ERICSSON BEACON 3 B1 TO B3 UPGRADES SCD V1.0

Required Configurations

Defined Configs	GSM 900	UMTS 900	LTE 800 TEF 2x2 VF 2x2 10 MHz	LTE 900 TEF 2x2 VF 2x2 5-10 MHz	LTE 1800 TEF2x2 5 MHz	LTE 2100 TEF 4x4 VF 2x2 10 MHz	LTE 2100 TEF 2x2 VF 2x2 10 MHz NWR=5 / St=10 MHz	U2100 TEF VF 5 MHz	Tef LTE baseband consumption Cells / ABW	VF LTE baseband consumption / Cells/ABW	2600 FDD VF 4x4 20MHz	2300 TDD TEF 4x4 40MHz***)	5G 700 TEF/VF 2x2	5G 3400 TEF 40MHz VF 40/50MHz 8x8 /M-MIMO 40/50MHz*
High B3	x	x	x	x	x	x			12 / 240MHz	9 / 210MHz	Optional	Optional	Optional	Optional
Medium B3	x	x	x	x	x	x			12 / 240MHz	9 / 210MHz	Optional	Optional	Optional	Optional
Small L18 B3	x	x	x	x	x	x			12 / 240MHz	9 / 210MHz	Optional	Optional	Optional	Optional
Small B3	x	x	x	x		x			9 / 210MHz*)	9 / 210MHz)	Optional	Optional	Optional	Optional
Small SF L18 B3**	x	x	x	x	x	x			12 / 240MHz	9 / 210MHz	Optional	Optional	Optional	Optional
Small SF B3	x	x	x	x		x			9 / 210MHz	9 / 210MHz	Optional**)	Optional**)	Optional	Optional
Network Rail B3	x		x		x		x	x	9 / 150MHz	6 / 120MHz	Optional	Optional	Optional	Optional
Stealth B3	x	x	x		x		x		9 / 210MHz	9 / 210MHz				
Low B3	x	x	x	x					6 / 90MHz	3 / 90MHz				

* - 40MHz where equipment does not accommodate bandwidth.
**) Only upgraded B1 configurations
***) Configurations with shared Radio 8808 for 2 sectors will support only 20MHz
ABW – Antenna Bandwidth
L9 at 5MHz or 10MHz based on voice traffic dimensioning for specific site

Assumption

- Support from OSS17A (GSM),ENM19.3 (3G,4G,5G), RAN SW G19Q3 ,W19.Q2, LTE 20.Q1 IP3 , NR/L 21.Q1 IP3
- GSM based on
  - DUG20 → for existing GSM (No Change)
- Transport module SIU needed to support Abis over IP for DUG20
- RF output power 20W per TRX, 3G or LTE or NR 8T8R per branch, for M-MIMO 200W . (For upgrades of old GSM 12W the output power remains unchanged), LTE TDD 2300 8x8 (2 carriers 10W per carrier).
- For cases where RRU needs to be installed within cabinets, the Enclosure 6147 can be ordered (optionally, Telefonica provides a 3rd Party cabinet, which will have completed thermal testing for the maximum configuration that can be deployed).
- Where site design dictates, RRU units will be connected to external AC PSUs, generally the Power 6302, but could be a Telefonica approved alternative.
- It is assumed that all RRU on Outdoor sites will be supplied from DC, installed in RBS 6102 cabinets.
- It is assumed that all RRU on Indoor sites will be supplied from external DC.
- For VF 5G T3400 8T8R, BW limited to 40MHz where Radios are not capable of providing whole 50MHz spectrum.
- For L21 MIMO configuration will be as follow : 4x4 TEF & 2x2 VF
- VF L21 15MHz will only be deployed where demand is requested by VF
- New introduction for NR700 for both TEF & VF as optional technology with Radio 2217.
- For NR700 in VF part, additional R503 will be required if L26 required.
- Where transmission network is not capable to provide Time/Phase reference, GPS is added at first TDD install/upgrade, whether T23, T26, T34 and NR.
- Regarding equipment that becomes redundant based on the change in design. Units to be left in place for spares in switched off state, such equipment is highlighted by green colour.
- In mixed mode 4G/5G the number of available CPRI ports in BB6630 is reduced to 9 ports and cell capacity to:
  - 12x4G cells + 12x5G cells. 12x4G cells are supported from SW 20.Q1.
  - 3x5G cells are supported from SW 20.Q1.
  - Support for 6x5G cells is candidate for SW 20.Q2 and for > 9x5G cells is candidate for SW 20.Q4 and more in future releases.
  - 1 ESS cell = 1 LTE cell + 1 NR cell.
- ESS to support 4x4 configuration is planned for SW 20.Q1 IP1 (LTE 4x4 + NR 2x2) and SW 20.Q2 (LTE 4x4 + NR 4x4).
- 5G 3400 MHz MORAN supported from SW 20.Q1
  - 8T8R 40 + 40 MHz
  - M-MIMO 40 + 50 MHz
- NB-IOT available by remote activation dependent on available Baseband capacity.

SW/OSS/ENM dependencies

- RUS02, RUS01, Radio 8808 2300 B40Y, 4415 2600 B7A, 2100 B1, 2212 900 B8, 2217 2100 B1, 1800 B3, 800 B20 – already in the network and supported with SW/OSS/ENM in Telefonica network
- Radio 2238 B8/B20 – supported by current LTE SW/ENM in Telefonica network
- DUG - already in the network and supported with SW/OSS/ENM19.3* in Telefonica network
- Baseband 6630 LTE – supported by current SW/ENM in Telefonica network
- Baseband 6630 WCDMA – supported by current SW/ENM in Telefonica network
- SIU – supported with SW/OSS/ENM in Telefonica network

* GSM support by ENM19.3, implementation in progress

BASEBAND 6630 CAPACITY IN SINGLE MODE

Baseband 6630 ***

L18.Q4

- 7500 RRC Conn.
- 2000/1000 VoIP *)
- 2000 Mbps DL
- 500 Mbps UL
- ≤ 1440/1560 MHz **
- ≤1920 MHz CPRI AAS
- 30 LTE+NB-IoT cells
  or
  24 LTE FDD/TDD cells

W18.Q4

- 1152 CE DL
- 1152 CE UL
- 4096 CE EUL
- 18 cc
- 270 HS codes
- 768 HS Users
- 768 EUL Users

G18.Q4

- 48 TRX

*) FDD/TDD VoIP
**) Configuration dependent/Selected configurations only, Total Bandwidth
***) It is not guaranteed that multiple requirements can be met simultaneously.
****) Not supported together with E-RAN and/or when NB-IoT is configured

BASEBAND 6630 CAPACITY LTE & NB-IOT-SINGLE STANDARD

Additional information on cell capacity with 2Rx, 4Rx, and various cell ranges
Notation: "X+Y": Up to X LTE cells and up to Y NB-IoT cells. Applicable for NB-IoT in-band and guard band modes.

2Rx	18.Q4
≤ 15 km	24+0, 18+12, 15+15
15-39 km	24+0, 18+12, 15+15
40-59 km	24+0, 18+9
60-100 km	24+0, 18+9

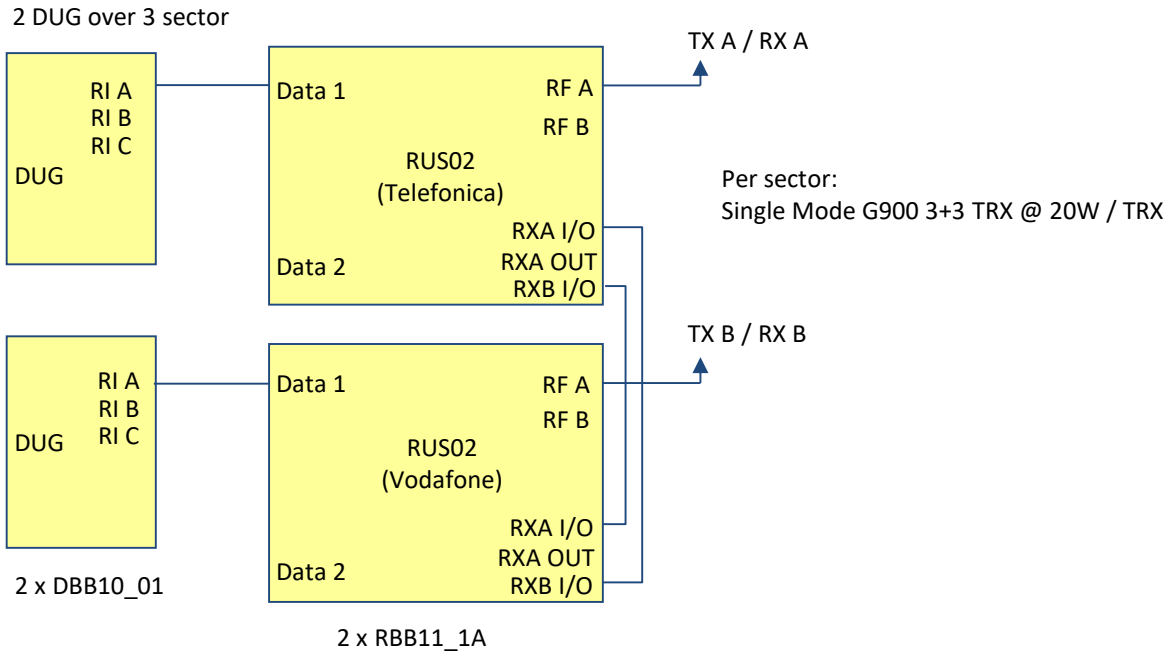
4Rx	18.Q4
≤ 15 km	24+0, 15+6, 8+8
15-39 km	24+0, 15+3, 8+8
40-59 km	24+0, 15+3
60-100 km	12+3

Bandwidth and Carrier counts

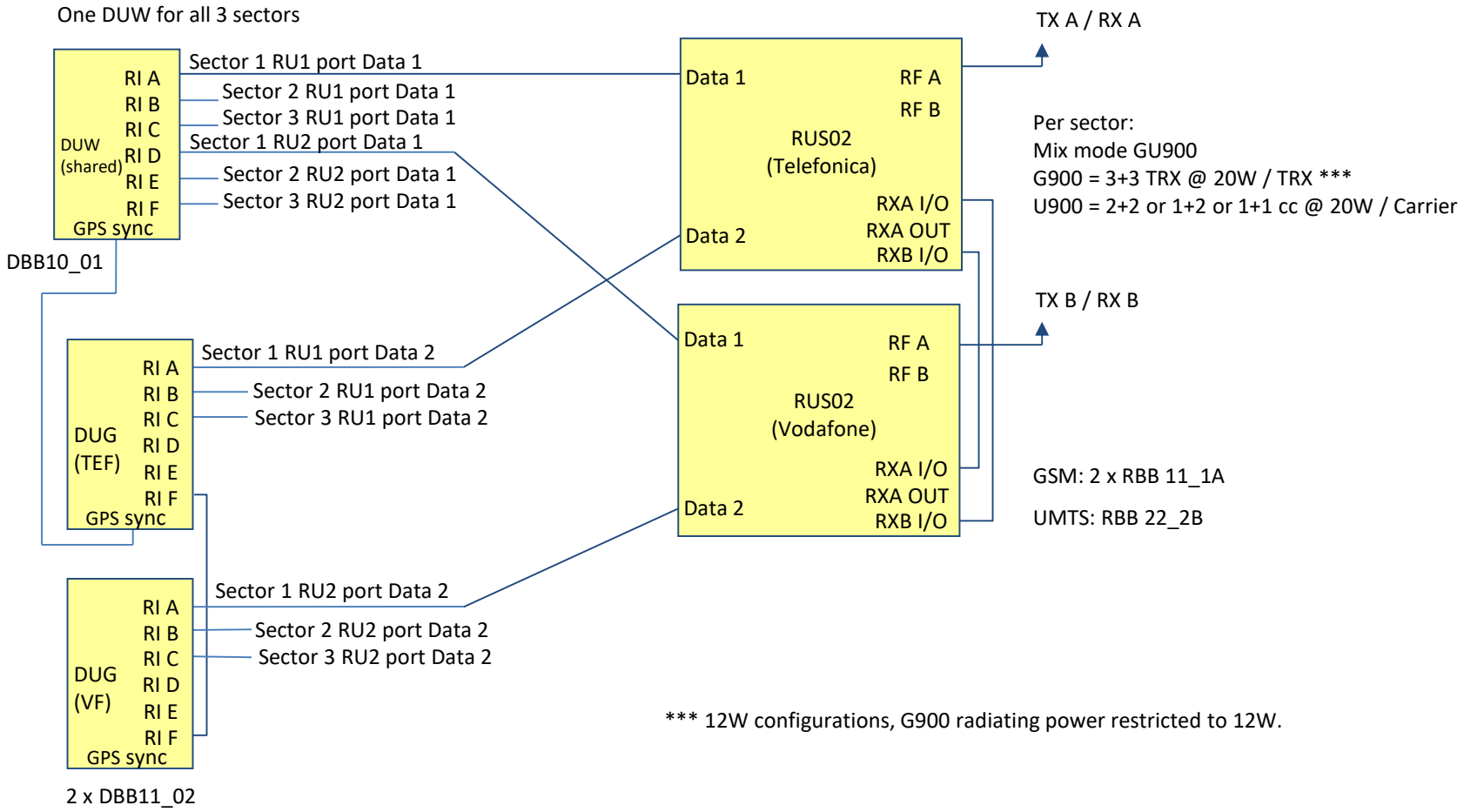
Band	BW		# Carrier	
	TEF	VFE	TEF	VFE
B1 Total	**10**	**15**		
B1 (3G)	0	5	0	1
B1 (LTE)	10	5/10/15	1	1
B3 (LTE)	**5**	**5 Not Used**	**1**	**0**
B8	**17.5**	**17.5**		
B8 (2G)			2 or 3	2 or 3
B8 (3G)			1 or 2	1 or 2
B8 (LTE)	0 or 5 or 10	0 or 5 or 10	1	1
B20 (LTE)	**10**	**10**	**1**	**1**
B40Y (LTE TDD)	**20+20**	**0**	**2**	**0**
B7A (LTE FDD)	**0**	**20**	**0**	**1**
B42G (5G TDD)	**40**	**50***	**1**	**1**

* - 40MHz where equipment does not accommodate bandwidth.

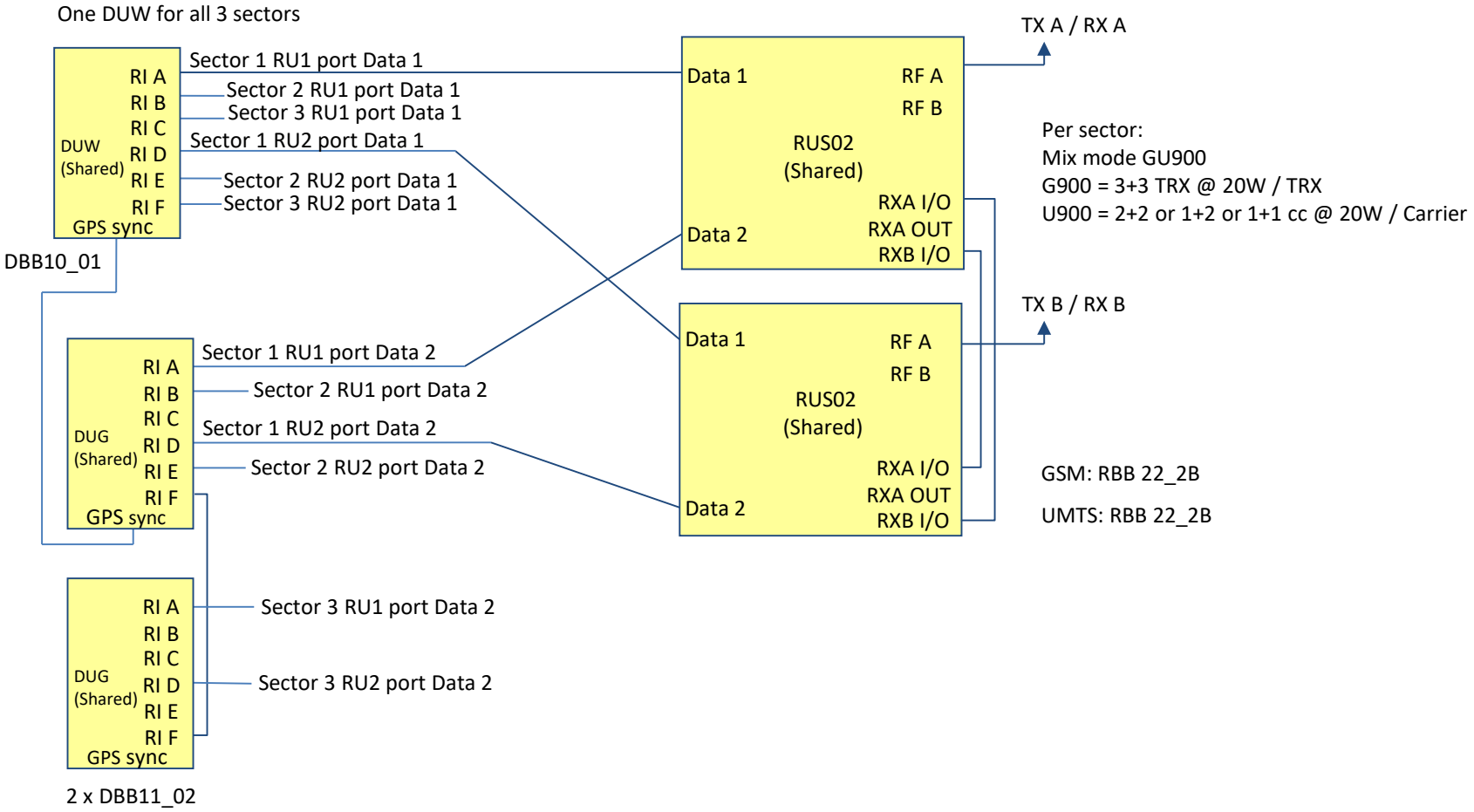
20W Network Rail RUS Based G900



20W High/Medium/Small/(L18)Small SF(1Cab)
12W High/Medium/Small(UL)/(L18)Small SF(1Cab)/Low
RUS Based 900 Capacity Building Block



20W Low/Stealth/Small UL
RUS Based 900 Capacity



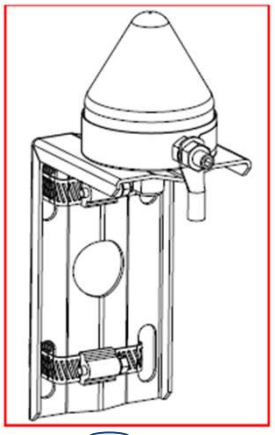
Upgrade of B3 to support L26 VF
(for sites initially upgraded to B3 without adding L26)

This upgrade applies only to configurations with upgraded LTE basebands to Baseband 6630

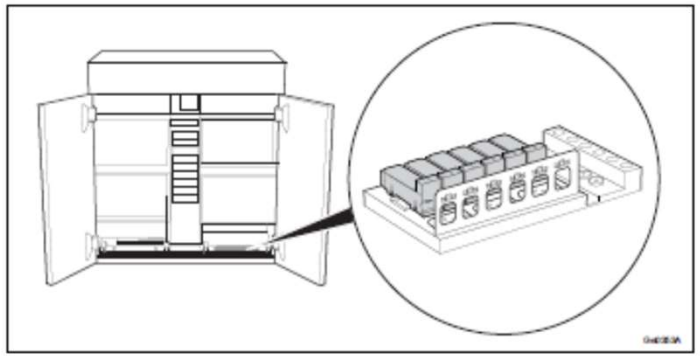
Upgrade consist of:

- Radio 4415 B7A, 2-wire DC adapter, power connector, pair of SFP 10Gbps – one per sector
- Hardware Activation Codes
- OVPs, Connection Field – outdoor sites
- 4xPSU 2,5kW for 3 sectors: HC 12W, MC12W, SC12W, SC20W, SC1800 12W, SC1800 20W and for 2 sector MC20W
- Installation materials including DC and opto cables
- Services

GENERIC SATELLITE SYNC OUTDOOR PARTS



GPS antenna incl
Wall/Pole mounting
support



GPS03 receiver installation position

Grounding Cable G/Y

Surge Arrester Device included in GPS03

¼" or ½" Coaxial Cable

GPS03 receiver

TEF Baseband

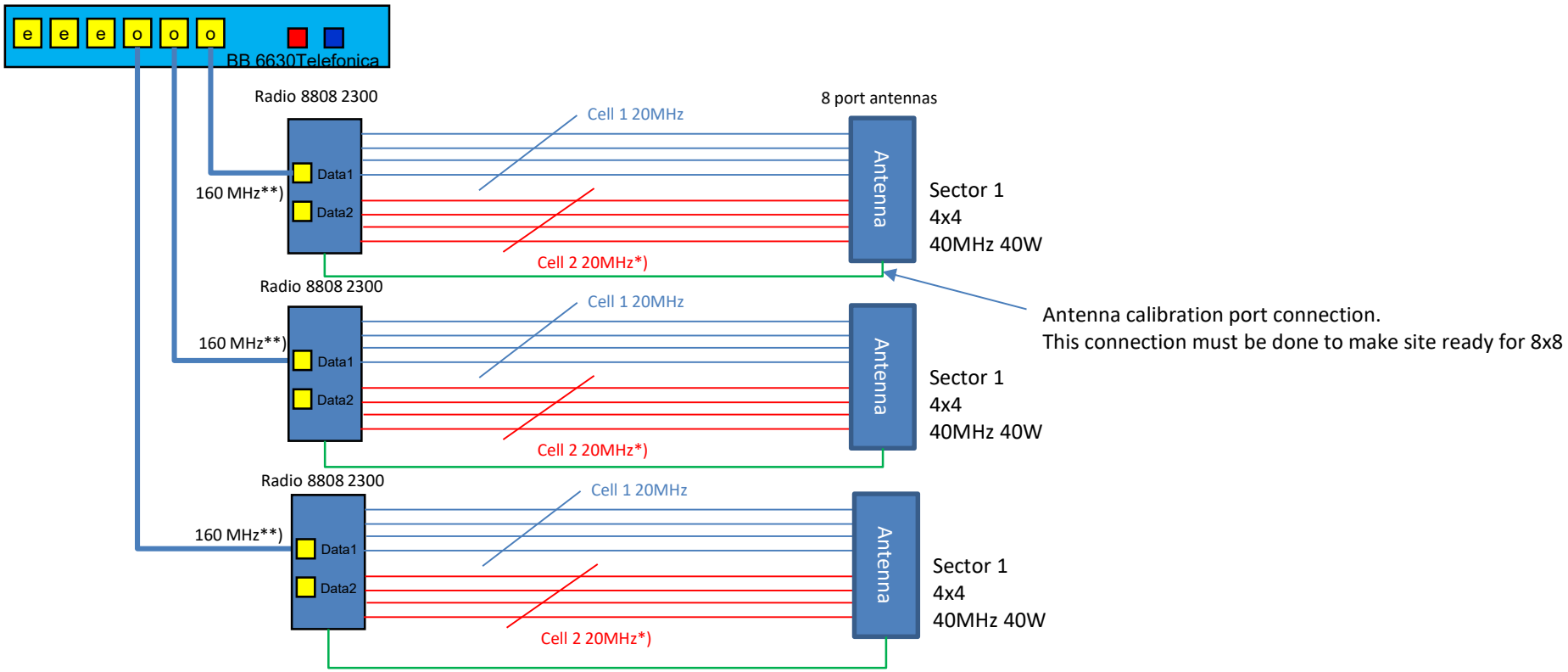
Pole/Tube

Grounding Cable G/Y

Antenna connection for TDD2300

4x4 40MHz 20W per 20MHz carrier

8x8 40 MHz 10W per 20MHz carrier



*) branches 5-8 are used in 4x4 to radiate 2nd carrier. After upgrade to 8x8 will be reconfigured to standard branches 5-8 of 8x8

**) after switching to 8x8 40 MHz the CPRI capacity will increase to 320 MHz.

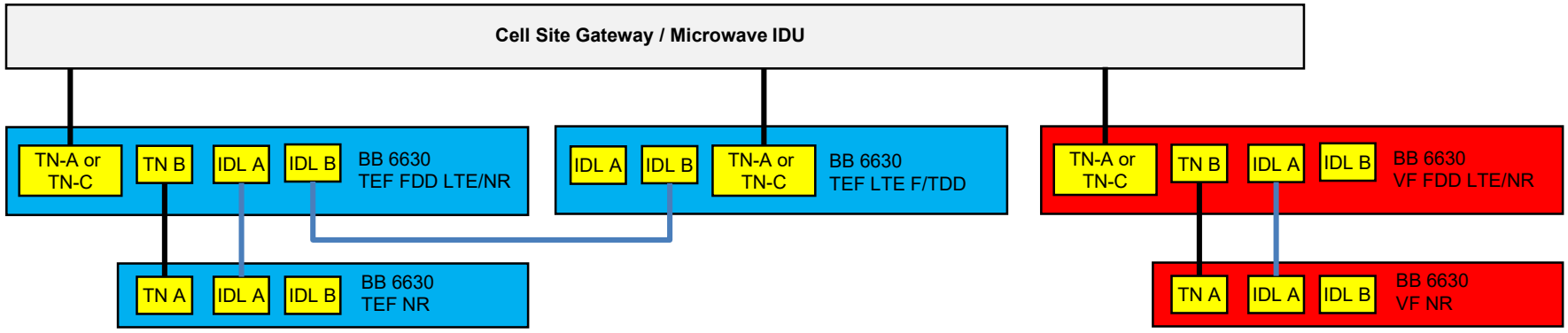
40MHz support for 8x8 is only possible if all radios connected to baseband are ERS

IDLe Cabling

- IDLe cabling between BBs facilitates the use of Elastic RAN for co-ordination features like Carrier Aggregation (CA)
- Since IDLe cabling is Ethernet based it may also be used for other functions such as PTP synchronization distribution between BBs when PTP is not available via the Tx network
- Within the Beacon 3 configurations IDLe cabling will be used for two reasons:
  - To facilitate use of CA between BBs in the future
  - For PTP synchronization distribution between the BBs when PTP is not available via the Tx network

- When PTP time/phase synchronization is not available via the Tx network GPS is used instead
- The TEF FDD LTE/NR BB is synced via GPS and configured as a PTP Grandmaster
- The TEF FDD LTE/NR BB then distributes a time/phase synchronization reference to the TEF LTE F/TDD BB via PTP over the IDLe link between the BBs

- The diagram below illustrates the IDLe and Tn cabling between the BBs



List of upgrades

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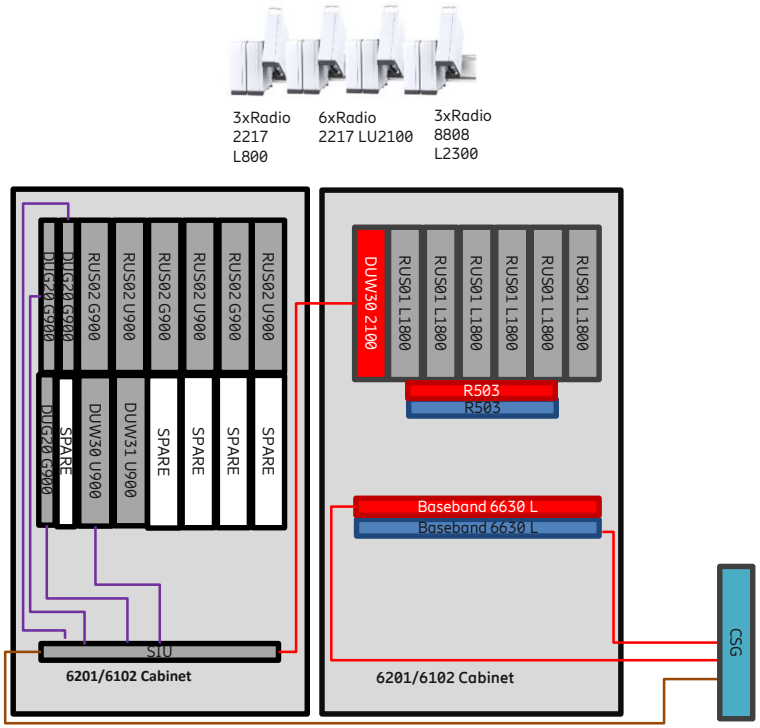
Shared

