DL 256QAM (per Cell)	2
<b>DC&amp;CA</b>		
NR0S00IBCA00	Intra-band CA (per Cell)	2
<b>Interoperability</b>		
NR0SRATMNE00	Inter-RAT Mobility from NG-RAN to E-UTRAN (per Cell)	2
<b>Voice</b>		
NR0S00EPSF00	Voice Fallback (per Cell)	2
<b>Transmission Improvement</b>		
NR0S0TNDER00	Transmission Network Detection and Reliability Improvement (per gNodeB)	1
NR0S00STTN00	Network Synchronization (per gNodeB)	1
NR0S0IPSEC00	IPsec (per gNodeB)	1
<b>RAN Sharing</b>		
NR0S00MULS00	Multi-Operator Sharing (per Cell)	2
<b>Energy Saving</b>		
NR0S0GNBPS00	gNodeB Power Saving (per	2

	Cell)	
<b>SON</b>		
NR050AUTNE00	Automatic Neighbour Relation (ANR) (per Cell)	2

<b>APM5930 Power System for AAU Site</b>		<b>1</b>
<b>APM5930 Power System</b>		
<b>Power System- APM5930-220V AC</b>		
WD2B2IOPC	APM5930(AC) Cabinet(Ver.A,220VAC,DBS5900)	1
<b>Auxiliary</b>		
QWMPAPMAC210	APM5930(AC) Ver.A Cabinet Installation Materials	1
<b>APM5930 Power System for RRU Sites</b>		<b>1</b>
<b>APM5930 Power System</b>		
<b>Power System- APM5930-220V AC</b>		
WD2B2IOPC	APM5930(AC) Cabinet(Ver.A,220VAC,DBS5900)	1
<b>Auxiliary</b>		
QWMPAPMAC210	APM5930(AC) Ver.A Cabinet Installation Materials	1

<b>8T8R Antenna &amp; Feeder</b>		
ATD4516R8	Directional Antenna,DX-3300-3800-75-15.5i-M-R,9*N female,Downtilt kit packed separately	2

HUAWEI 5G CPE		
5G CPE		
	Function Module,N5368,WDU1CPMR0LNR,NR- N28/38/41/78,LTE-FDD- B1/3/7/8/20/28,LTE-TDD- B38/40/41/42/43	2

Per quanto riguarda i siti di installazione, di seguito sono riportate le coordinate GPS:

39°13'43.68"N 9°07'23.31 E

39°12'51.72"N 9°06'30.77" E

39°11'33.88"N 9°08'41.62" E

I tre siti sono ubicati nel territorio della Città di Cagliari