Removal of 2nd SIU and direct connection of LTE to CSG

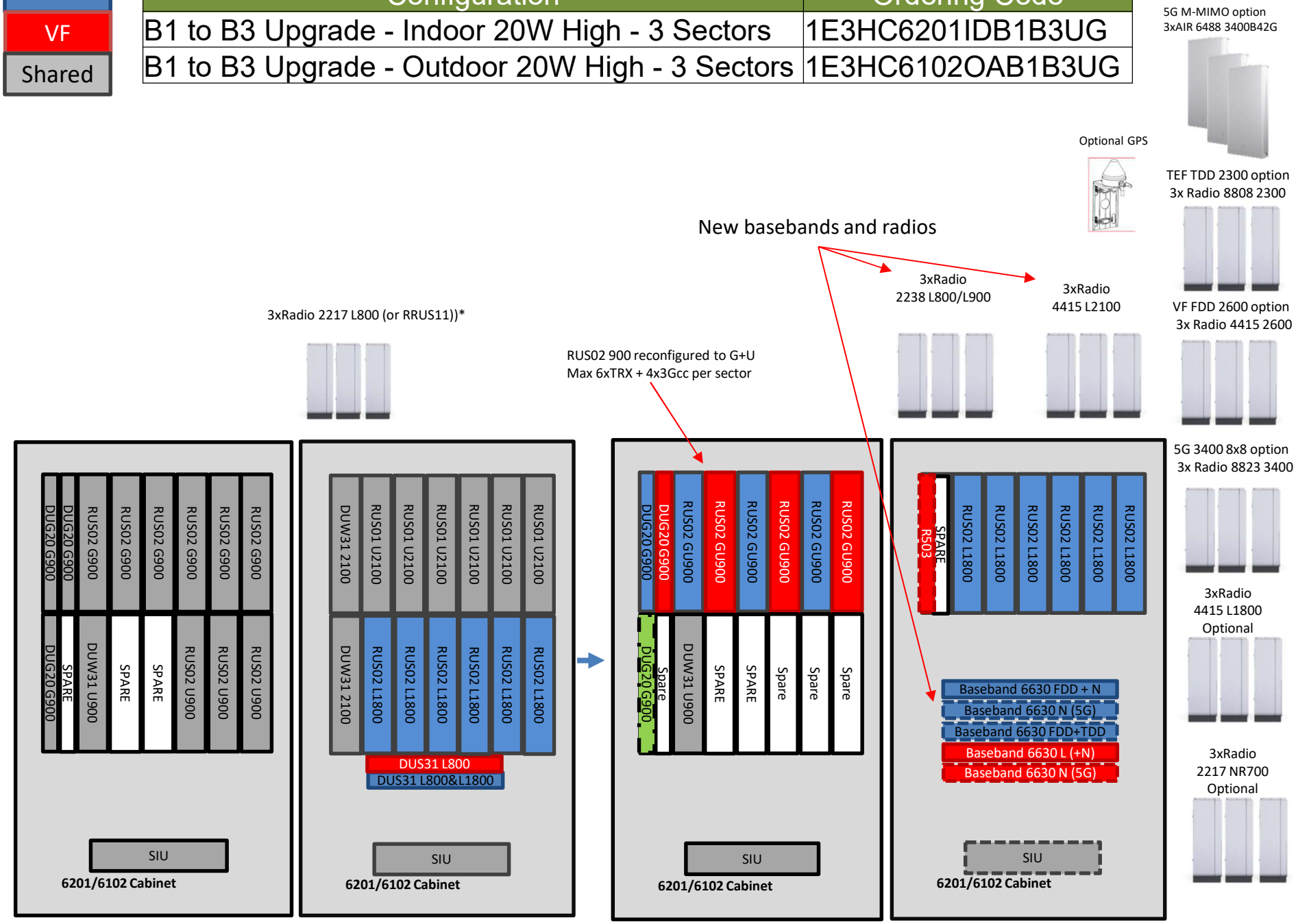


On sites were CSG is upgraded to support direct connection of LTE to CSG the SIU will be removed from Cab2 and:

- Where applicable, DUW30/31 U2100 will be reconnected to the SIU in the 1st cabinet
- Basebands 6630 will be connected directly to CSG

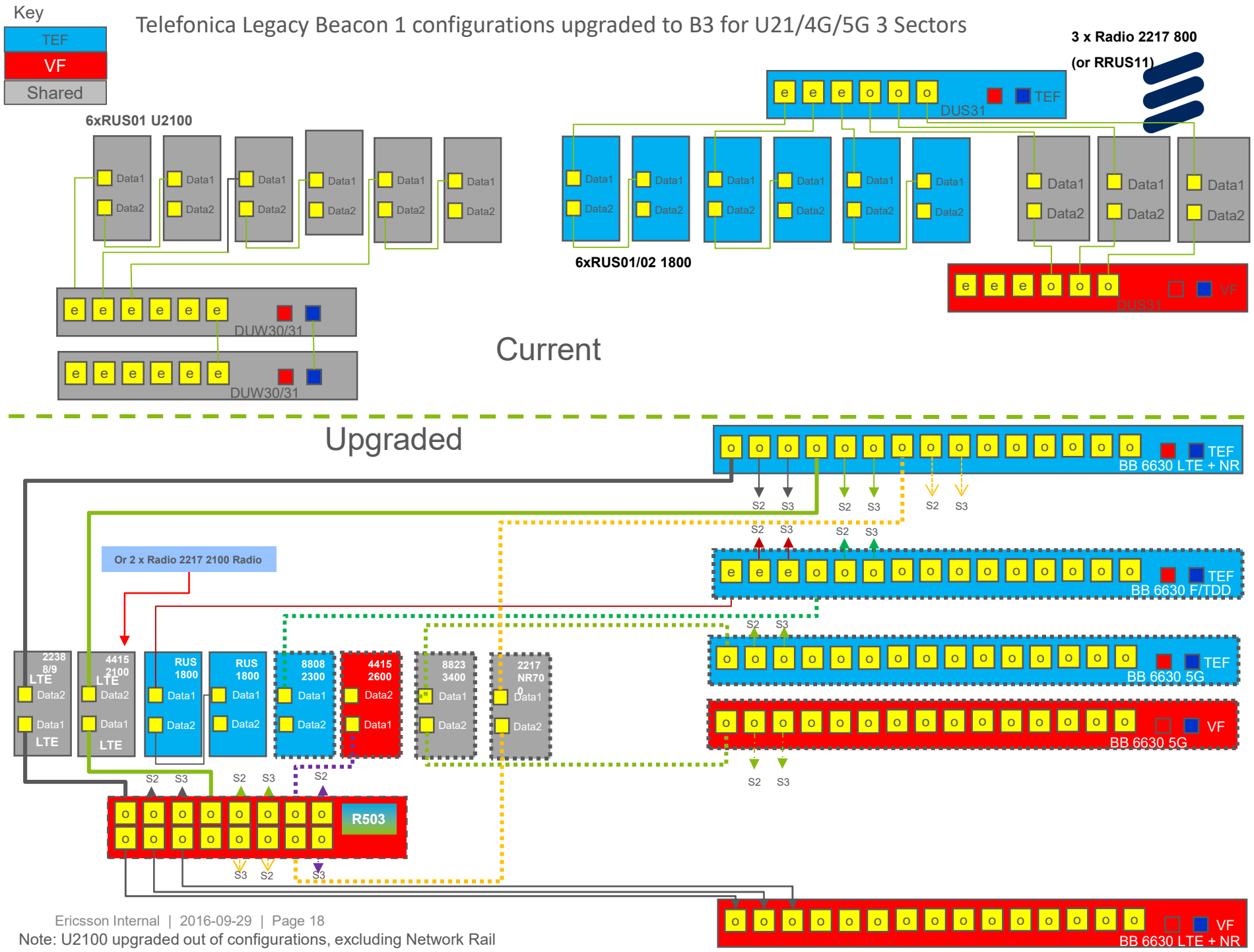
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W High - 3 Sectors	1E3HC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W High - 3 Sectors	1E3HC6102OAB1B3UG



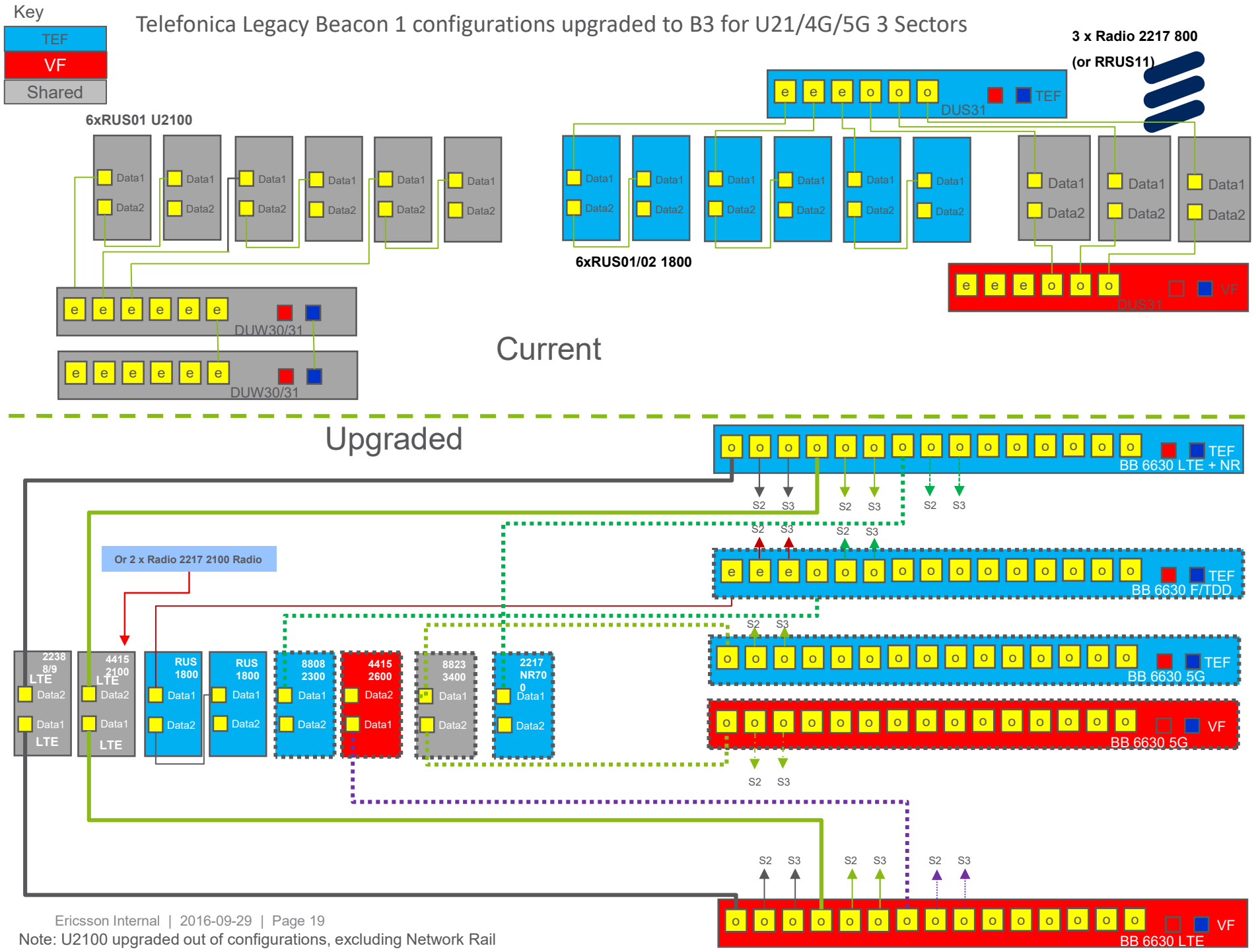
*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

Telefonica Legacy Beacon 1 configurations upgraded to B3 for U21/4G/5G 3 Sectors



Note: U2100 upgraded out of configurations, excluding Network Rail

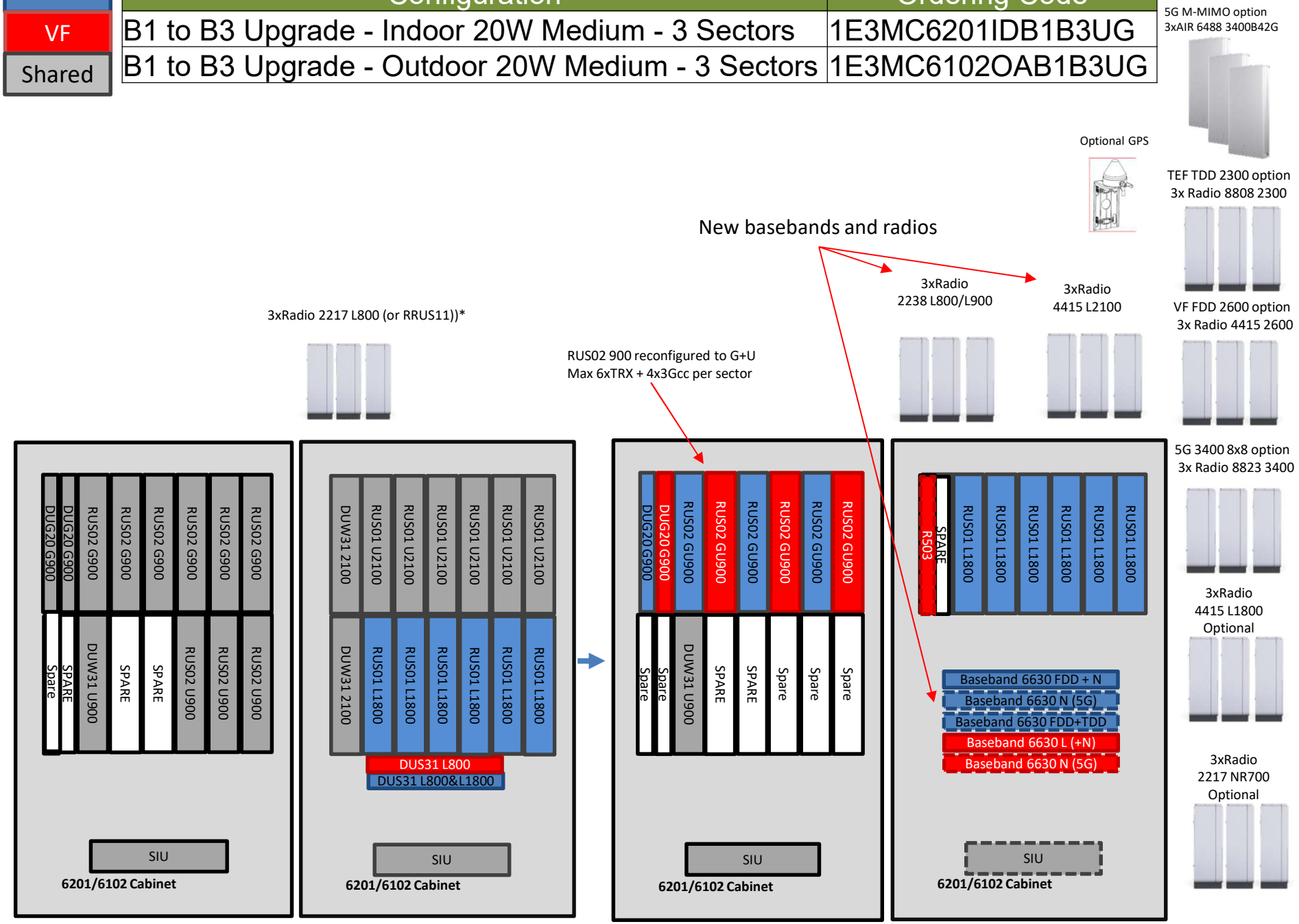
Telefonica Legacy Beacon 1 configurations upgraded to B3 for U21/4G/5G 3 Sectors



Note: U2100 upgraded out of configurations, excluding Network Rail

TF
VF
Shared

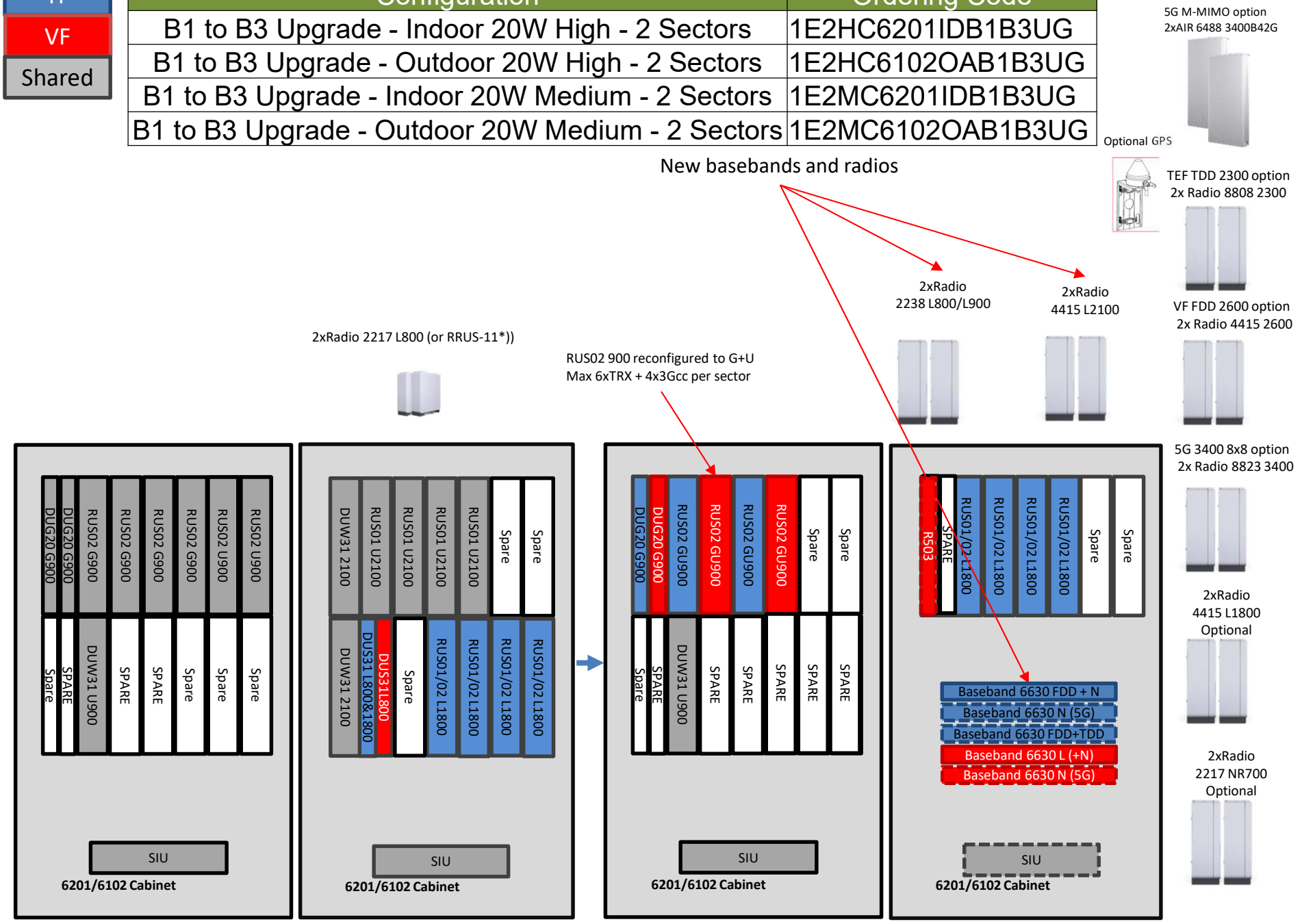
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Medium - 3 Sectors	1E3MC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Medium - 3 Sectors	1E3MC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W High - 2 Sectors	1E2HC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W High - 2 Sectors	1E2HC6102OAB1B3UG
B1 to B3 Upgrade - Indoor 20W Medium - 2 Sectors	1E2MC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Medium - 2 Sectors	1E2MC6102OAB1B3UG

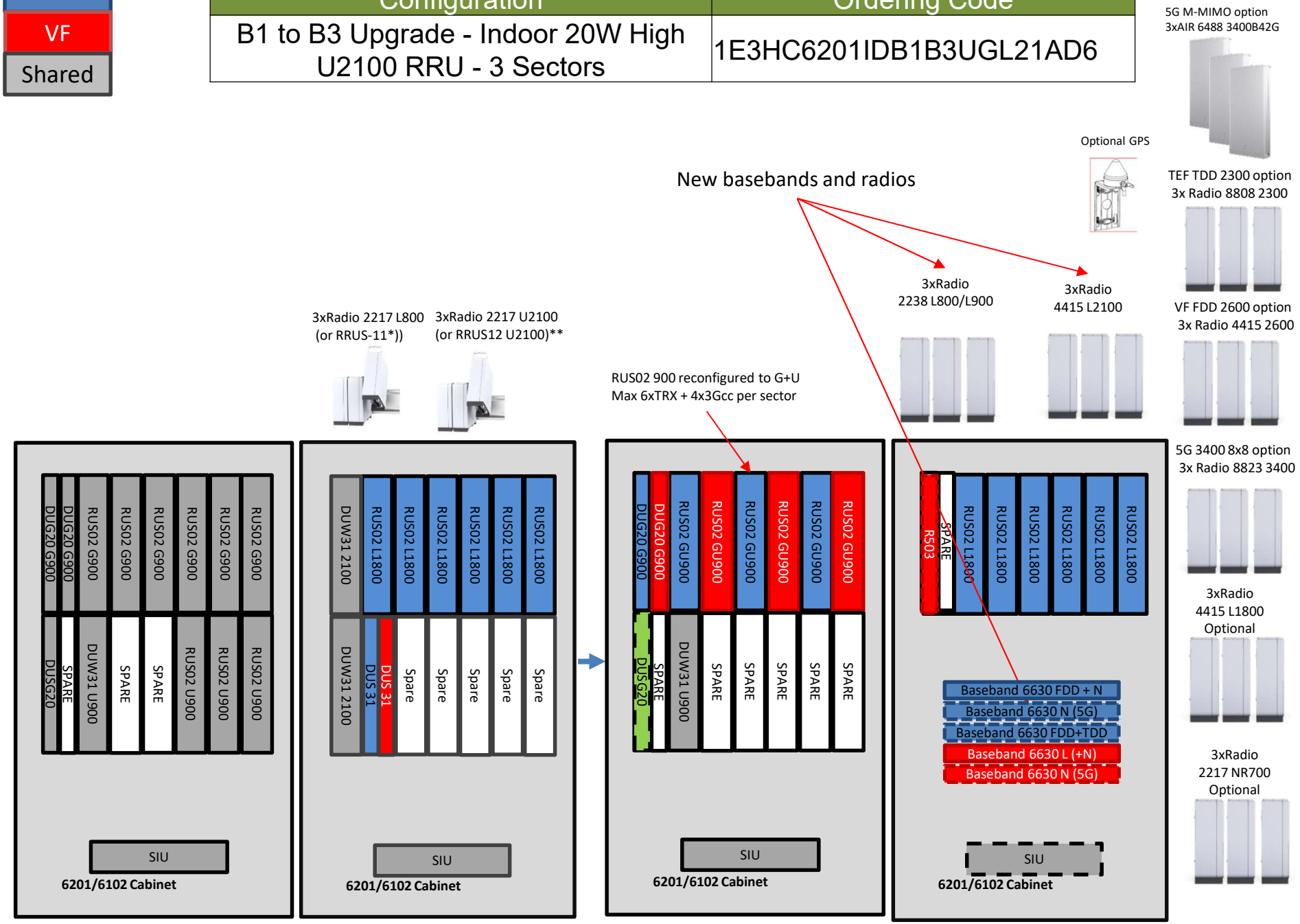


*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

L18 on High is RUS 02, Medium and L1800 Small is RUS 01

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W High U2100 RRU - 3 Sectors	1E3HC6201IDB1B3UGL21AD6

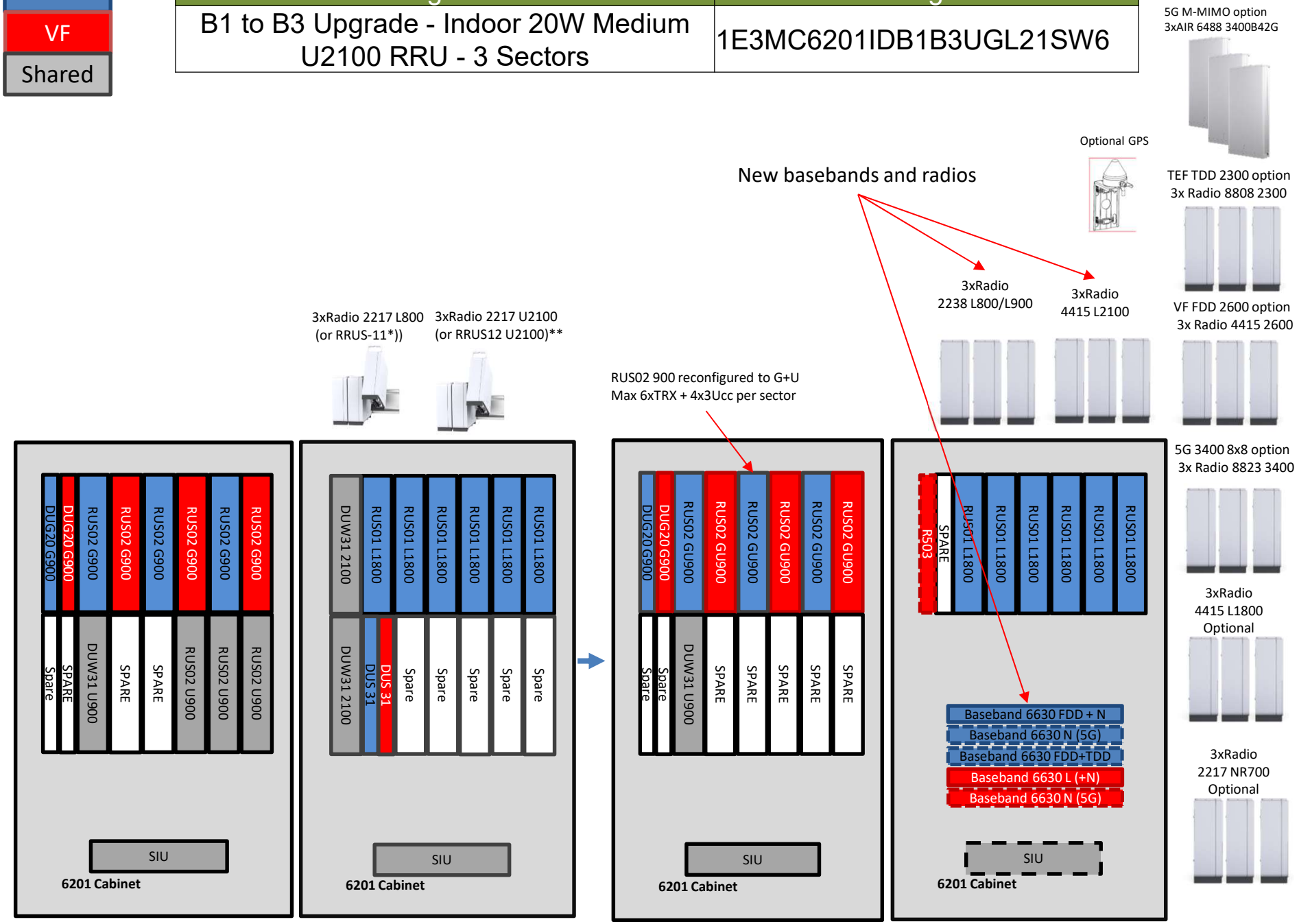


*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

**)3xRRUS 12/Radio 2217 2100 will be replaced with 3xRadio 4415 2100

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Medium U2100 RRU - 3 Sectors	1E3MC6201IDB1B3UGL21SW6

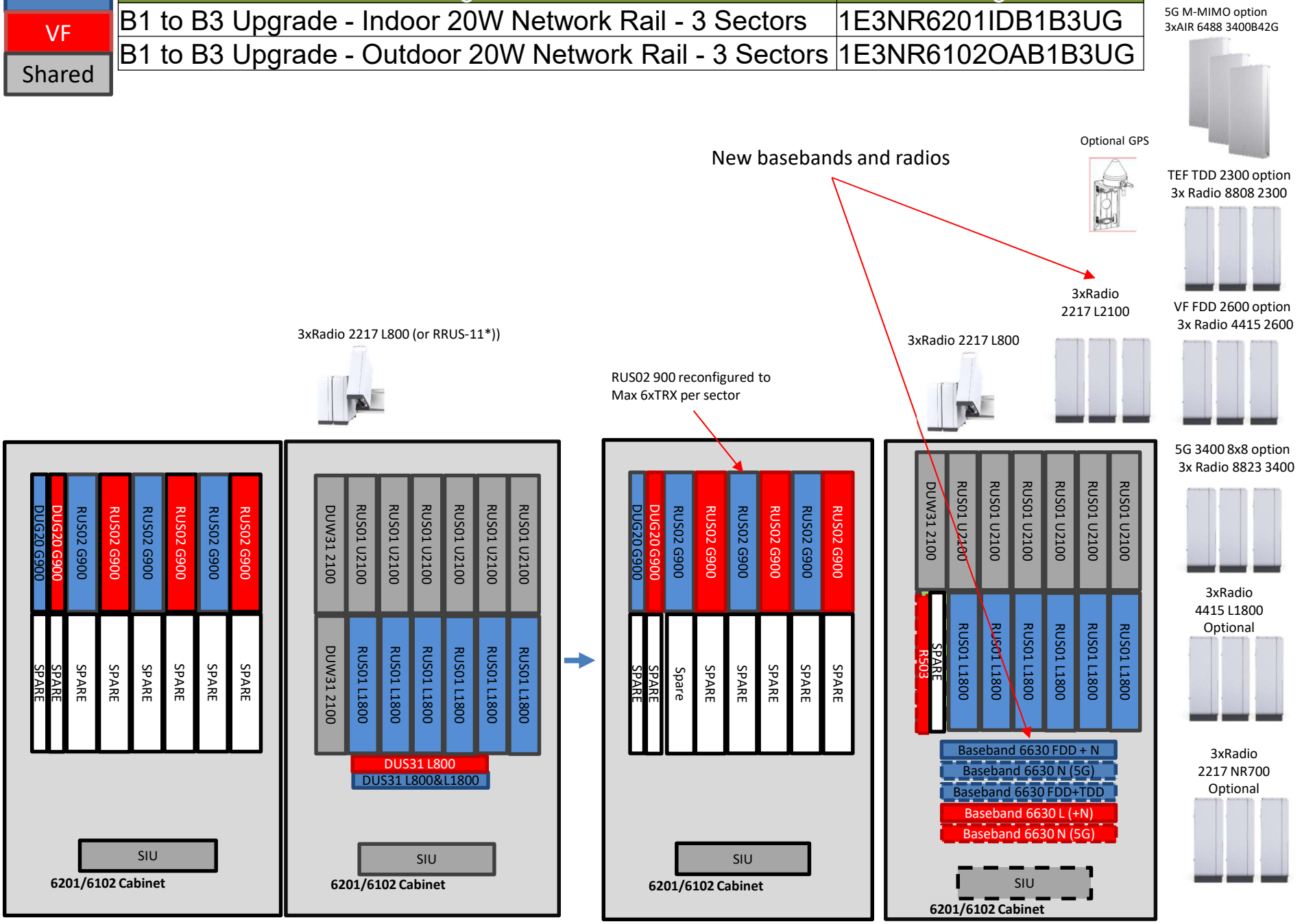


*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

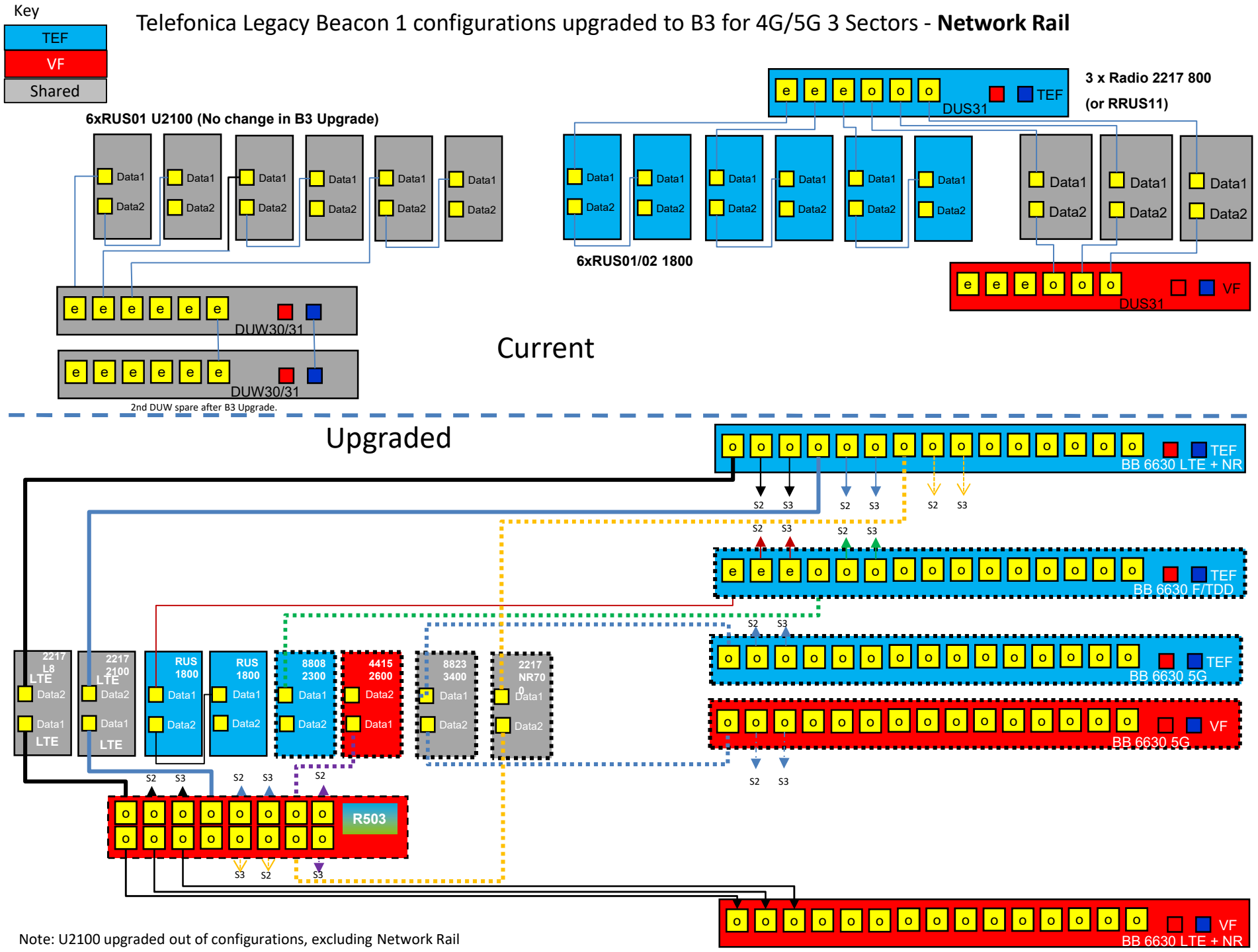
**)3xRRUS 12/Radio 2217 2100 will be replaced with 3xRadio 4415 2100

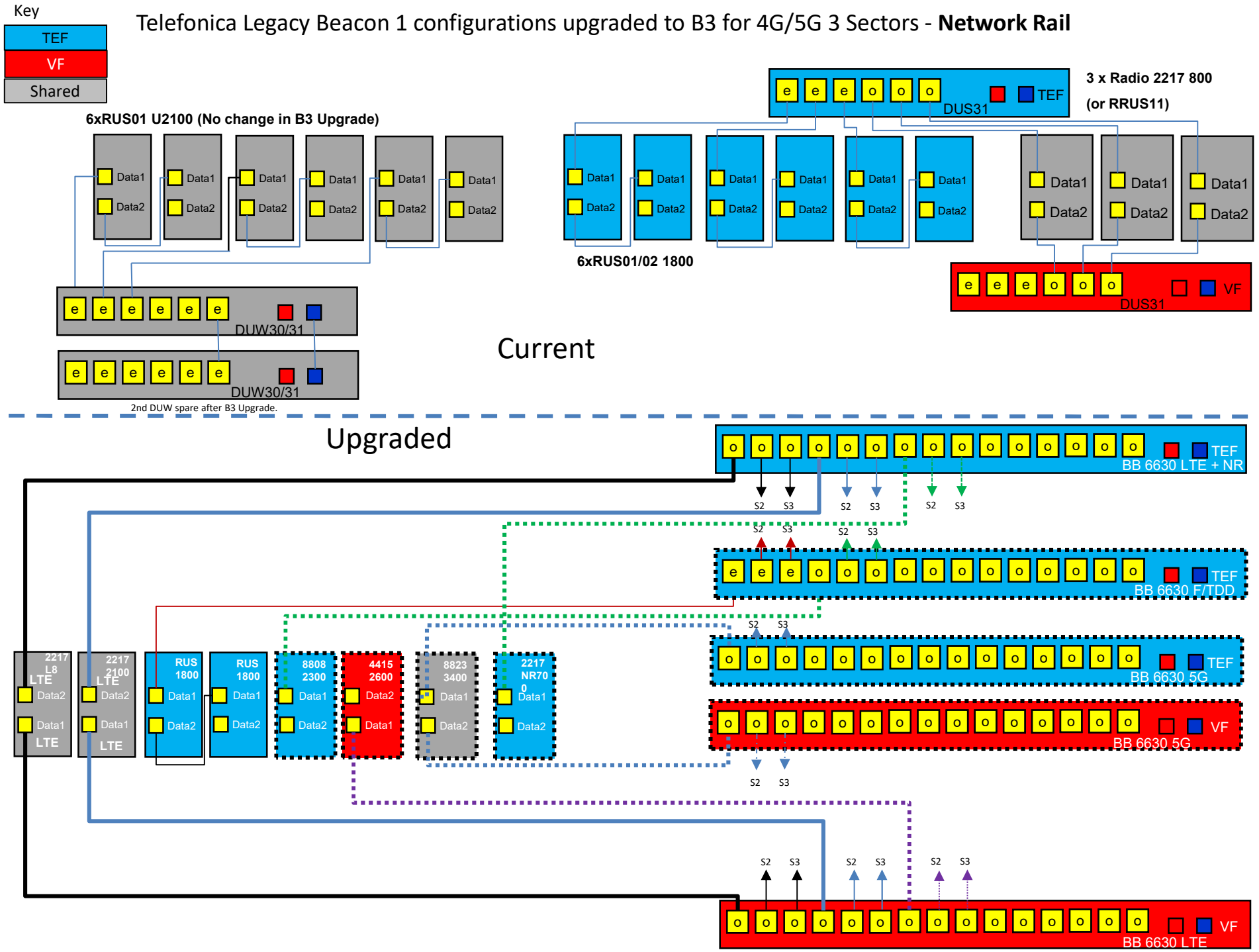
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Network Rail - 3 Sectors	1E3NR6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Network Rail - 3 Sectors	1E3NR6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900


Key
TEF
VF
Shared
Telefonica Legacy Beacon 1 configurations upgraded to B3 for 4G/5G 3 Sectors - **Network Rail**
6xRUS01 U2100 (No change in B3 Upgrade)
Data1
Data2
DUW30/31
2nd DUW spare after B3 Upgrade.
3 x Radio 2217 800
(or RRUS11)
DUS31
6xRUS01/02 1800
Current
Upgraded
BB 6630 LTE + NR
BB 6630 F/TDD
BB 6630 5G
2217 L8 LTE
2217 2100 LTE
RUS 1800
8808 2300
4415 2600
8823 3400
2217 NR70 0
R503
S2
S3
Note: U2100 upgraded out of configurations, excluding Network Rail


Key
TEF
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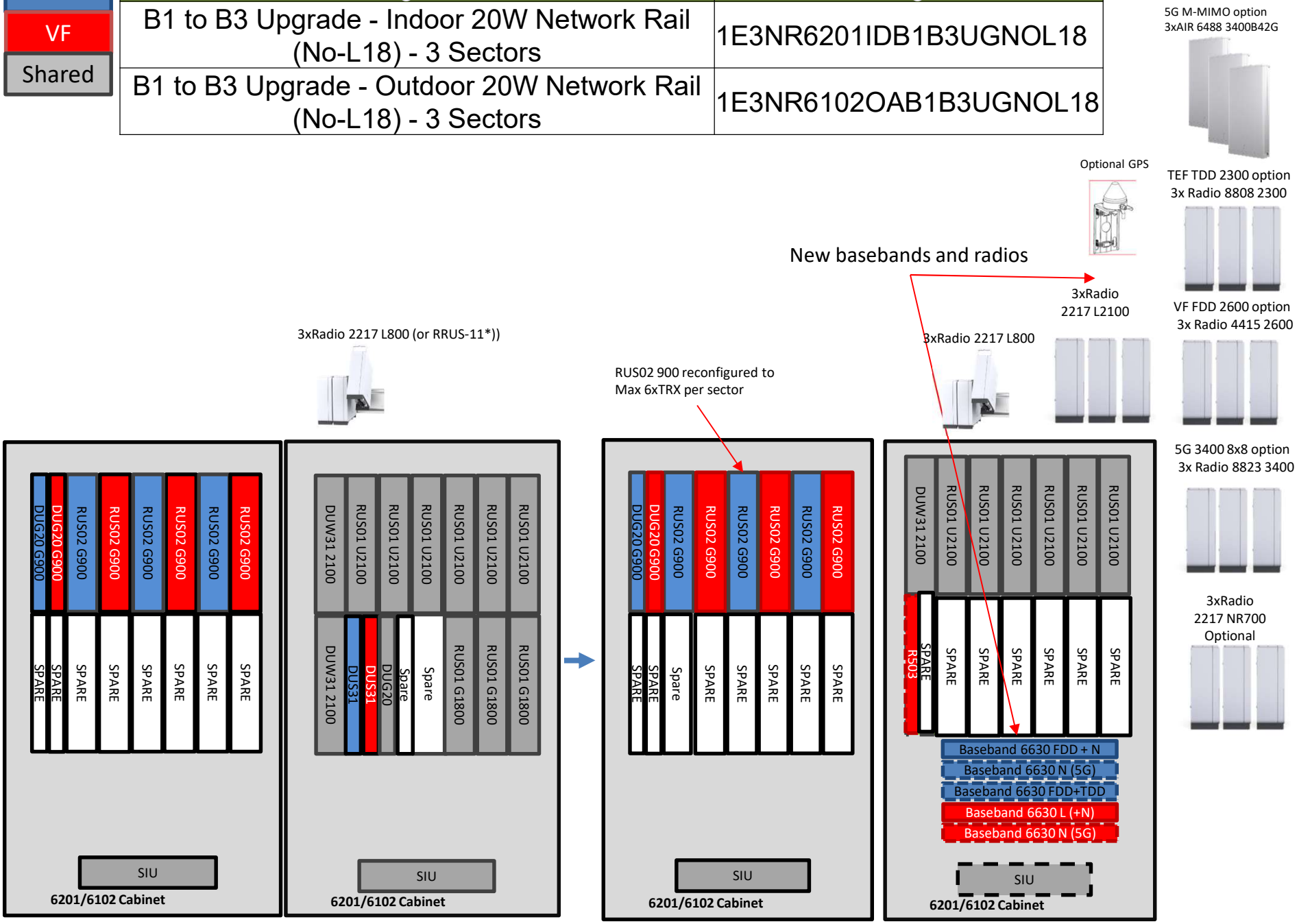
Telefonica Legacy Beacon 1 configurations upgraded to B3 for 4G/5G 3 Sectors - **Network Rail**
6xRUS01 U2100 (No change in B3 Upgrade)
Data1
Data2
DUW30/31
2nd DUW spare after B3 Upgrade.
DUS31
3 x Radio 2217 800
(or RRUS11)
6xRUS01/02 1800
Current
Upgraded
BB 6630 LTE + NR
BB 6630 F/TDD
BB 6630 5G
BB 6630 LTE
2217 L8 LTE
2217 2100 LTE
RUS 1800
8808 2300
4415 2600
8823 3400
2217 NR700
S2
S3

TF
VF
Shared

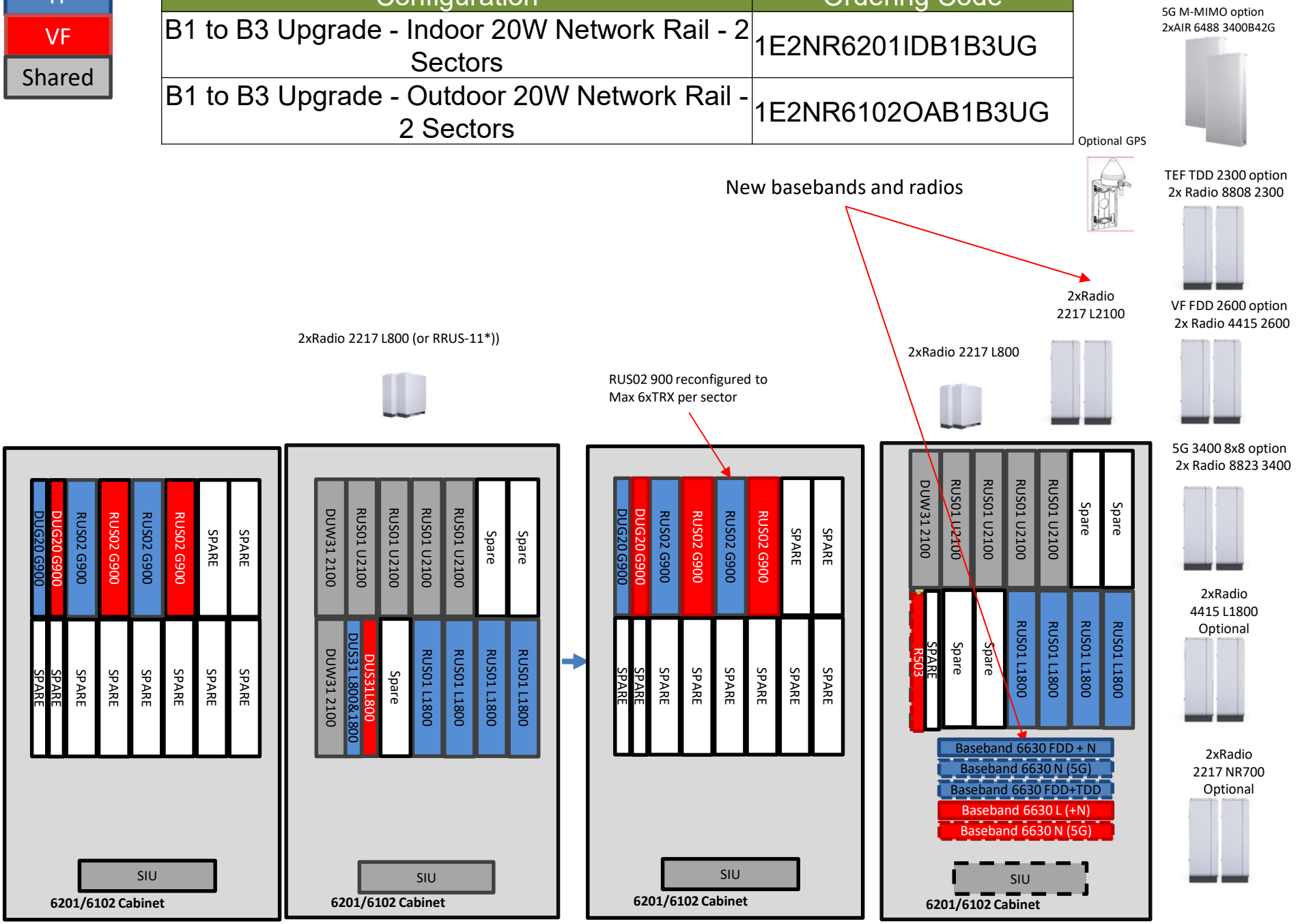
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Network Rail (No-L18) - 3 Sectors	1E3NR6201IDB1B3UGNOL18
B1 to B3 Upgrade - Outdoor 20W Network Rail (No-L18) - 3 Sectors	1E3NR6102OAB1B3UGNOL18



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

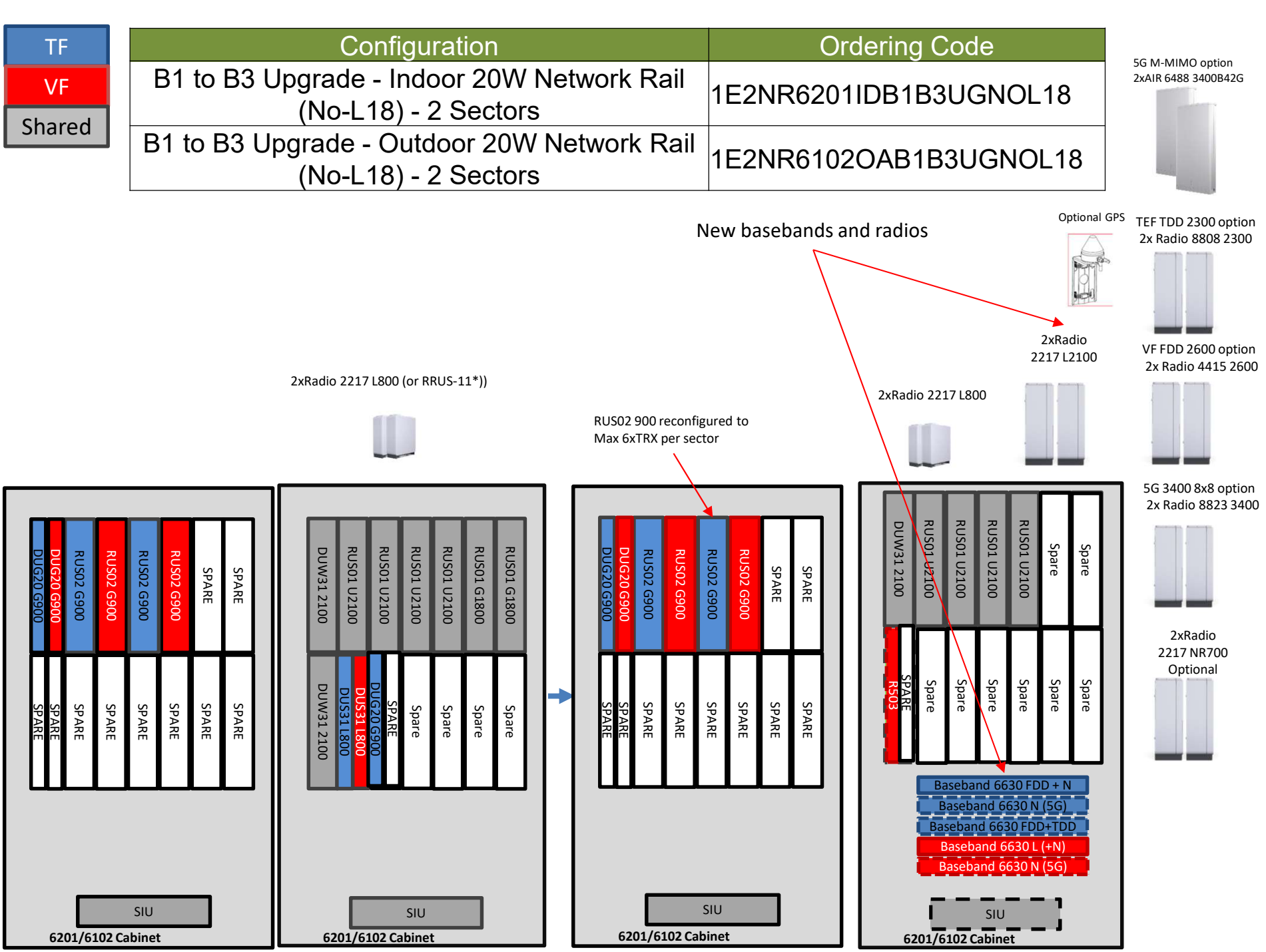
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Network Rail - 2 Sectors	1E2NR6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Network Rail - 2 Sectors	1E2NR6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

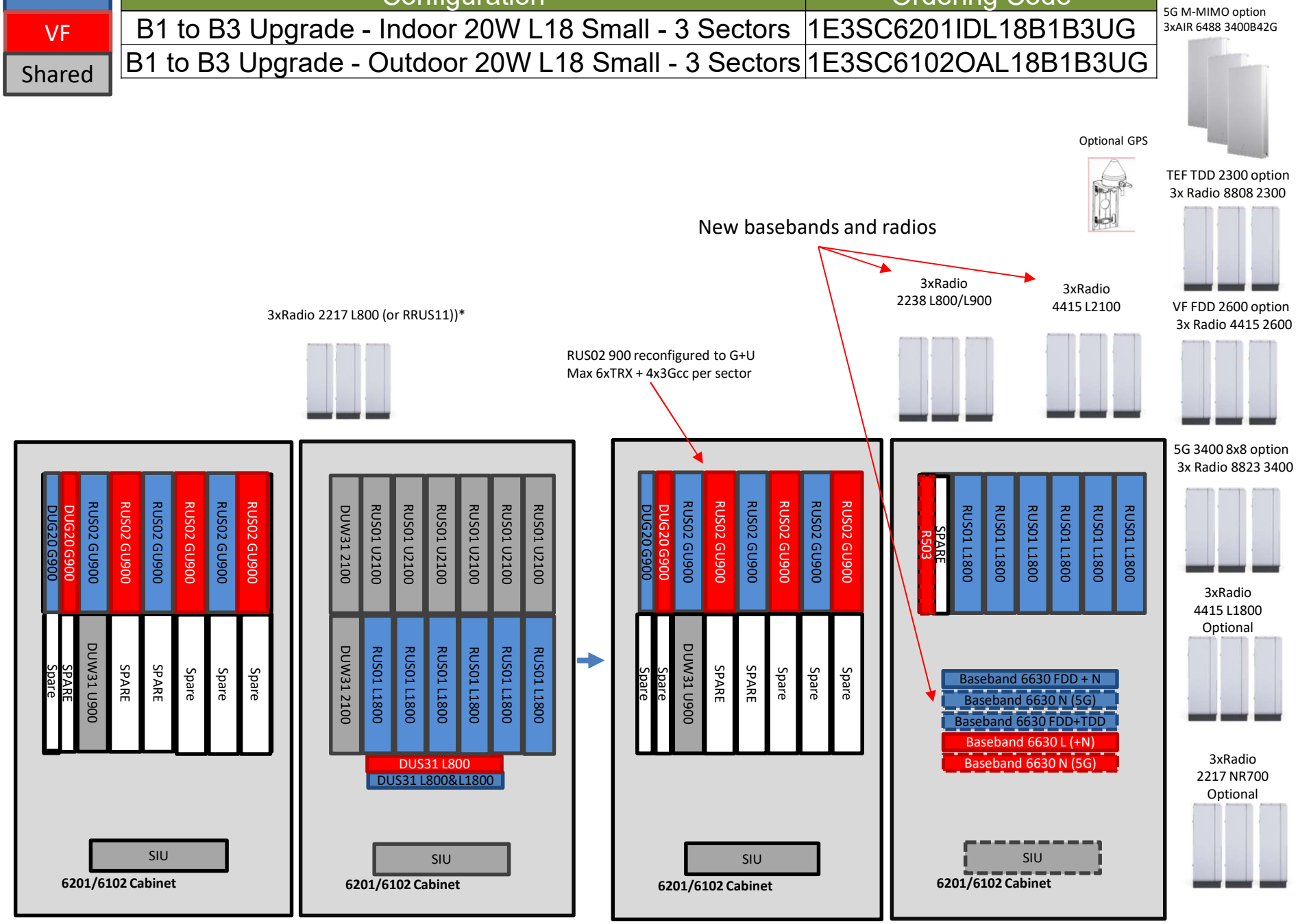
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Network Rail (No-L18) - 2 Sectors	1E2NR6201IDB1B3UGNOL18
B1 to B3 Upgrade - Outdoor 20W Network Rail (No-L18) - 2 Sectors	1E2NR6102OAB1B3UGNOL18



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

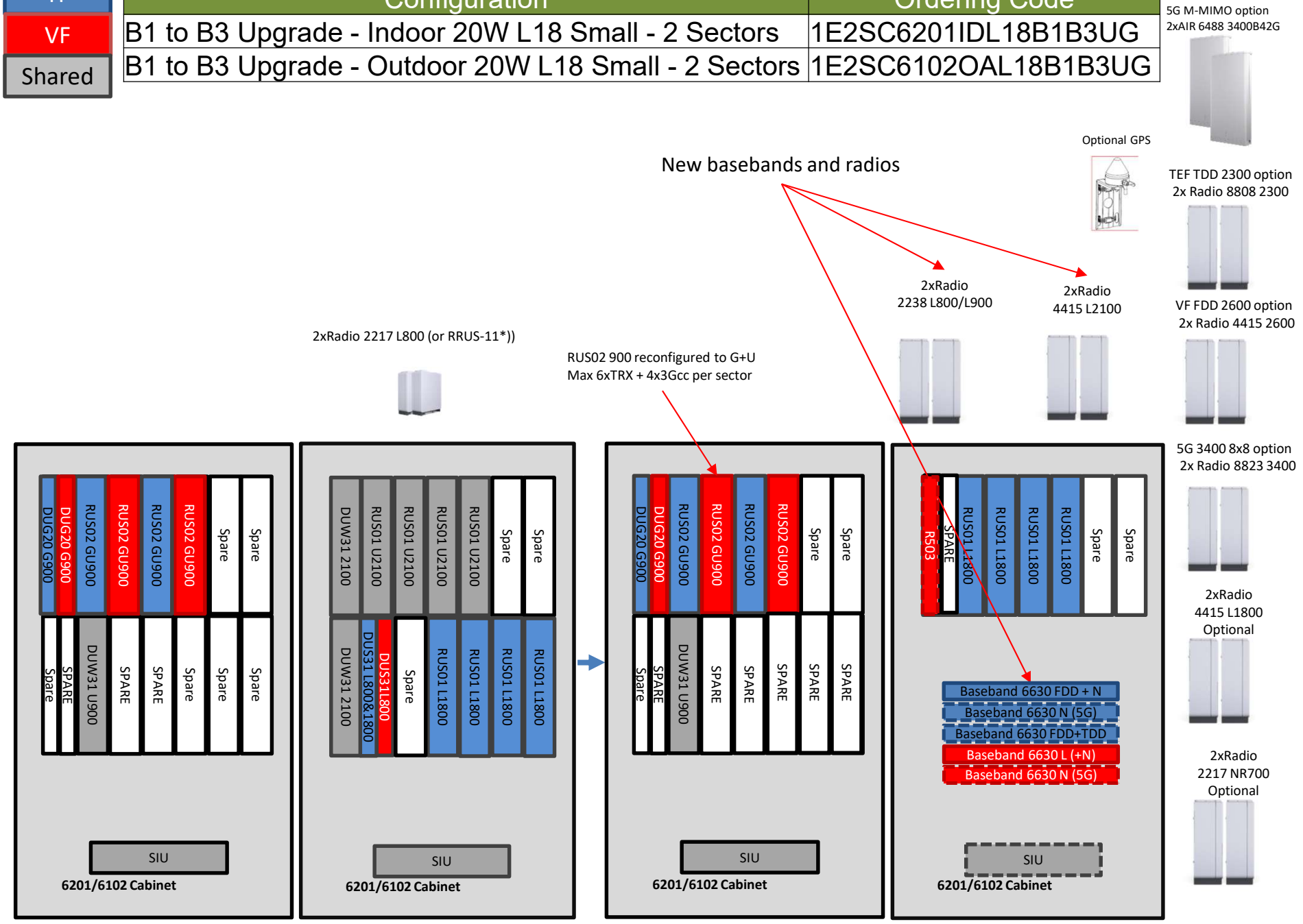
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W L18 Small - 3 Sectors	1E3SC6201IDL18B1B3UG
B1 to B3 Upgrade - Outdoor 20W L18 Small - 3 Sectors	1E3SC6102OAL18B1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W L18 Small - 2 Sectors	1E2SC6201IDL18B1B3UG
B1 to B3 Upgrade - Outdoor 20W L18 Small - 2 Sectors	1E2SC6102OAL18B1B3UG

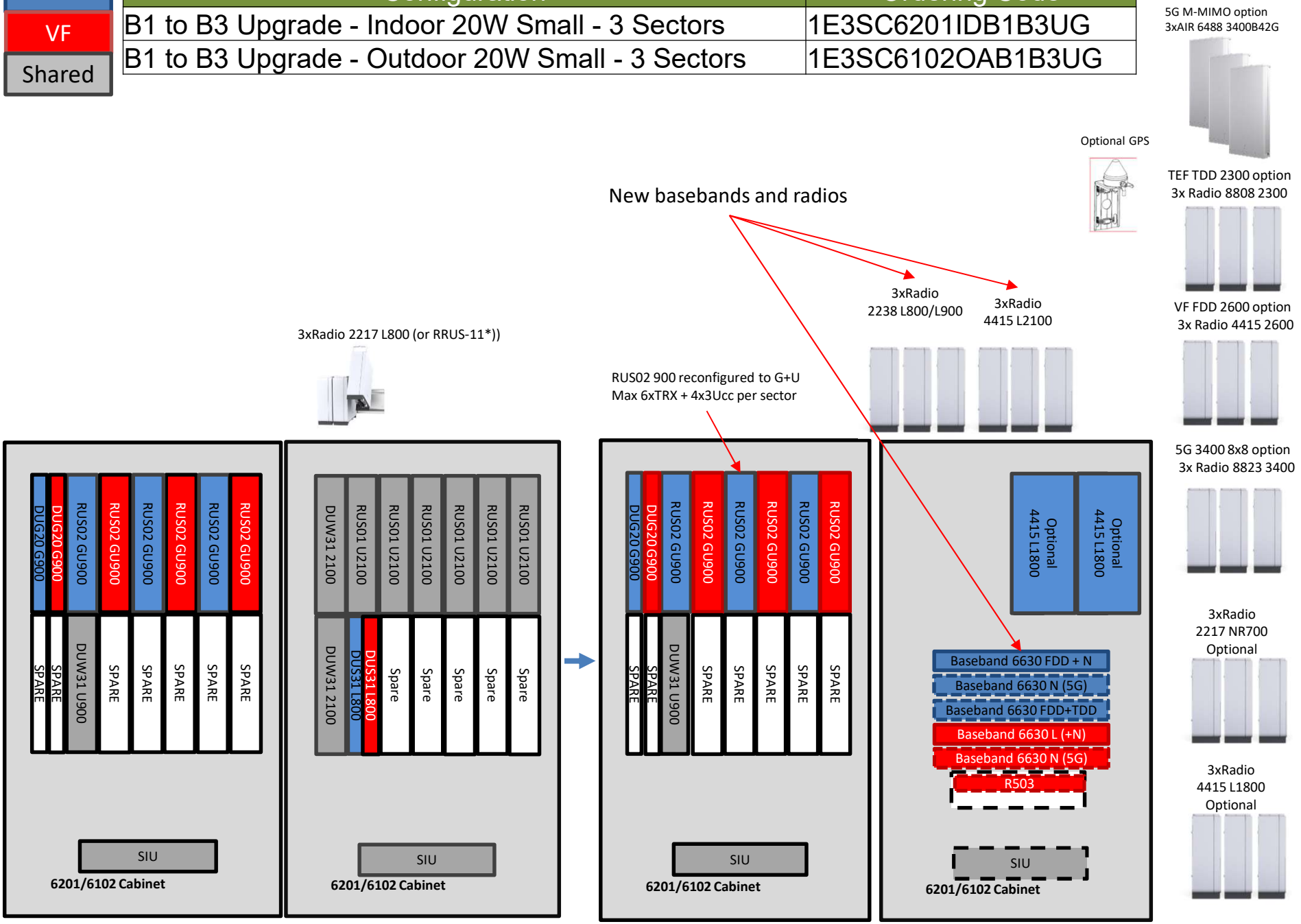


*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

L18 on High is RUS 02, Medium and L1800 Small is RUS 01

TF
VF
Shared

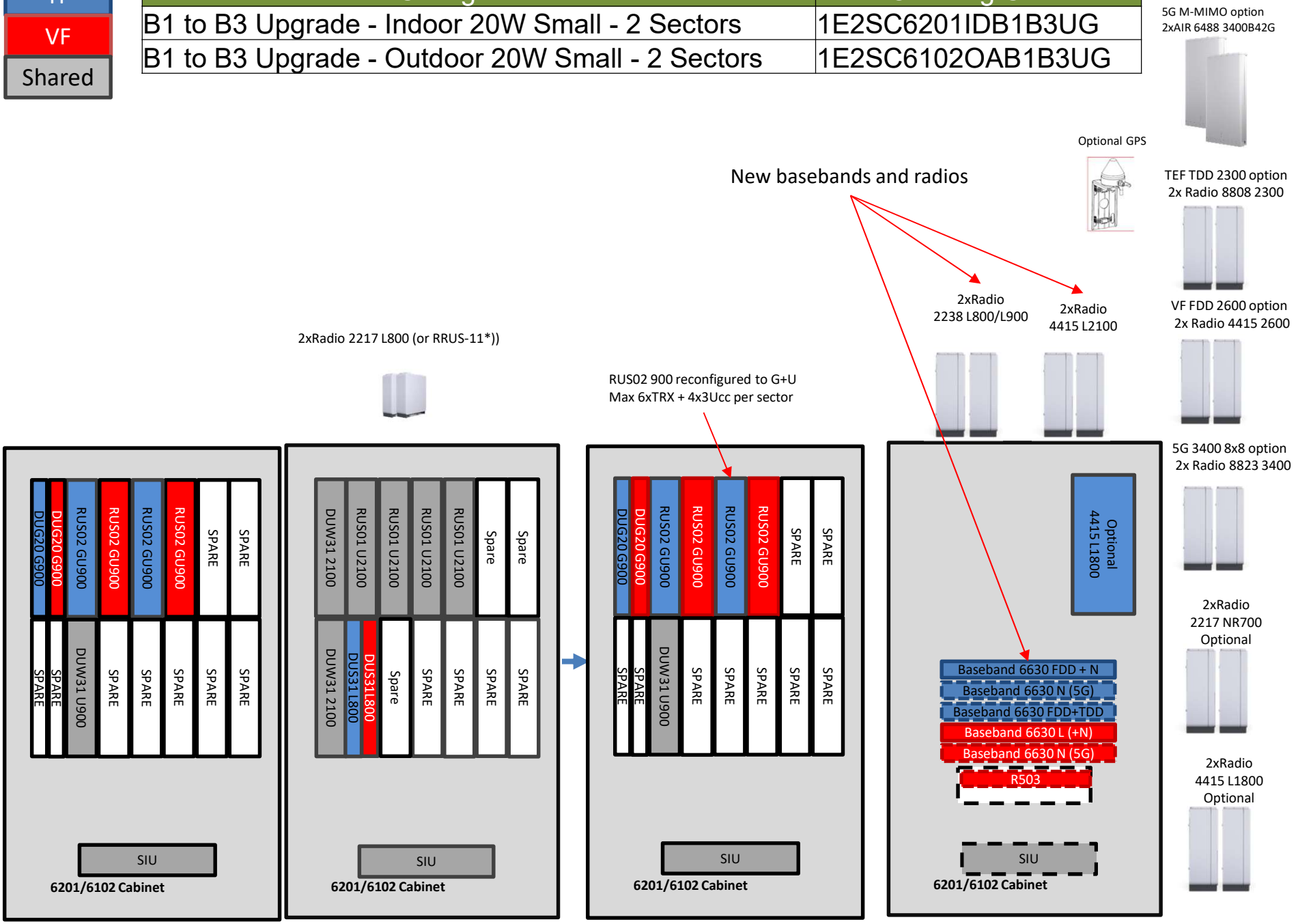
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Small - 3 Sectors	1E3SC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Small - 3 Sectors	1E3SC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Small - 2 Sectors	1E2SC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Small - 2 Sectors	1E2SC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Small U2100 RRU - 3 Sectors	1E3SC6201IDB1B3UGL21AD6
B1 to B3 Upgrade - Outdoor 20W Small U2100 RRU - 3 Sectors	1E3SC6102OAB1B3UGL21AD6

5G M-MIMO option
3xAIR 6488 3400B42G

Optional GPS

New basebands and radios

TEF TDD 2300 option
3x Radio 8808 2300

3xRadio
2238 L800/L900

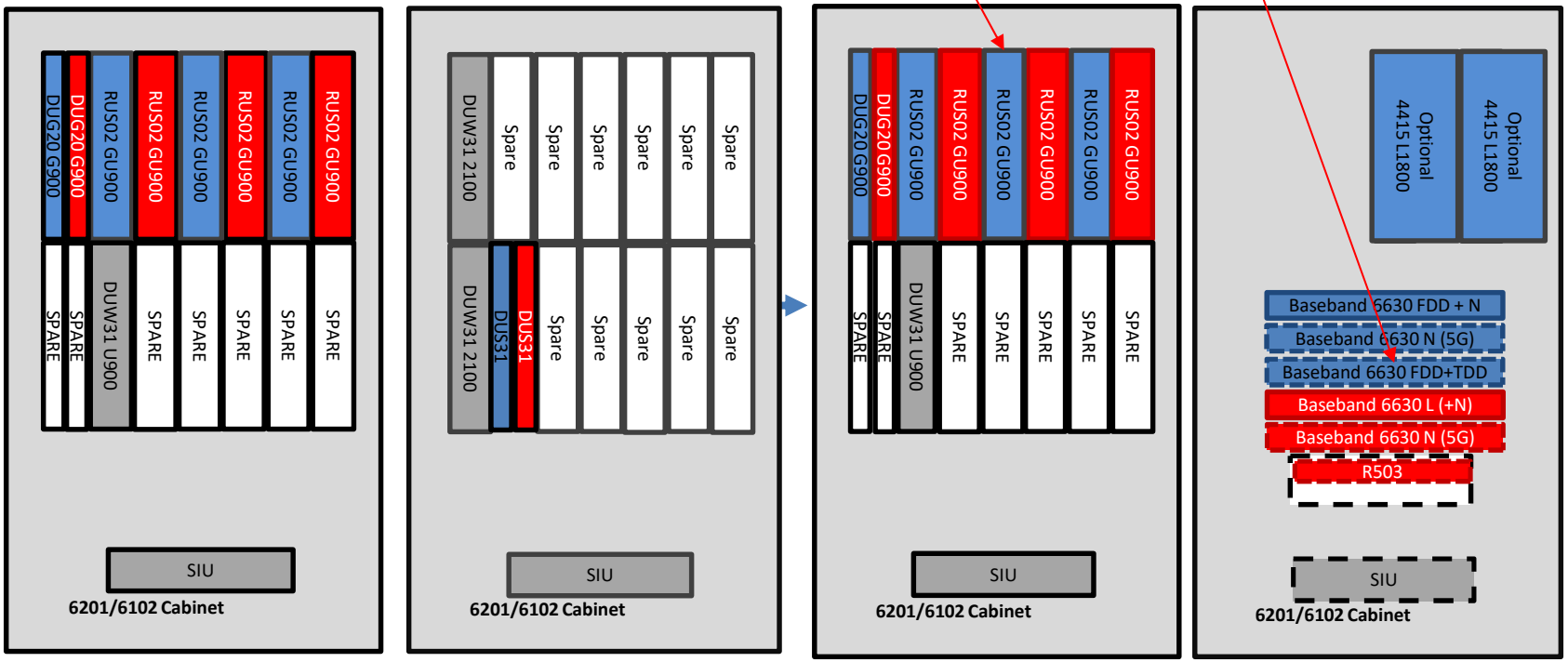
3xRadio
4415 L2100

VF FDD 2600 option
3x Radio 4415 2600

3xRadio 2217 L800
3xRadio 2217 L2100
(or RRUS12 U2100)

RUS02 900 reconfigured to G+U
Max 6xTRX + 4x3Ucc per sector

5G 3400 8x8 option
3x Radio 8823 3400



3xRadio
2217 NR700
Optional

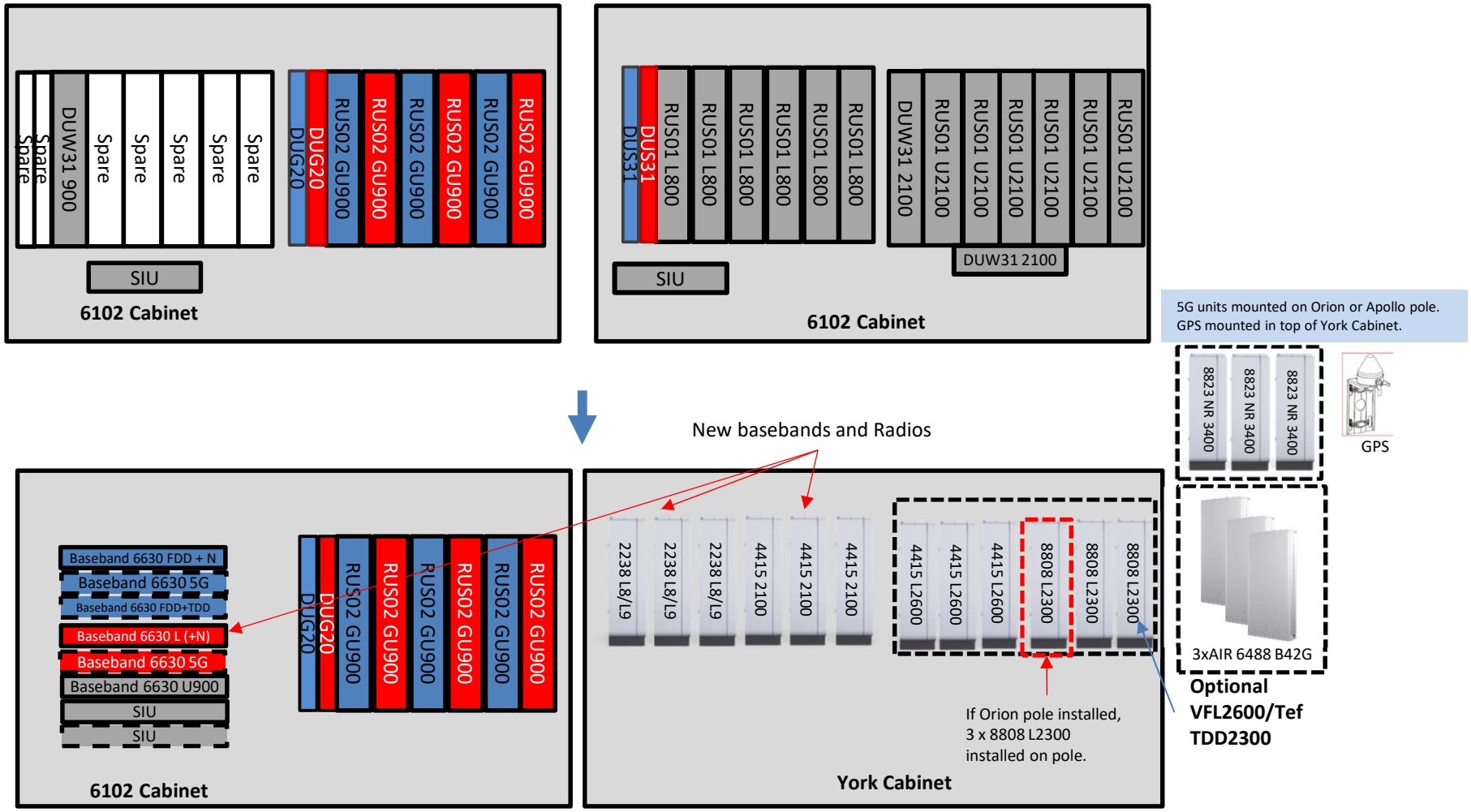
3xRadio
4415 L1800
Optional

*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

**)3xRRUS 12/Radio 2217 2100 will be replaced with 3xRadio 4415 2100

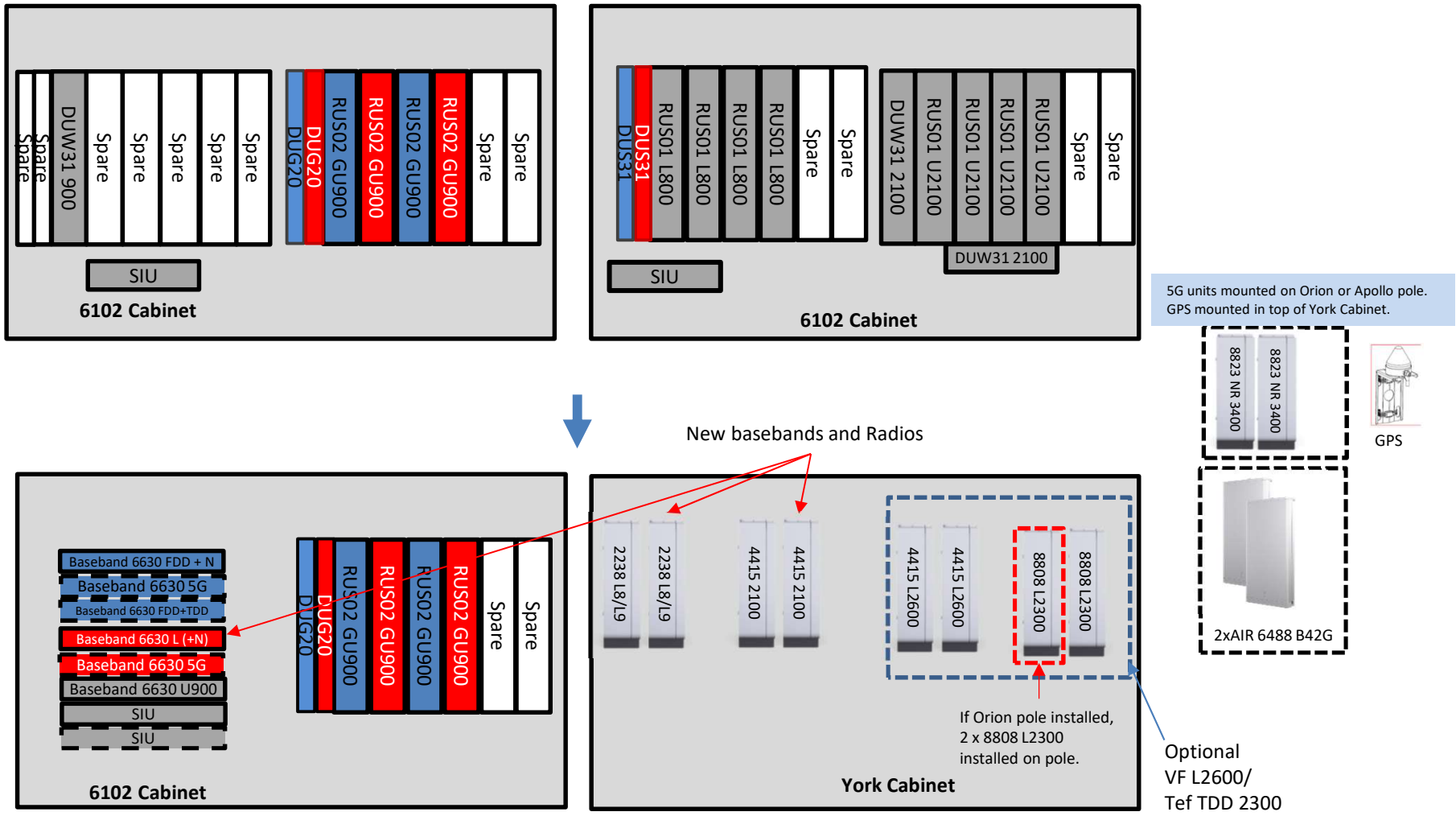
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W Small SF – 3 Sectors **(York)**	1E3SC61023PPOAB1B3UG



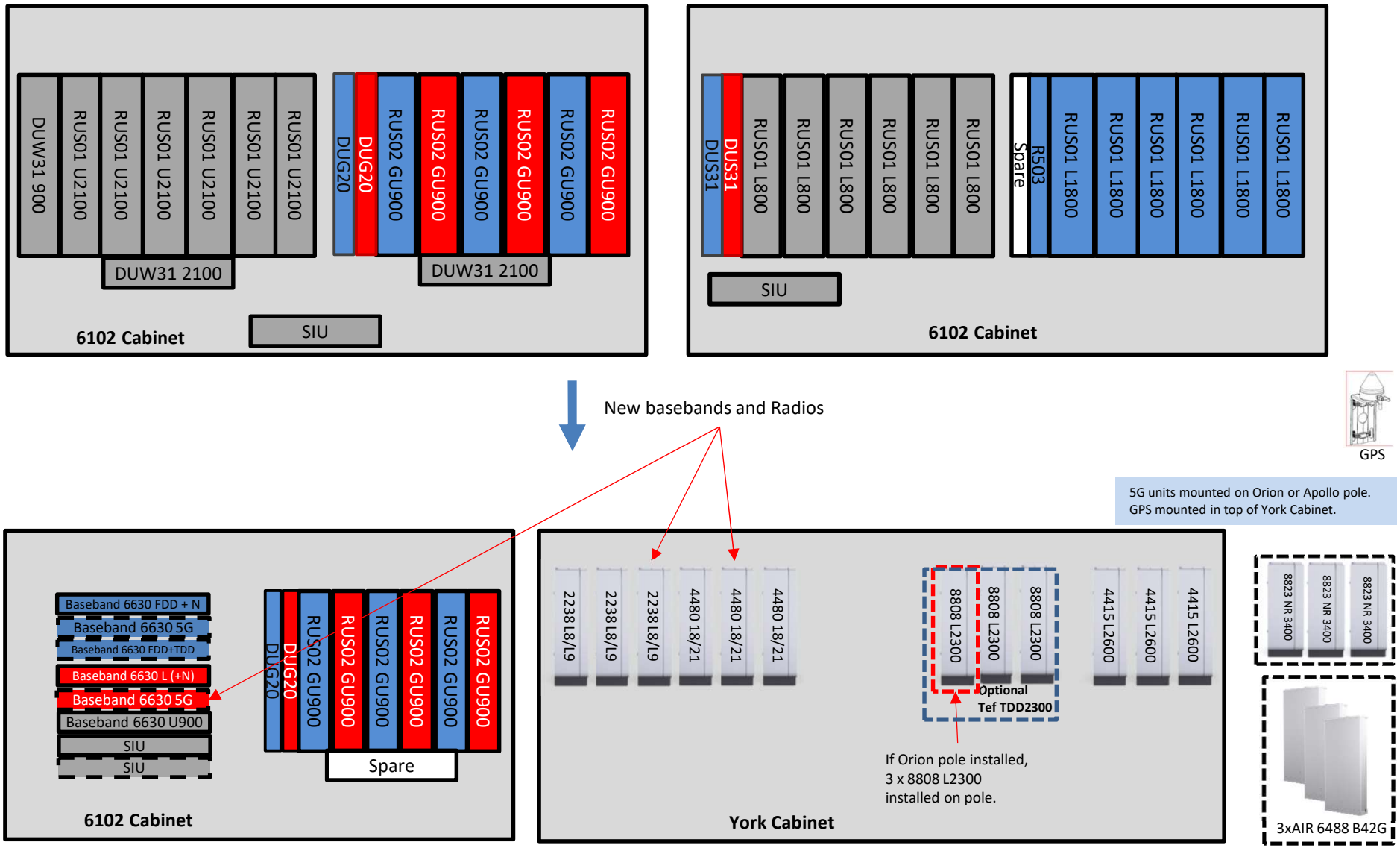
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W Small SF – 2 Sectors **(York)**	1E2SC61023PPOAB1B3UG



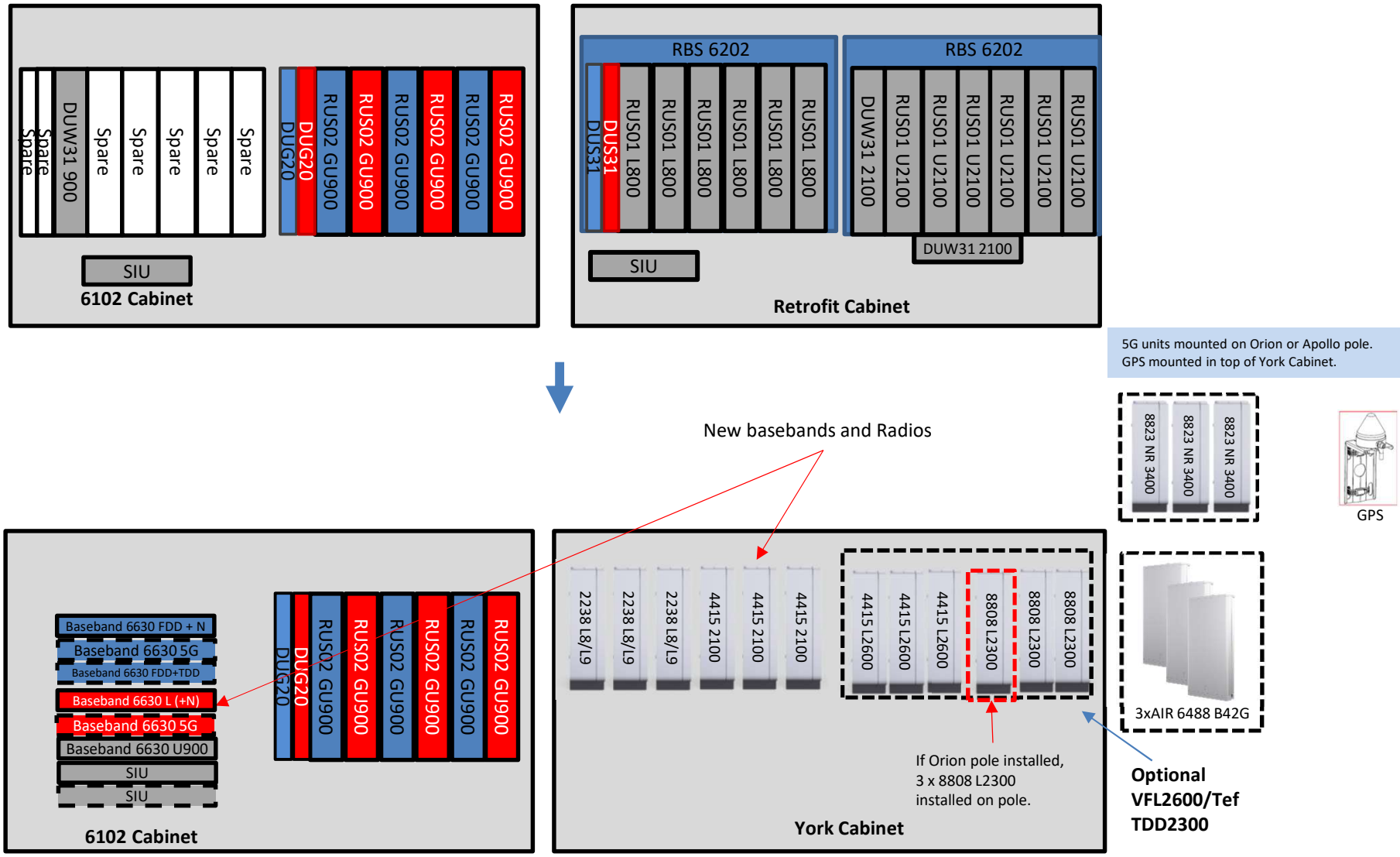
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W L18 Small SF – 3 Sectors **(York)**	1E3SC61023PPOAL18B1B3UG



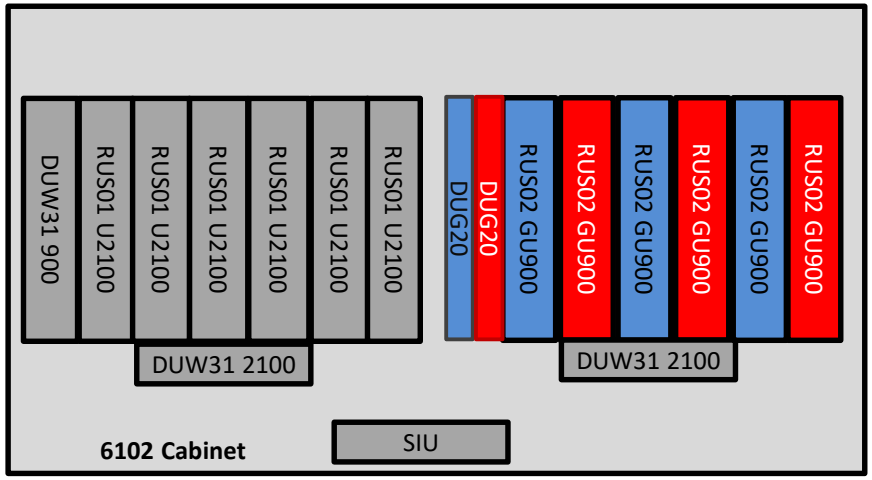
TF
VF
Shared

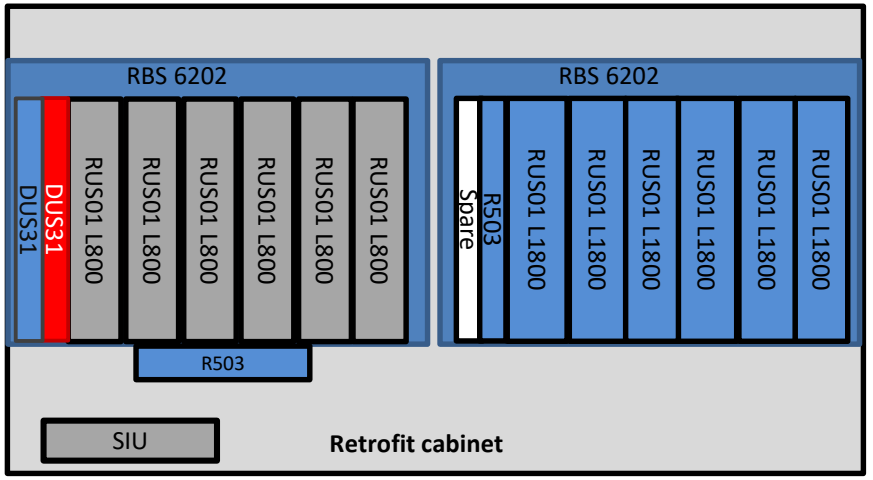
Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W Small SF Retrofit – 3 sectors **(York)**	1E3SC61023PPOAB1B3UG

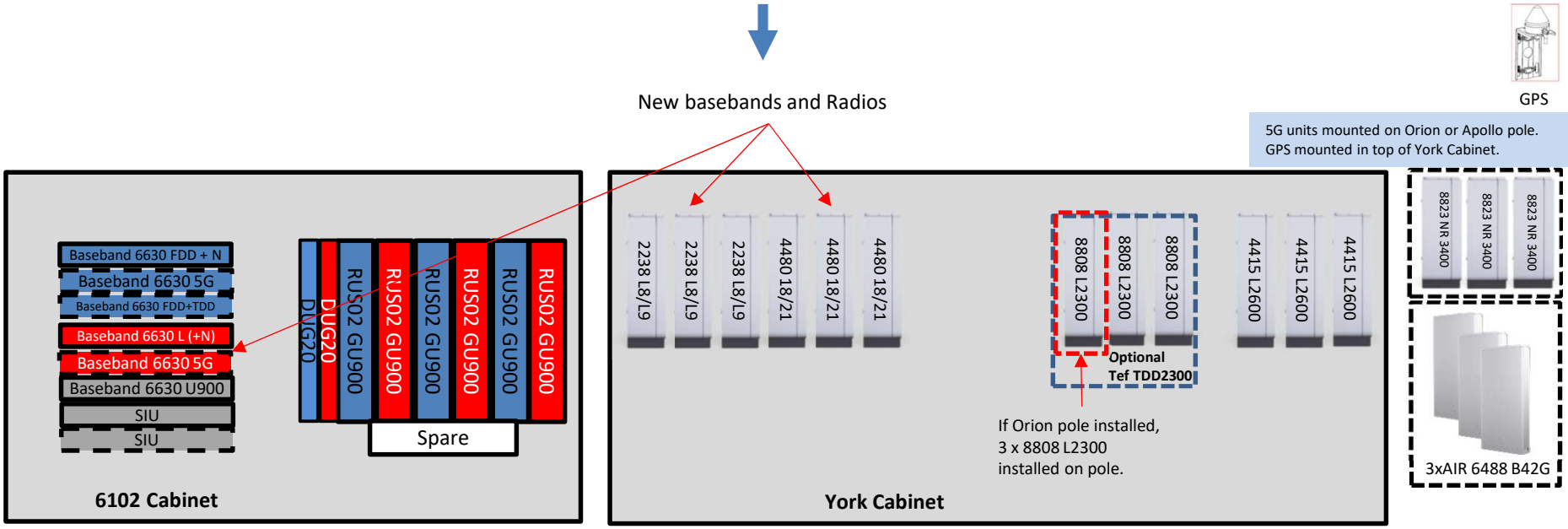


TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W L18 Small SF Retrofit – 3 sectors **(York)**	1E3SC61023PPOAL18B1B3UG

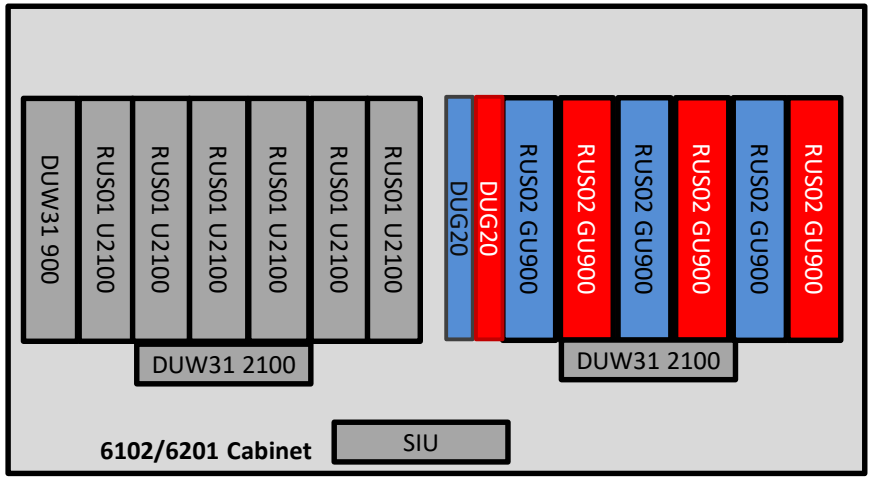


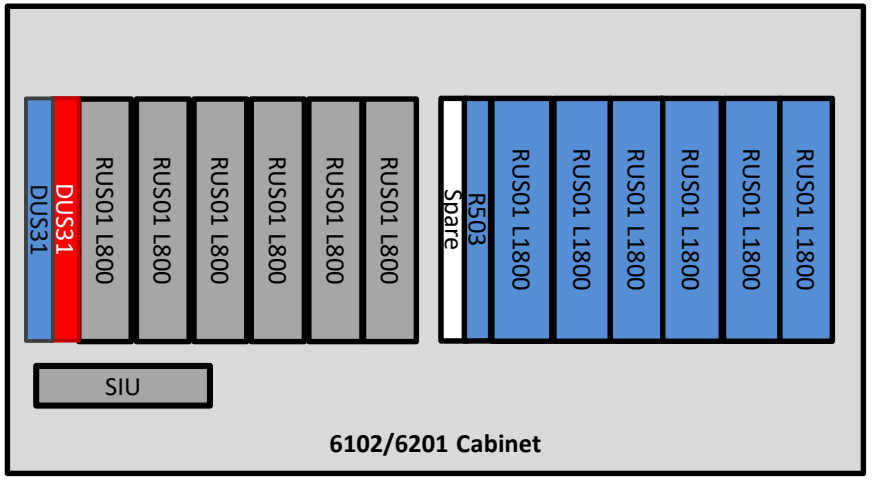


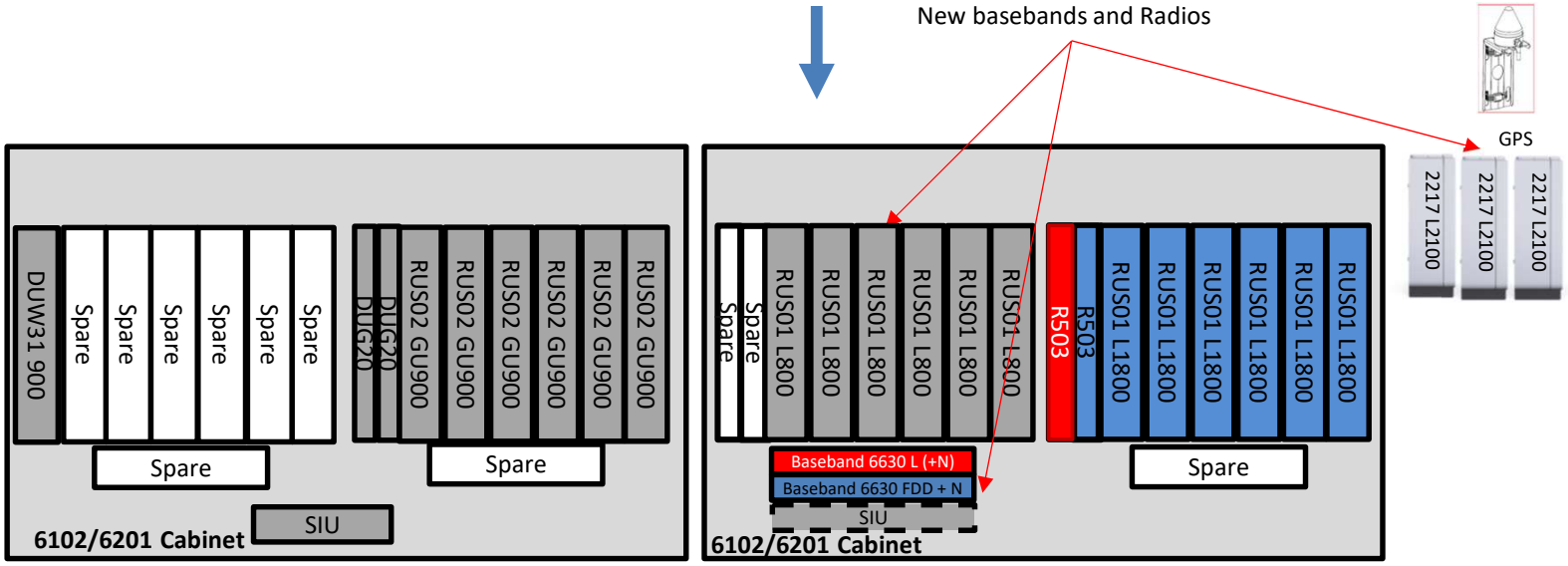


TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Stealth – 3 sectors	1E3ST6201IDRUSB1B3UG
B1 to B3 Upgrade - Outdoor 20W Stealth – 3 sectors	1E3ST6102OARUSB1B3UG

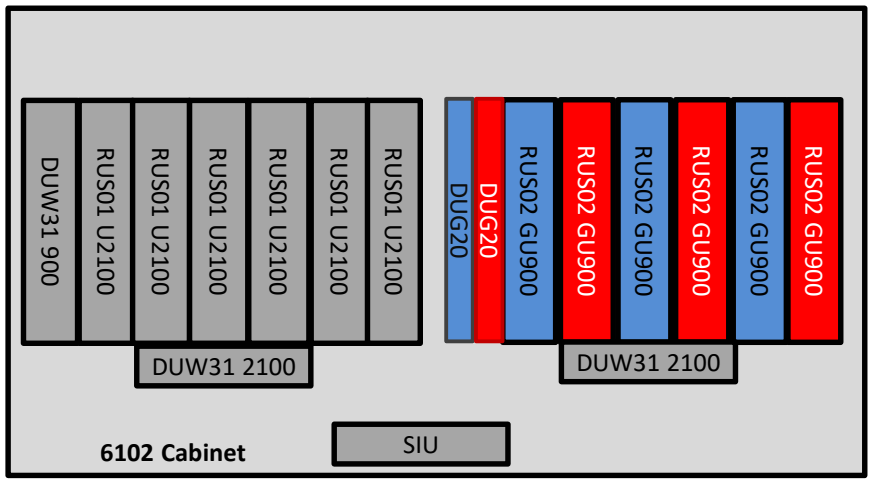


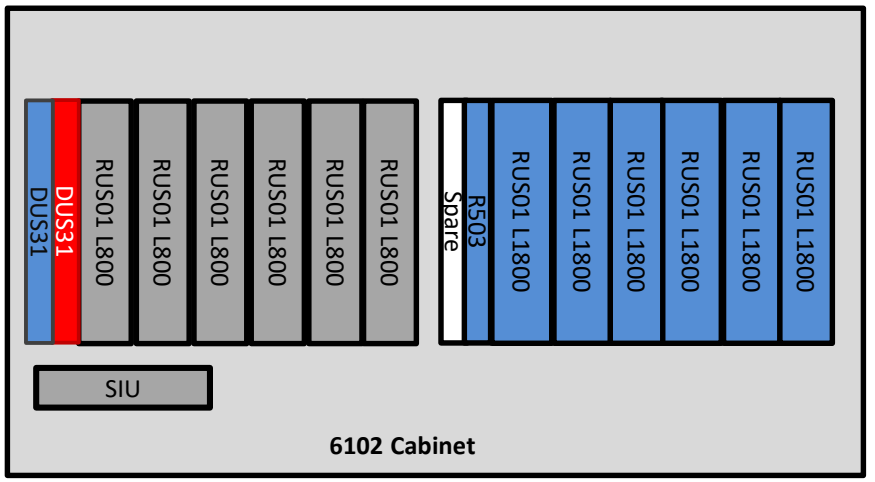




TF
VF
Shared

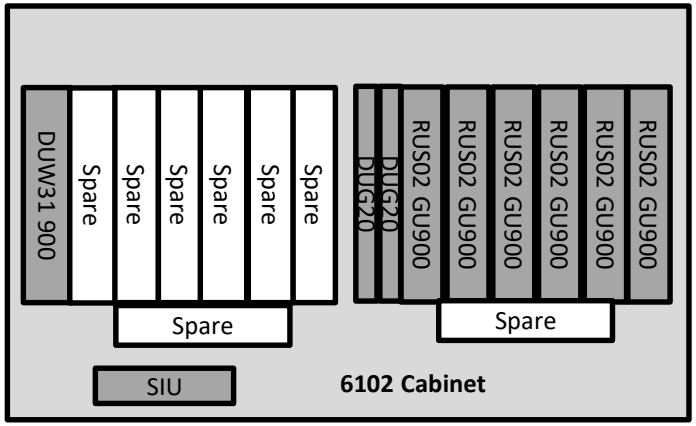
Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W Stealth – 3 sectors Option 2 Lancaster	1E3ST61023PPOAB1B3UG

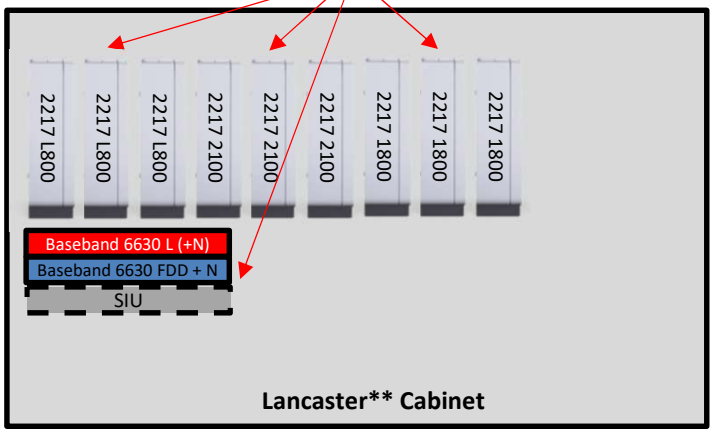





GPS

New basebands and Radios

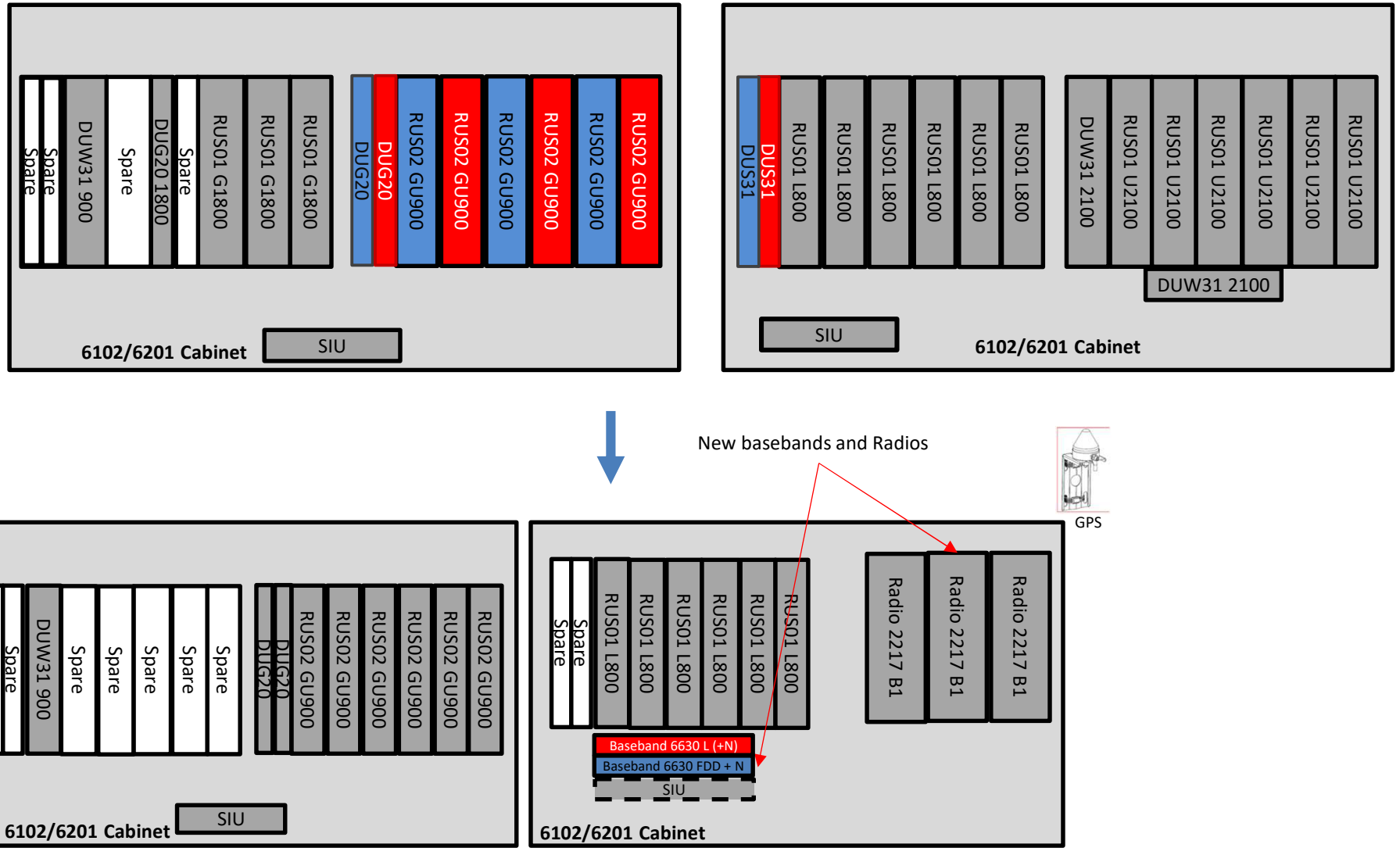




**) Basebands requires installation in cabinet with Heat Exchanger (HEX). Telefonica request to install these basebands in Lancaster cabinet without HEX.
Telefonica takes all risk related to faulty performance of Basebands which are caused by lack of HEX

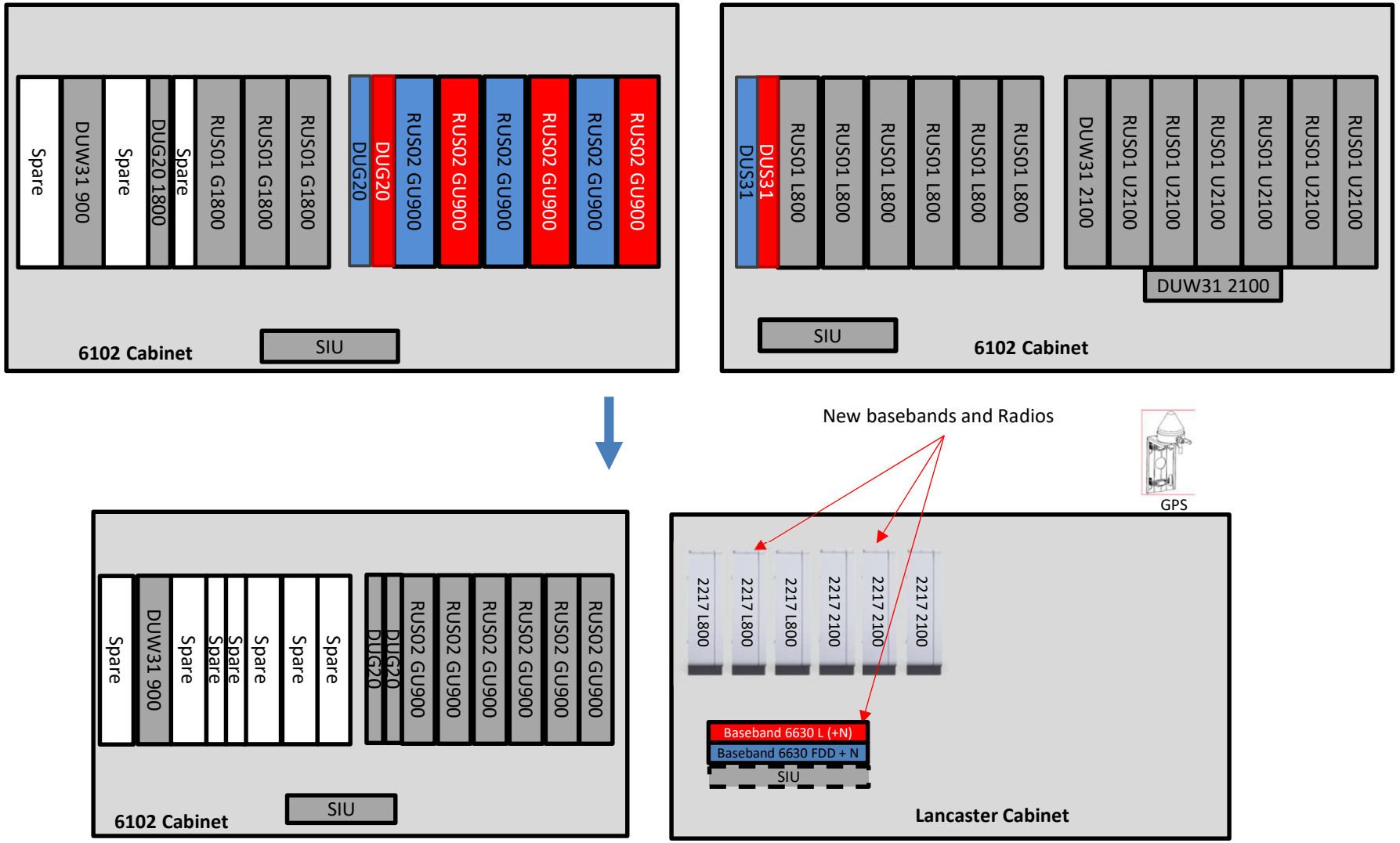
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Stealth (No L18) – 3 sectors	1E3ST6201IDRUSB1B3UGNOL18
B1 to B3 Upgrade - Outdoor 20W Stealth (No L18) – 3 sectors	1E3ST6102OARUSB1B3UGNOL18



TF
VF
Shared

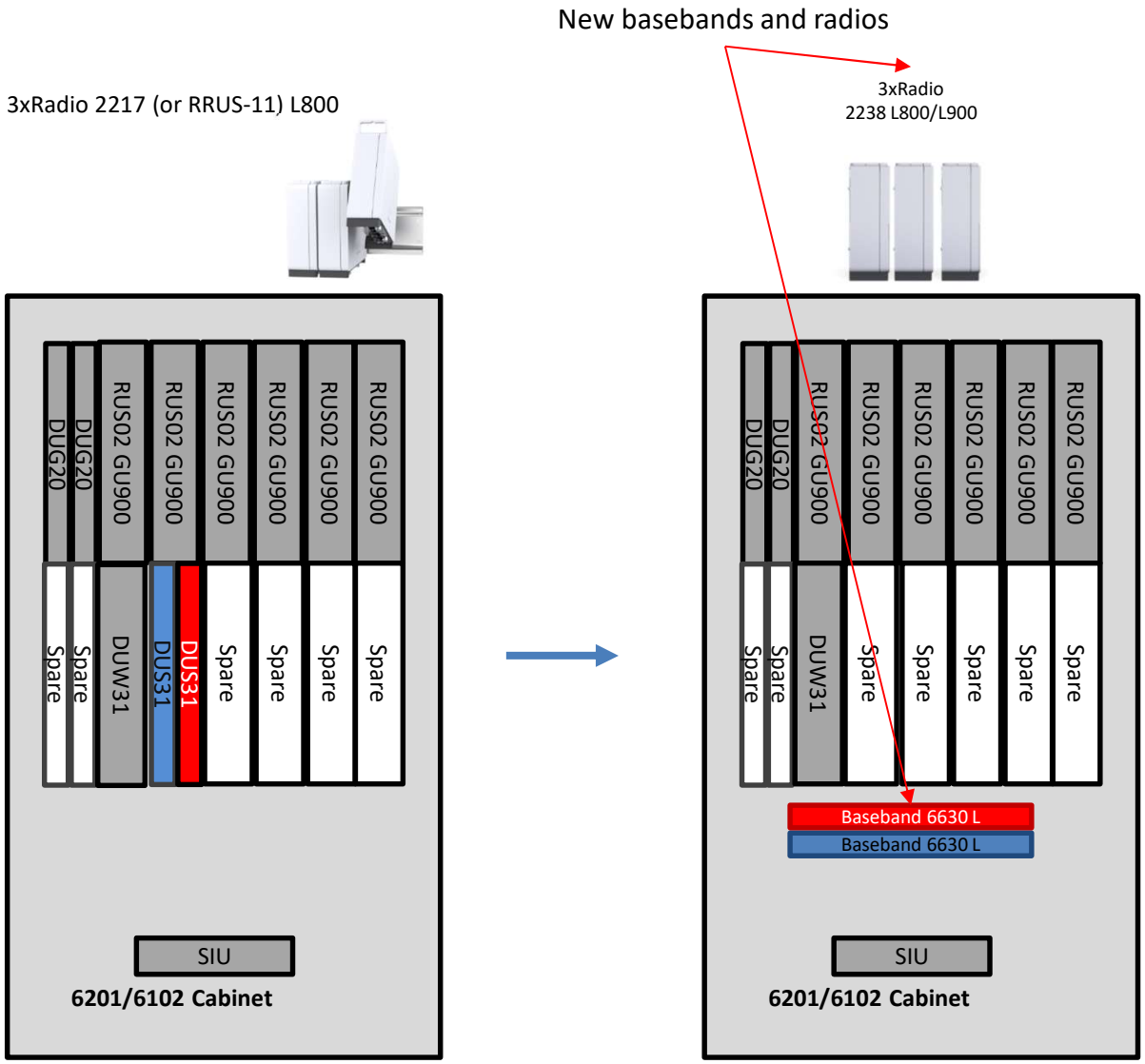
Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W Stealth (No L18) – 3 sectors Option 2 Lancaster	1E3ST61023PPOAB1B3UGNOL18



**) Basebands requires installation in cabinet with Heat Exchanger (HEX). Telefonica request to install these basebands in Lancaster cabinet without HEX. Telefonica takes all risk related to faulty performance of Basebands which are caused by lack of HEX

TF
VF
Shared

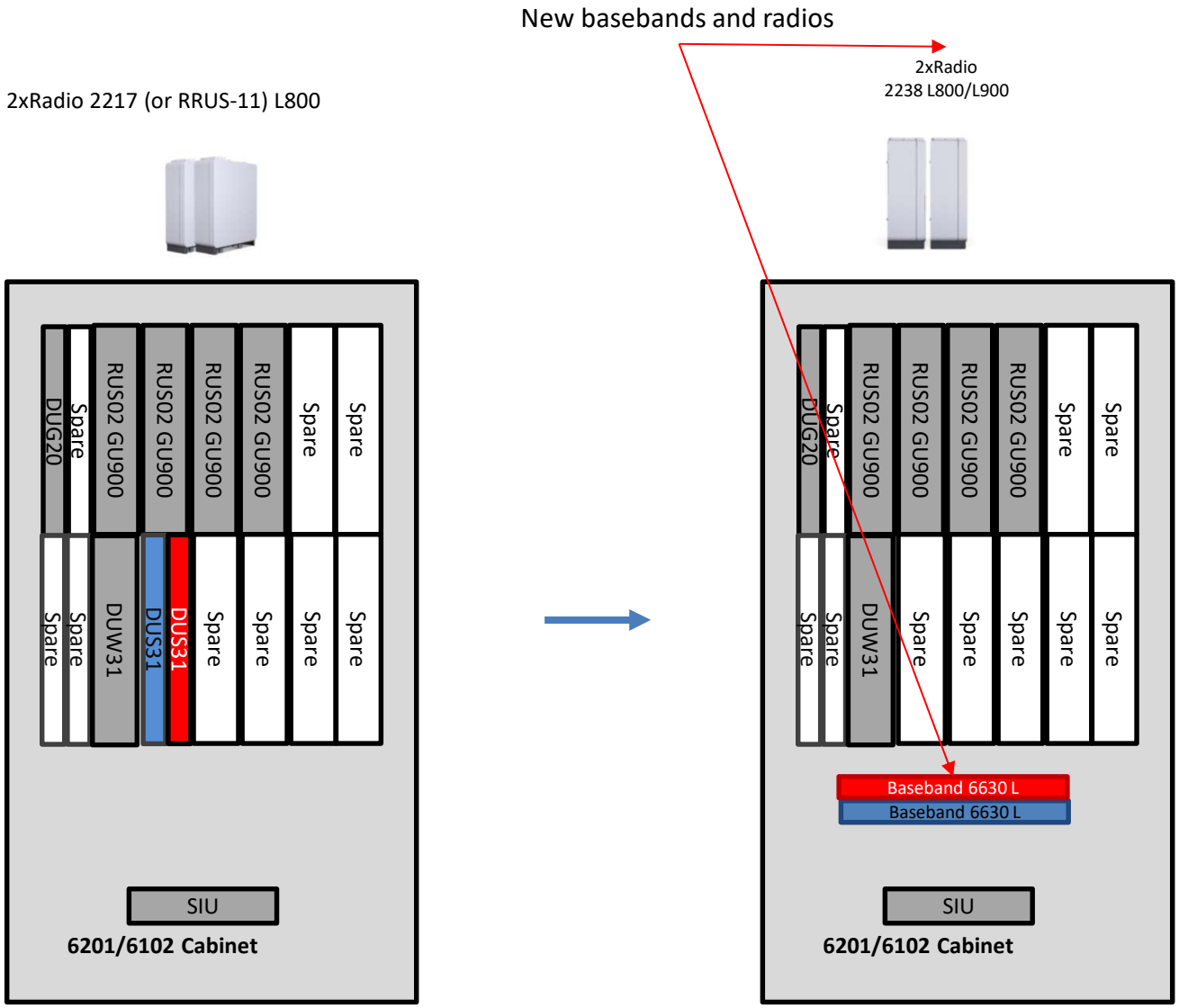
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Low - 3 Sectors	1E3LC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Low - 3 Sectors	1E3LC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

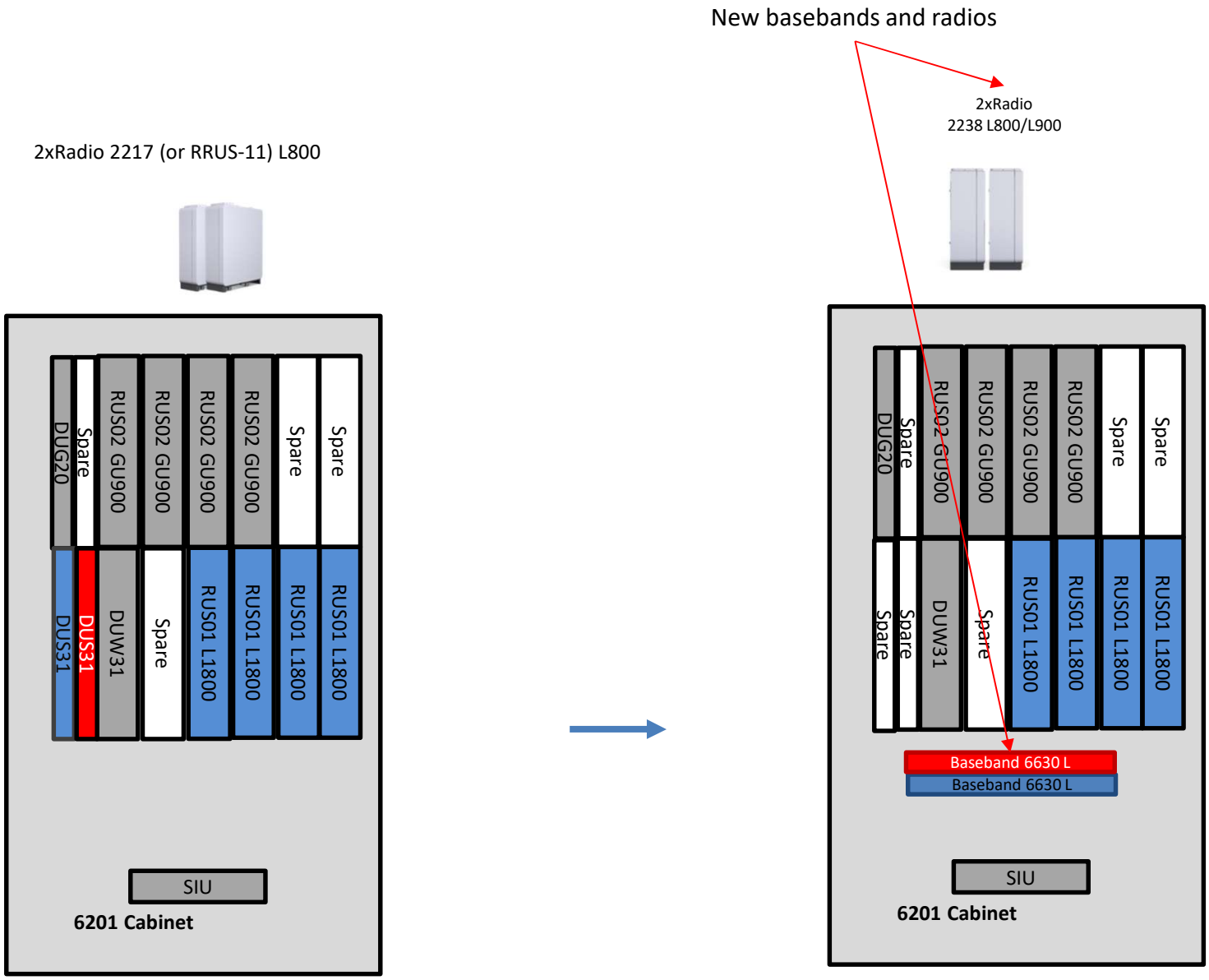
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Low - 2 Sectors	1E2LC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 20W Low - 2 Sectors	1E2LC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Low L18 - 2 Sectors	1E2LC6201IDL18B1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF

VF

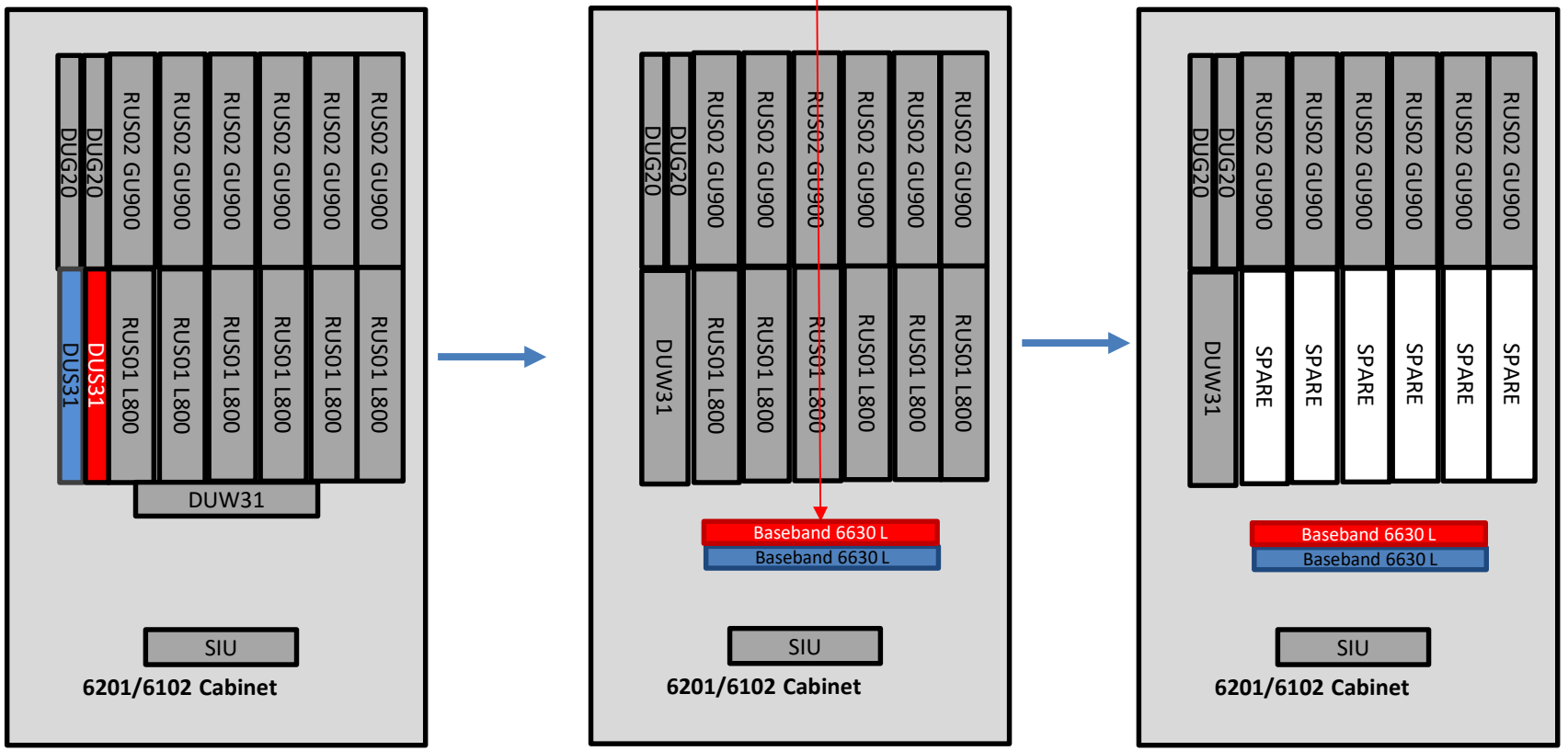
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Low Non-RRU BB - 3 Sectors	1E3LC6201IDRUSBBUG
B1 to B3 Upgrade - Outdoor 20W Low Non-RRU BB - 3 Sectors	1E3LC6102OARUSBBUG
B1 to B3 Upgrade - Indoor 20W Low Non-RRU BB - 3 Sectors to 20W Low ULNR	1E3LC6201IDBBUG
B1 to B3 Upgrade - Outdoor 20W Low Non-RRU BB - 3 Sectors to 20W Low ULNR	1E3LC6102OABBUG
B1 to B3 Upgrade - Indoor 20W Low ULNR - 3 Sectors	1E3LC6201IDRUSBBUG + 1E3LC6201IDBBUG
B1 to B3 Upgrade - Outdoor 20W Low ULNR - 3 Sectors	1E3LC6102OARUSBBUG + 1E3LC6102OABBUG

New radios

3xRadio
2238 L800/L900

New basebands



TF

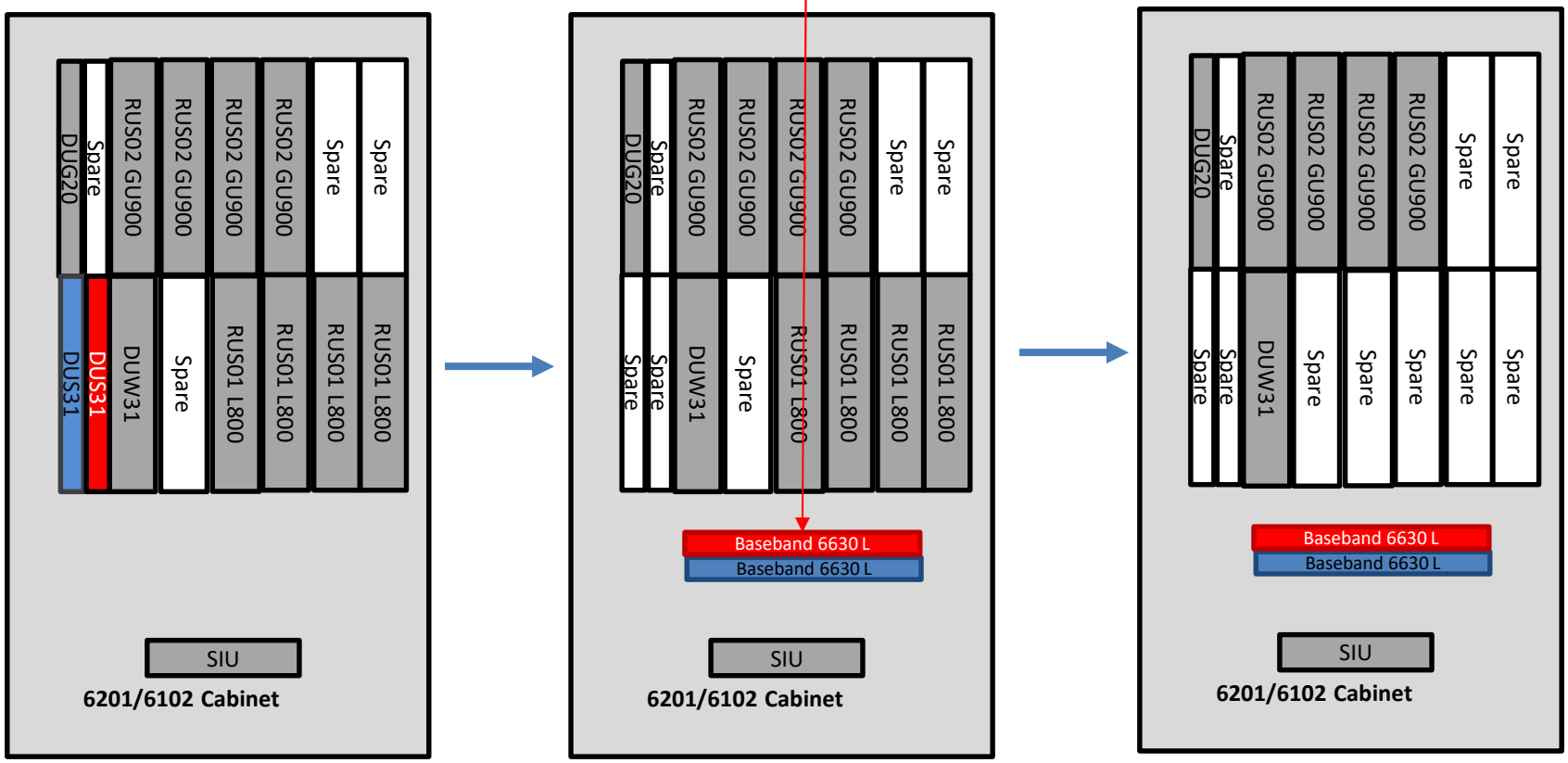
VF

Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 20W Low Non-RRU BB - 2 Sectors	1E2LC6201IDRUSBBUG
B1 to B3 Upgrade - Outdoor 20W Low Non-RRU BB - 2 Sectors	1E2LC6102OARUSBBUG
B1 to B3 Upgrade - Indoor 20W Low Non-RRU BB - 2 Sectors to 20W Low ULNR	1E2LC6201IDBBUG
B1 to B3 Upgrade - Outdoor 20W Low Non-RRU BB - 2 Sectors to 20W Low ULNR	1E2LC6102OABBUG
B1 to B3 Upgrade - Indoor 20W Low ULNR - 2 Sectors	1E2LC6201IDRUSBBUG + 1E2LC6201IDBBUG
B1 to B3 Upgrade - Outdoor 20W Low ULNR - 2 Sectors	1E2LC6102OARUSBBUG + 1E2LC6102OABBUG

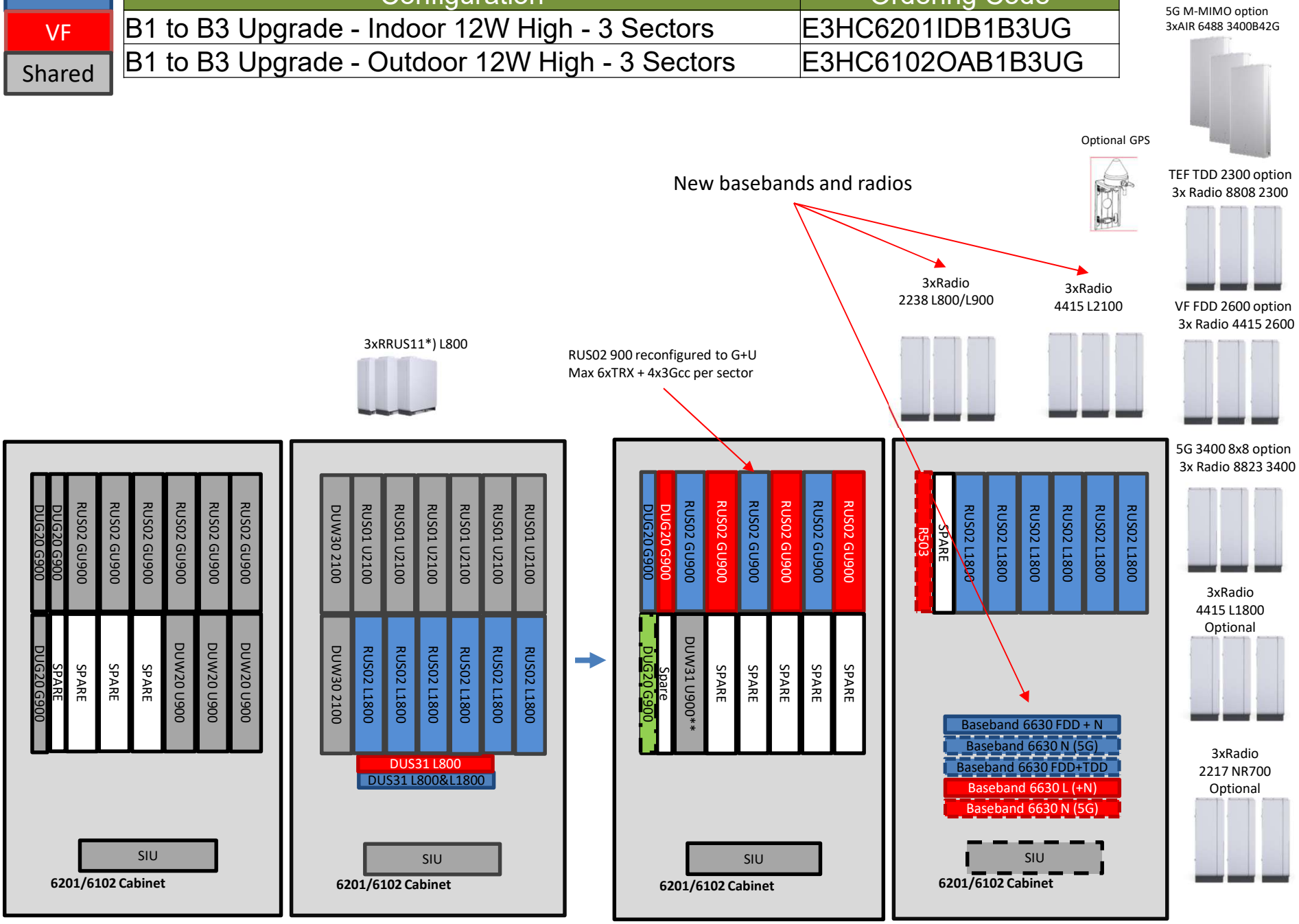
2xRadio
2238 L800/L900

New basebands



TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W High - 3 Sectors	E3HC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W High - 3 Sectors	E3HC6102OAB1B3UG

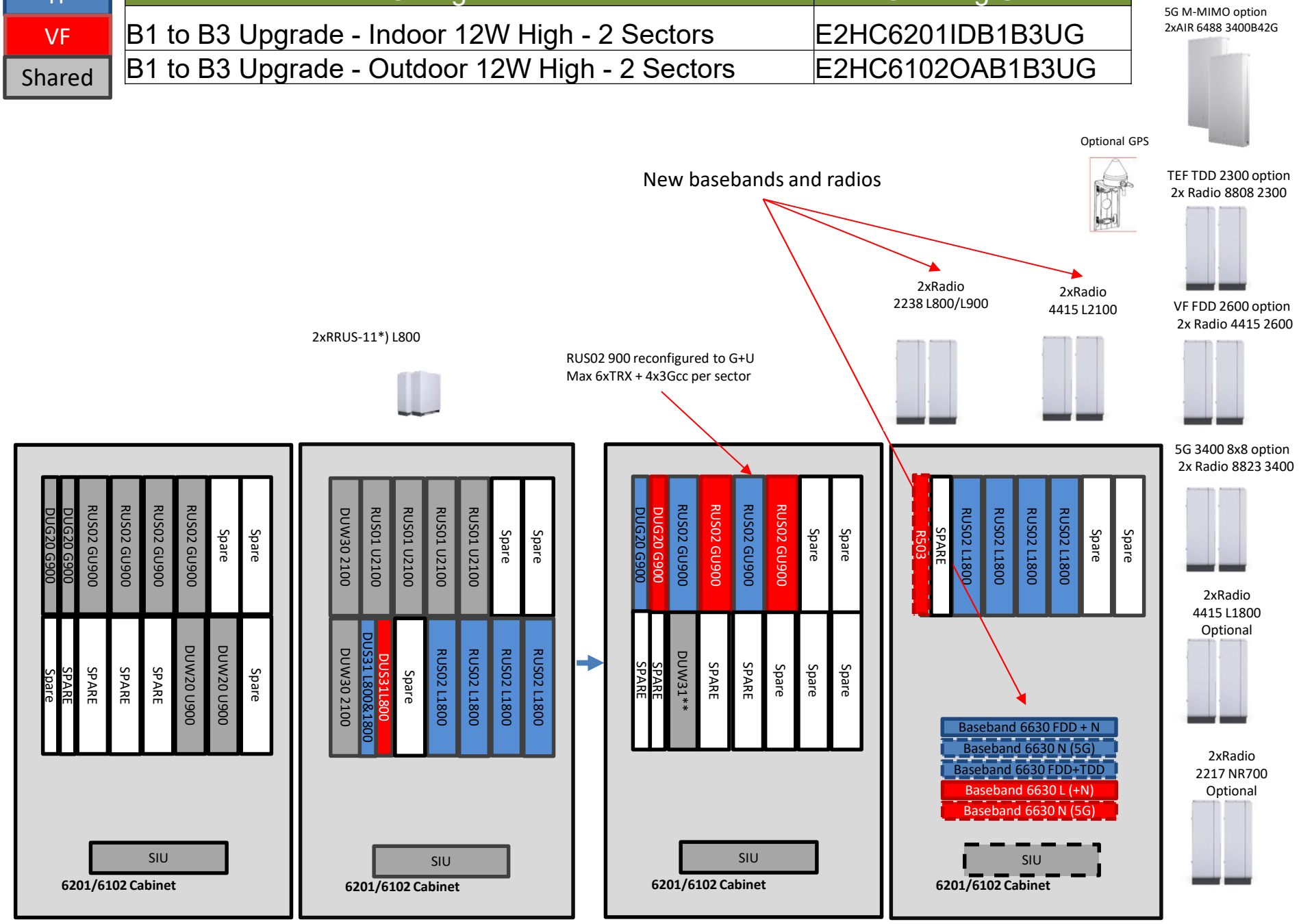


*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

**) Reused DUW31 is installed

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W High - 2 Sectors	E2HC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W High - 2 Sectors	E2HC6102OAB1B3UG

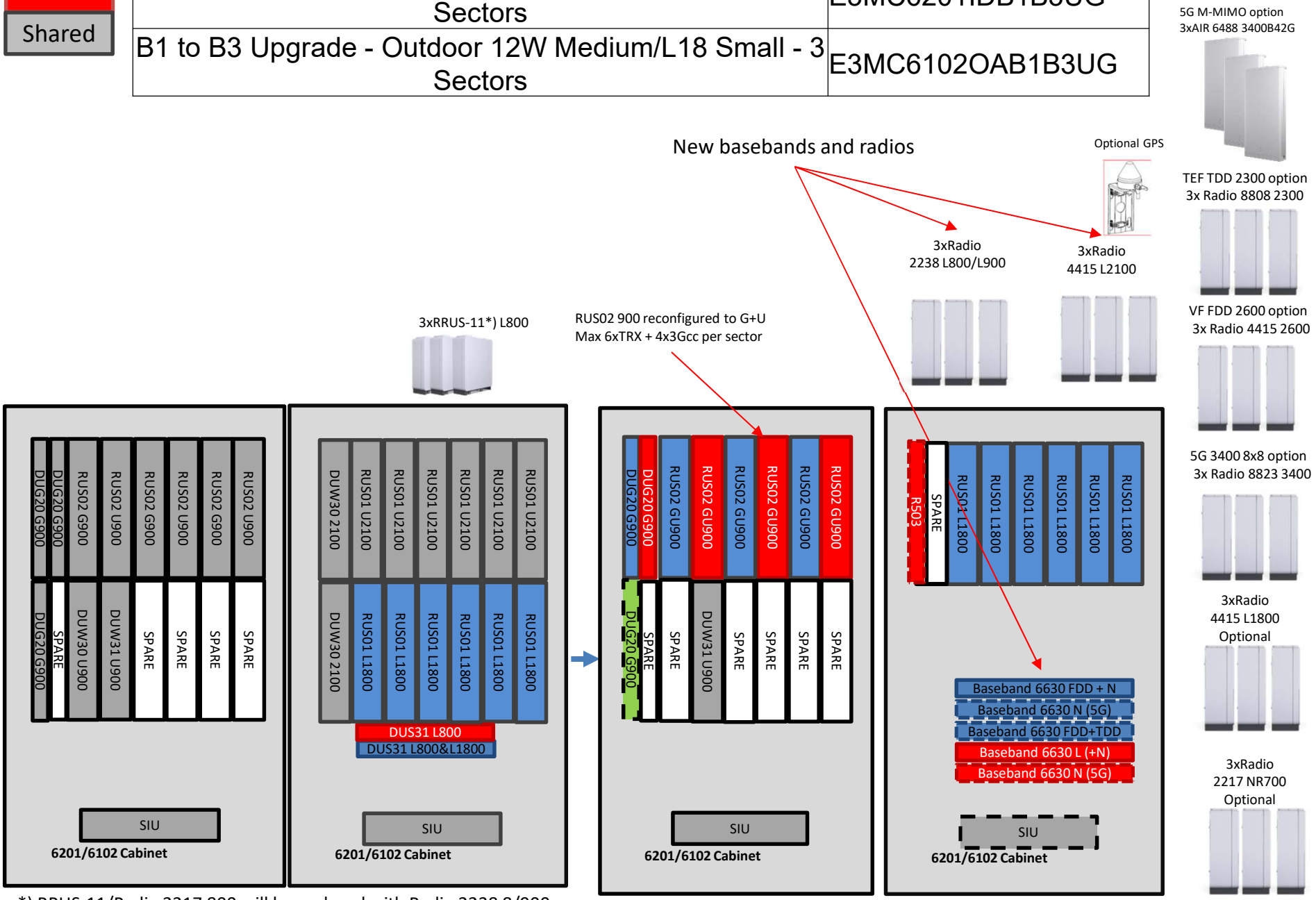


*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

**) Reused DUW31 is installed

TF
VF
Shared

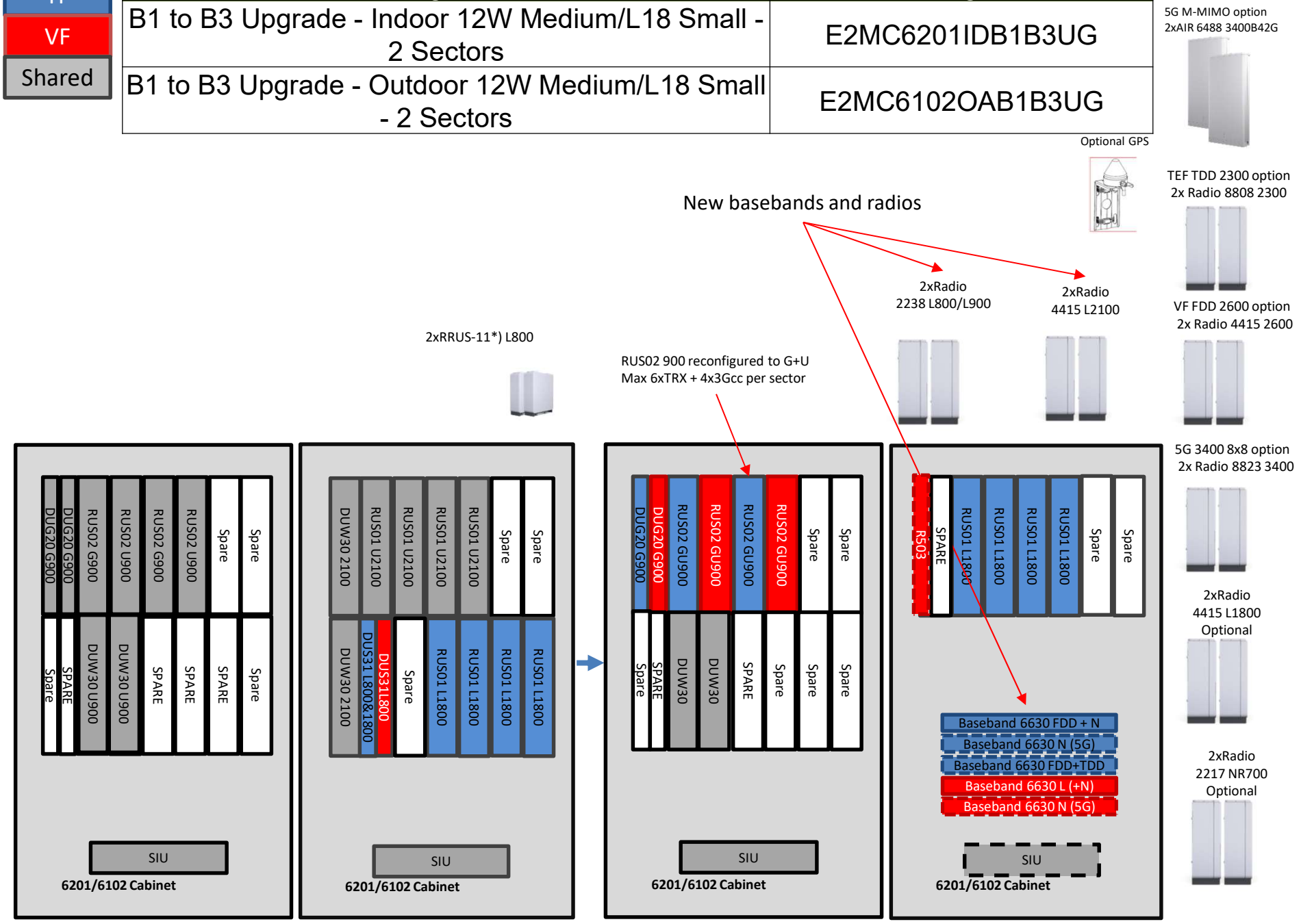
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W Medium/L18 Small - 3 Sectors	E3MC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W Medium/L18 Small - 3 Sectors	E3MC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

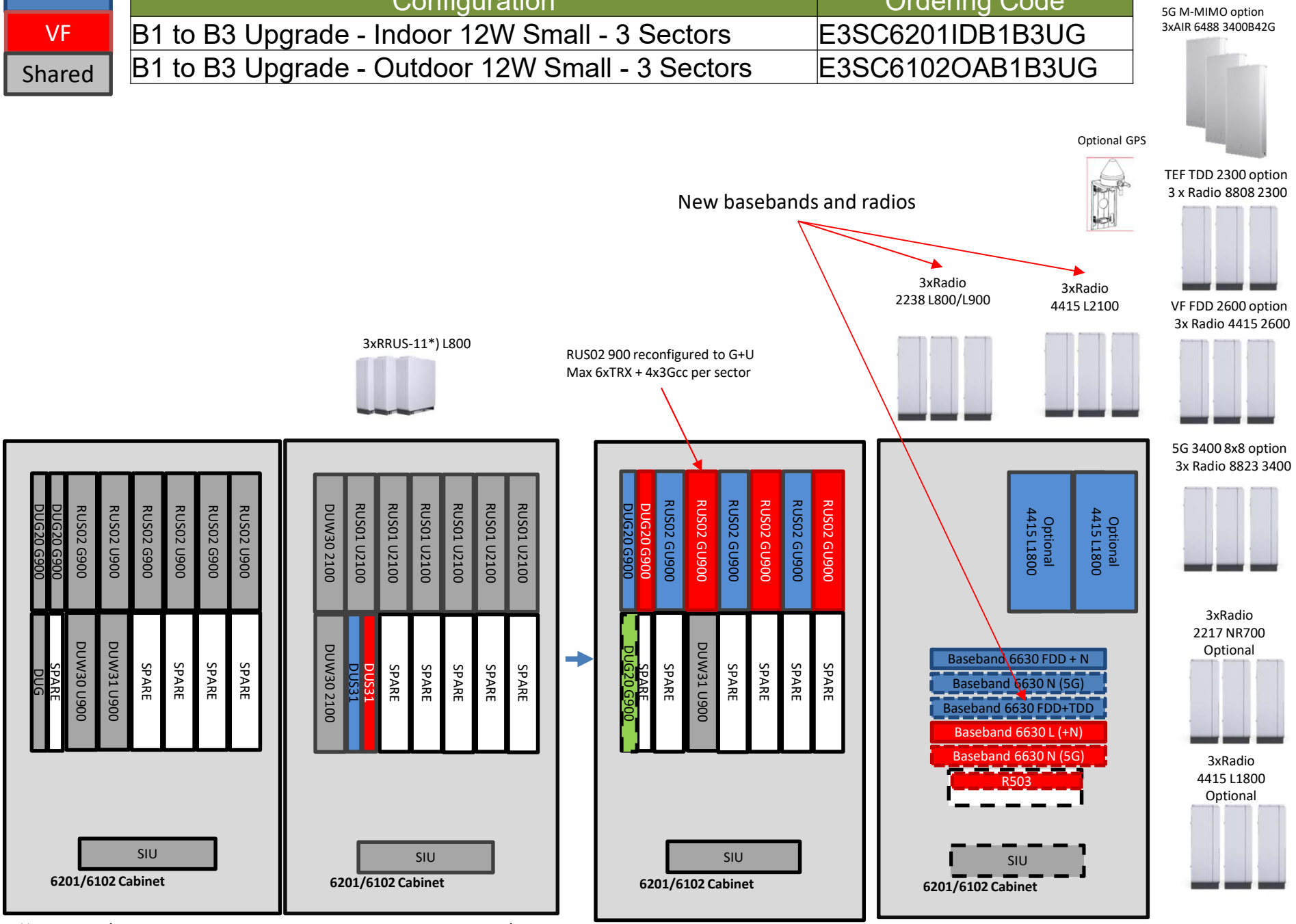
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W Medium/L18 Small - 2 Sectors	E2MC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W Medium/L18 Small - 2 Sectors	E2MC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

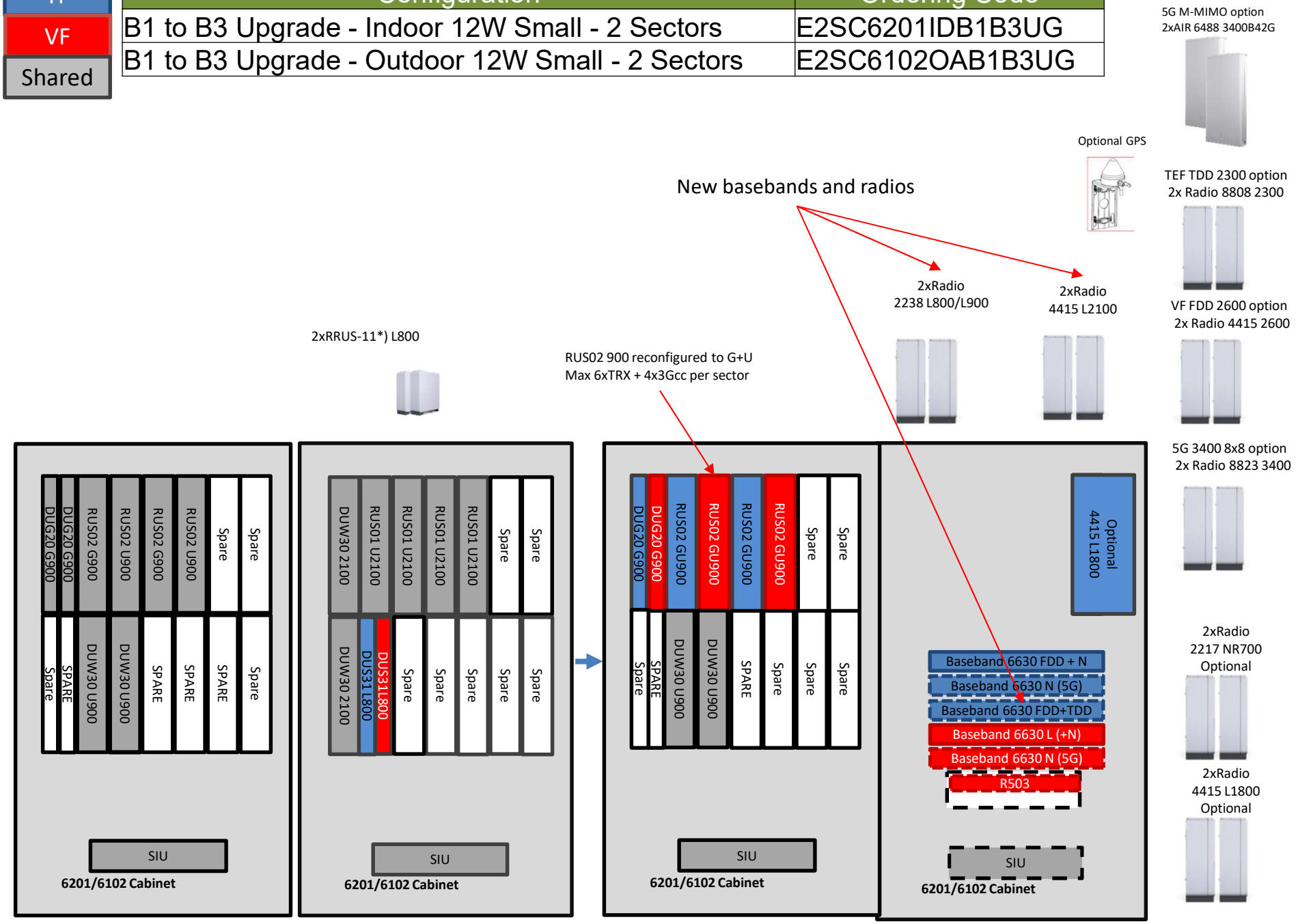
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W Small - 3 Sectors	E3SC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W Small - 3 Sectors	E3SC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W Small - 2 Sectors	E2SC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W Small - 2 Sectors	E2SC6102OAB1B3UG

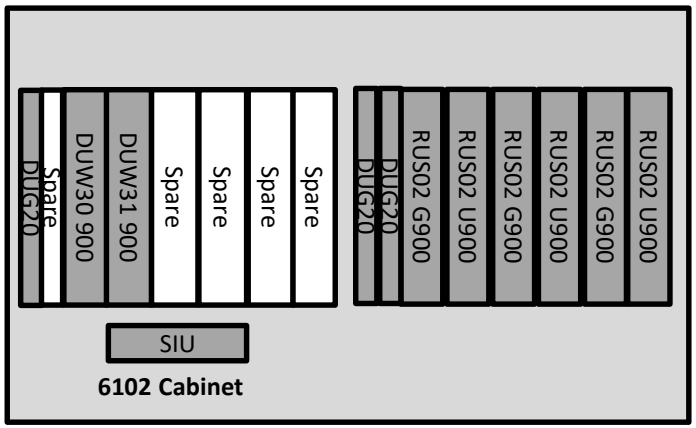


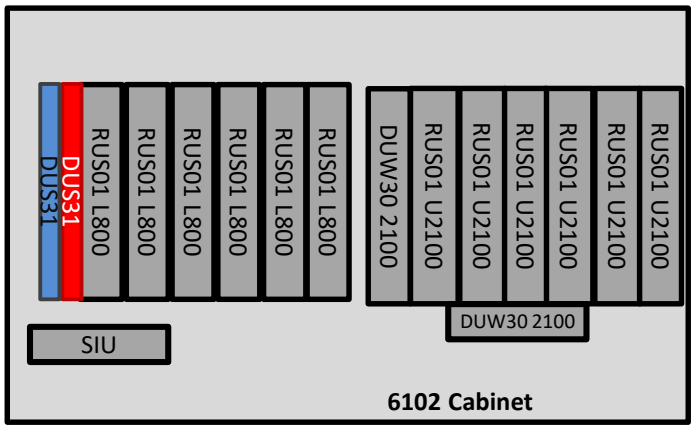
*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

**) Reused DUW30 is installed

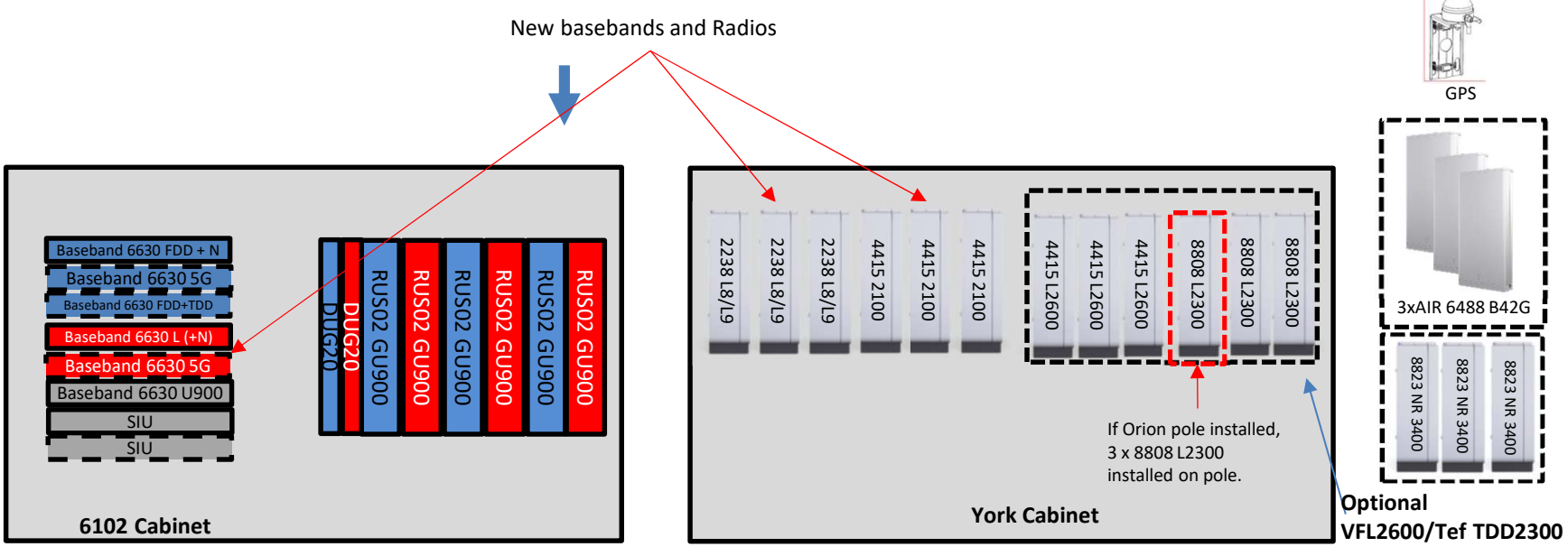
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 12W Small SF – 3 Sectors (York)	E3SC61023PPOAB1B3UG



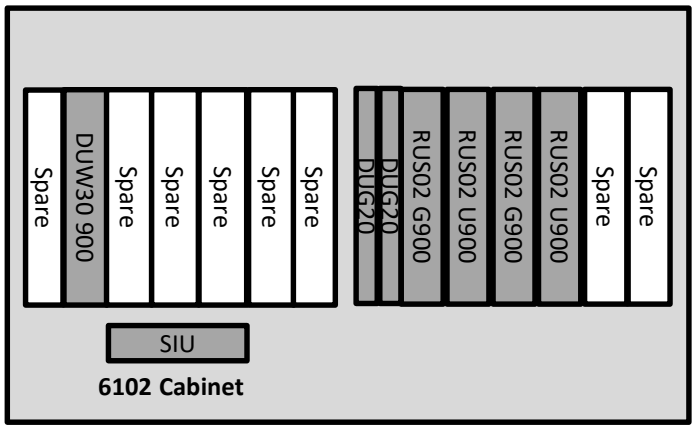


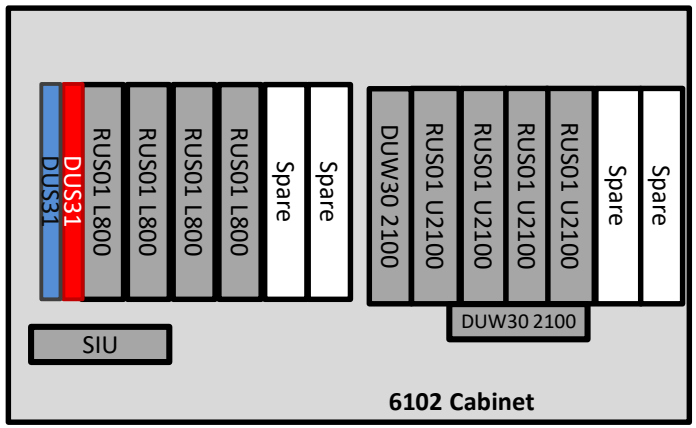
5G units mounted on Orion or Apollo pole.
GPS mounted in top of York Cabinet.

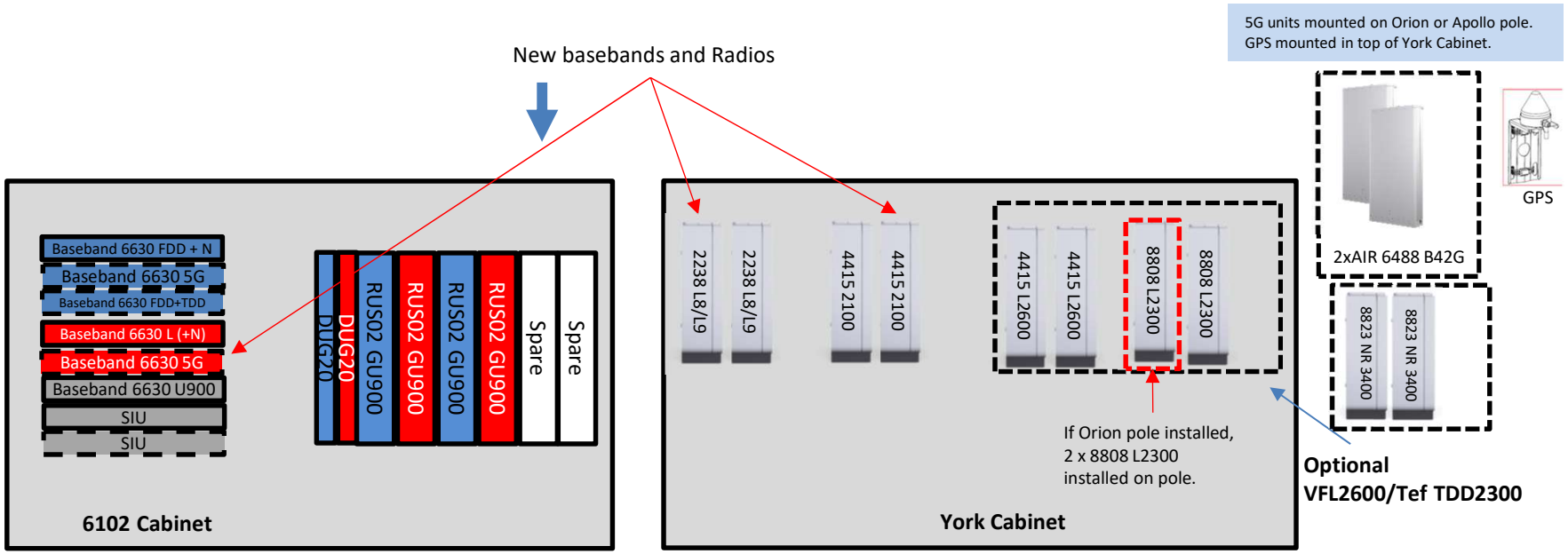


TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 12W Small SF – 2 Sectors (York)	E2SC61023PPOAB1B3UG

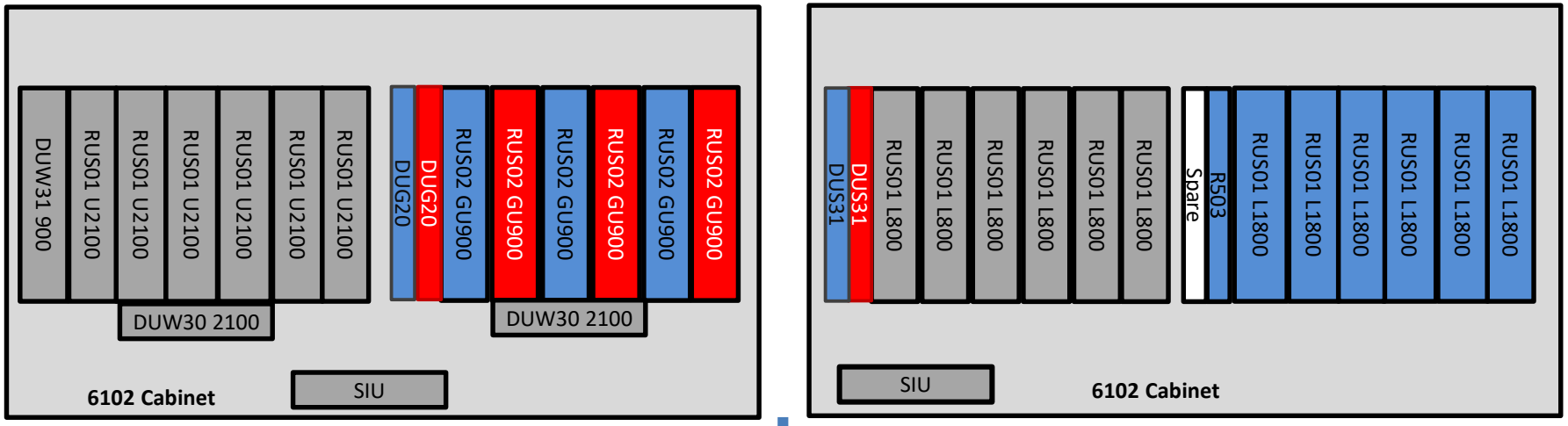






TF
VF
Shared

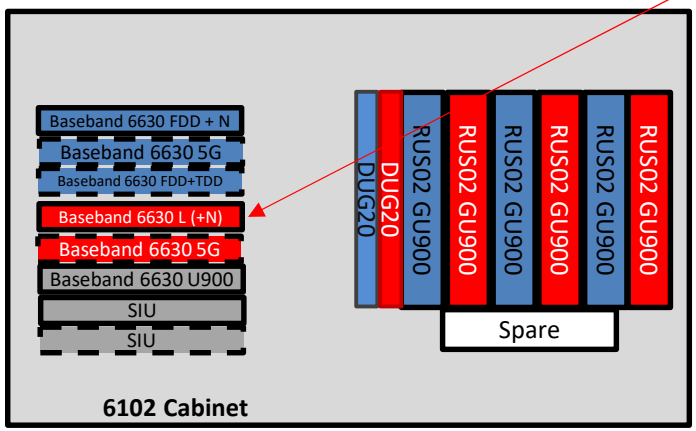
Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 12W L18 Small SF – 3 Sectors (York)	E3SC61023PPOAL18B1B3UG

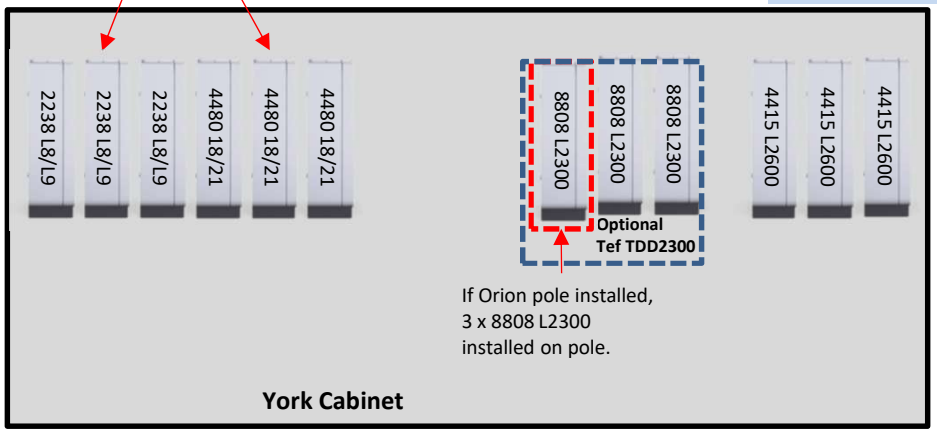


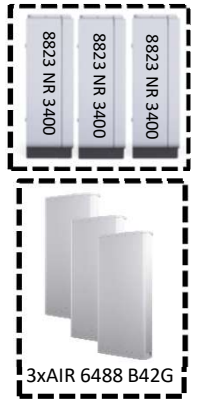
New basebands and Radios

GPS

5G units mounted on Orion or Apollo pole.
GPS mounted in top of York Cabinet.

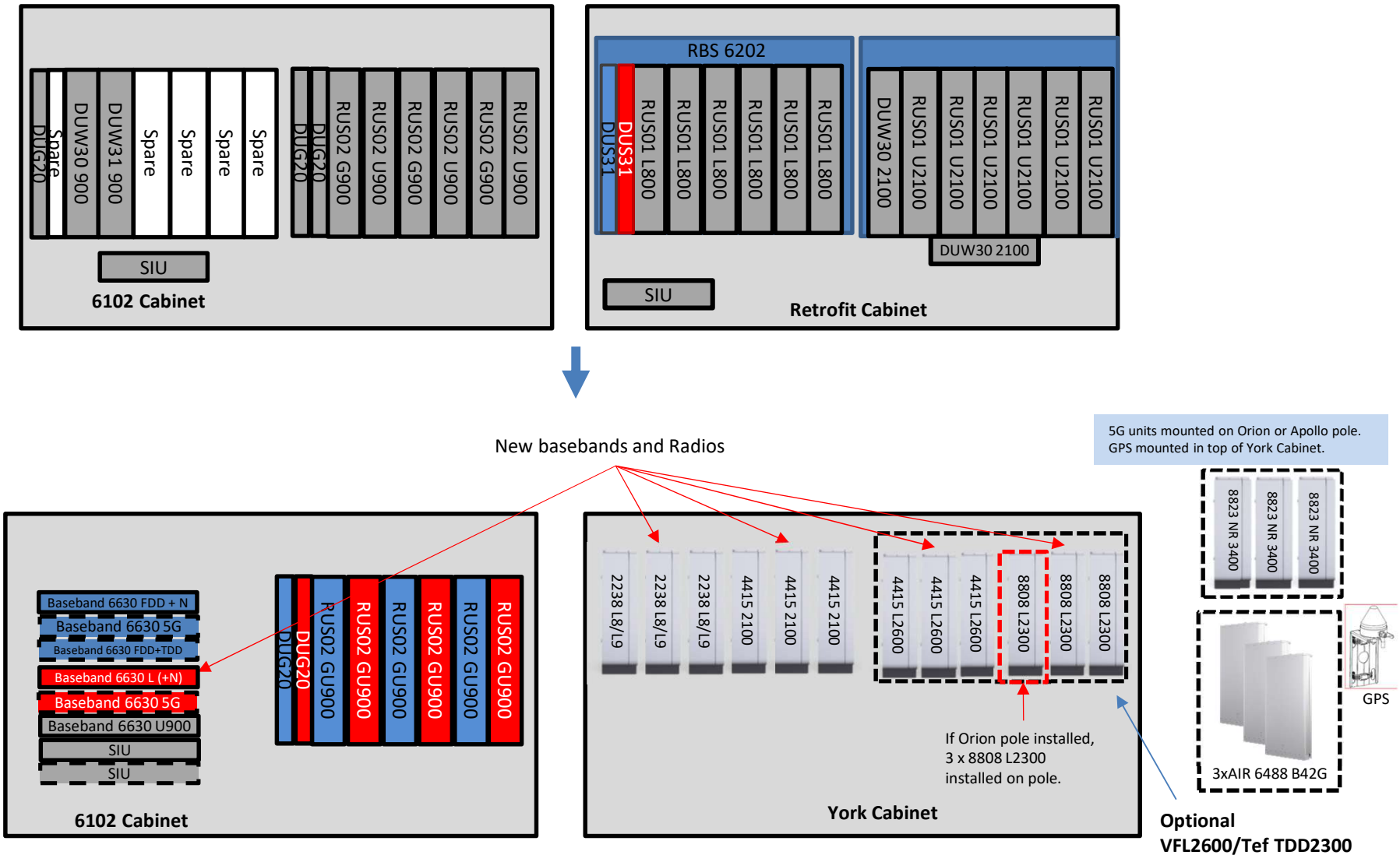






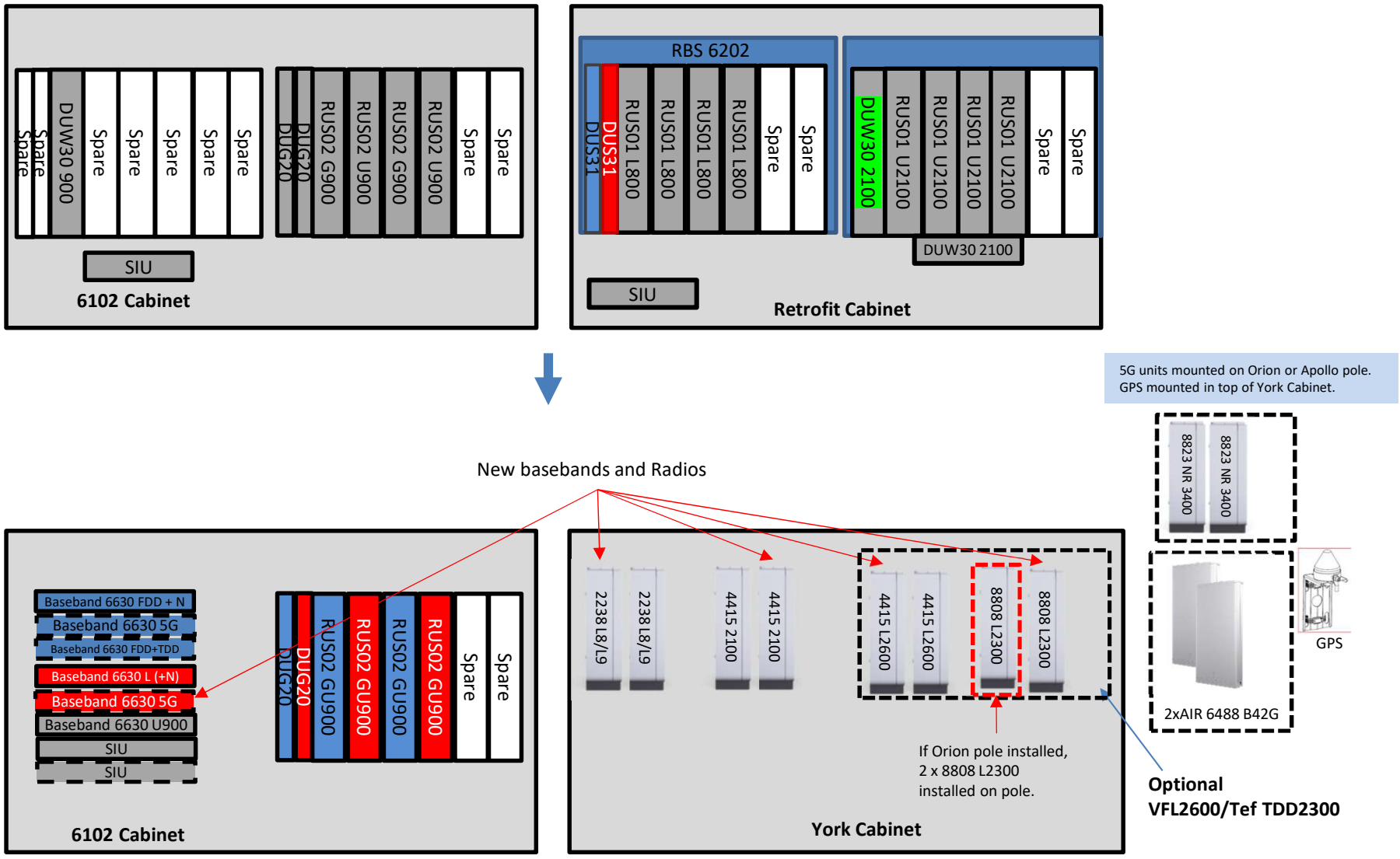
TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 12W Small SF Retrofit – 3 sectors (York)	E3SC61023PPOAB1B3UG



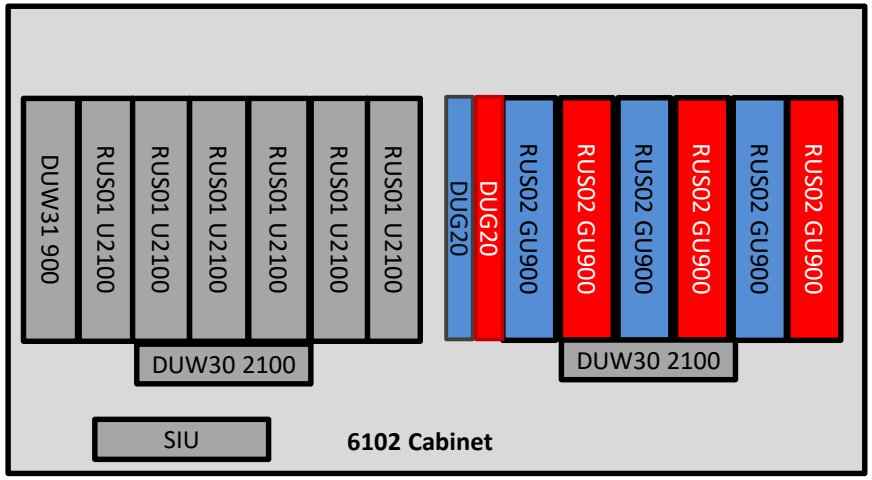
TF
VF
Shared

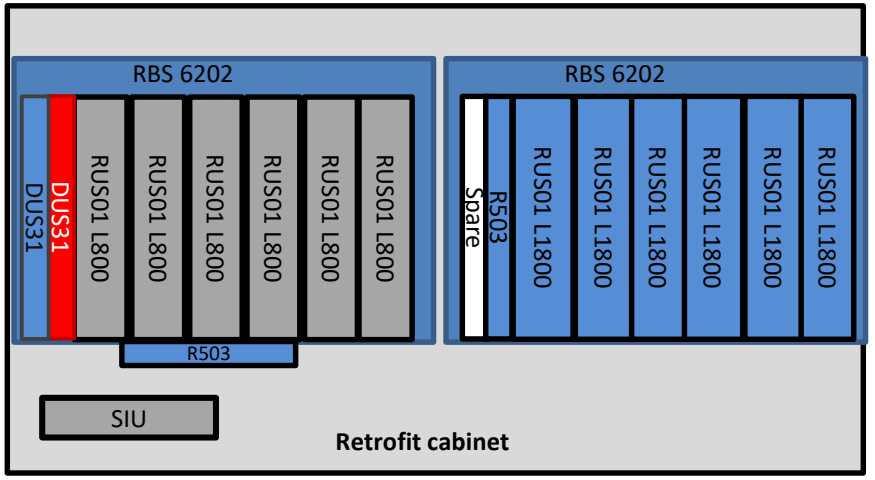
Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 12W Small SF Retrofit – 2 sectors (York)	E2SC61023PPOAB1B3UG

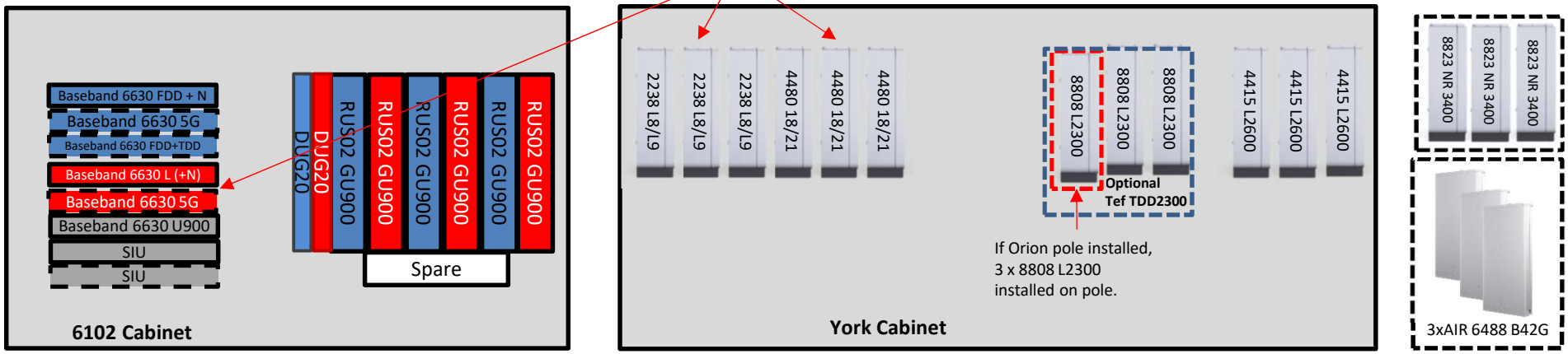


TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 12W L18 Small SF Retrofit – 3 sectors (York)	E3SC61023PPOAL18B1B3UG

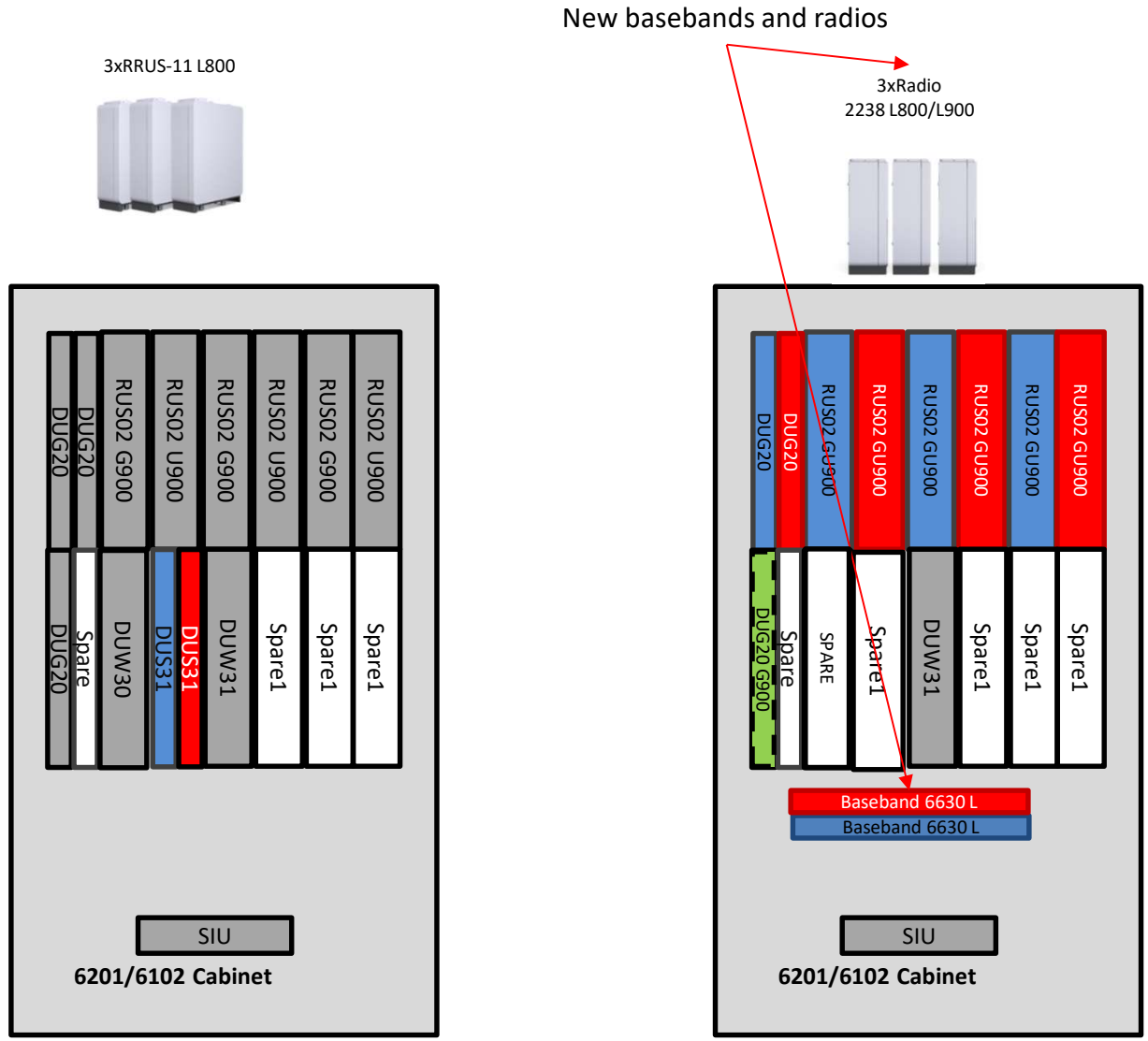






TF
VF
Shared

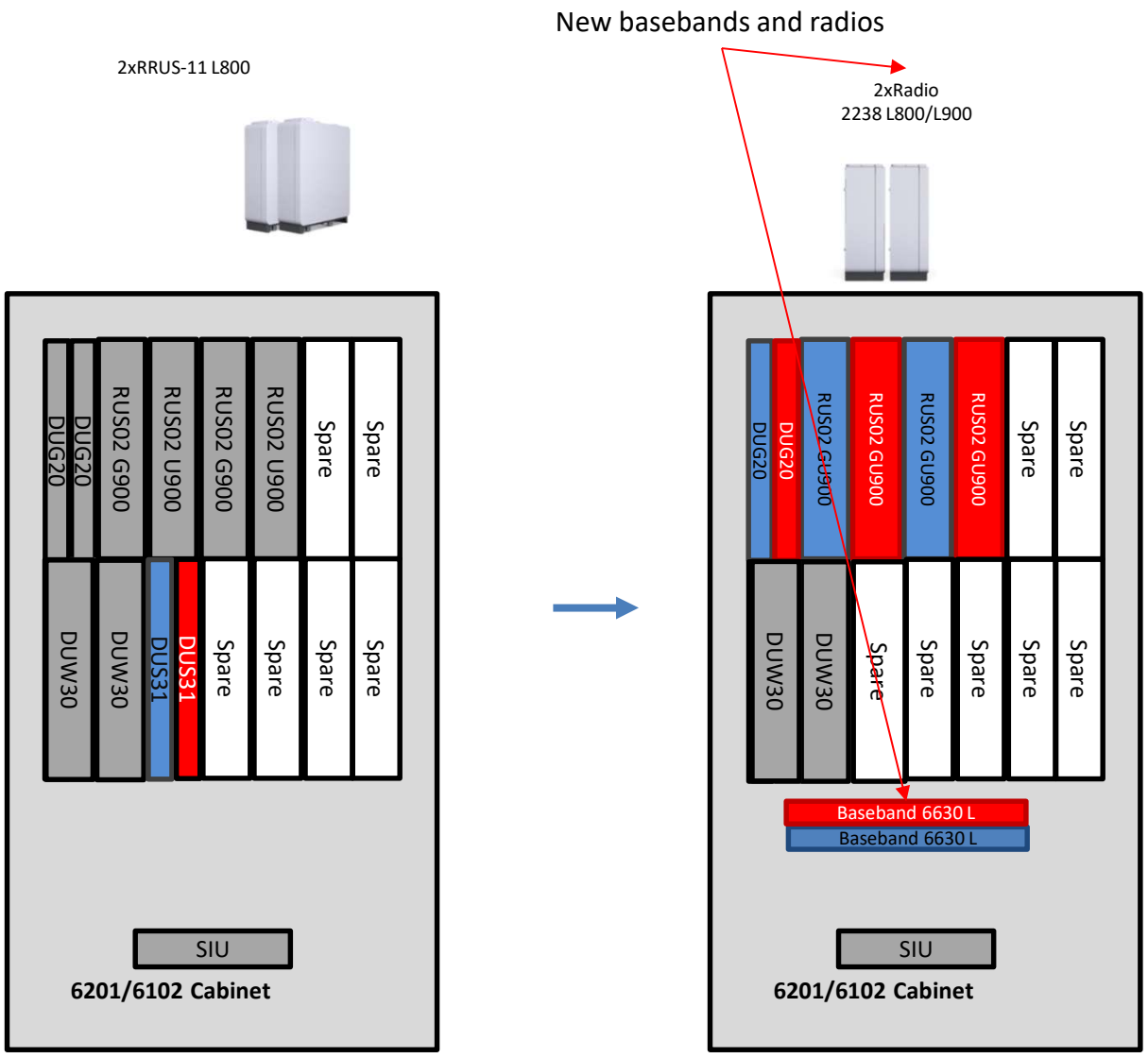
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W Low - 3 Sectors	E3LC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W Low - 3 Sectors	E3LC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

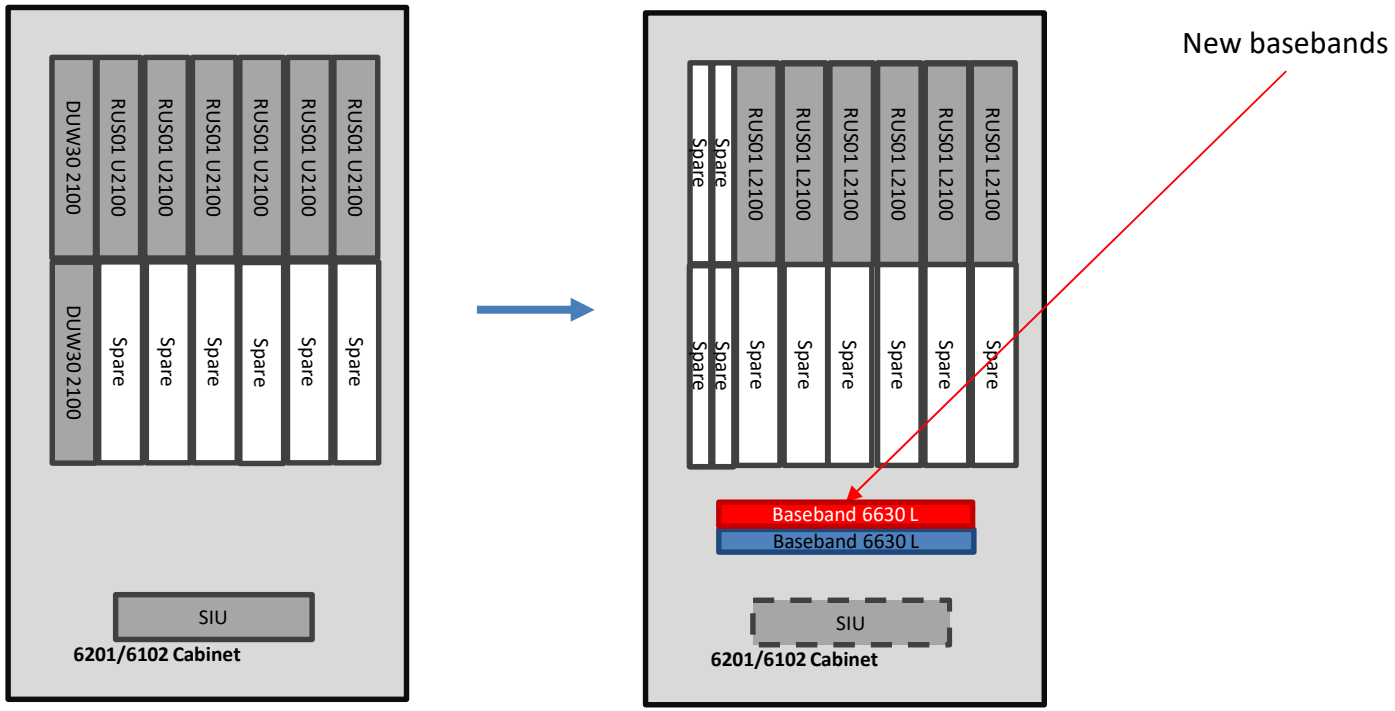
Configuration	Ordering Code
B1 to B3 Upgrade - Indoor 12W Low - 2 Sectors	E2LC6201IDB1B3UG
B1 to B3 Upgrade - Outdoor 12W Low - 2 Sectors	E2LC6102OAB1B3UG



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

TF
VF
Shared

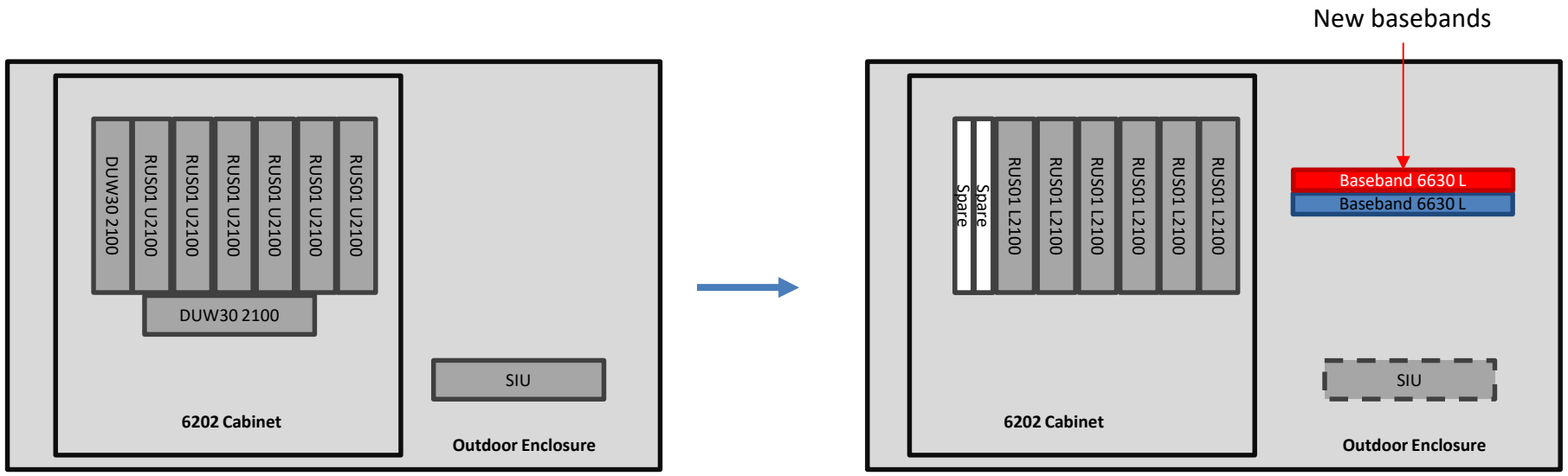
Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W L2100 RUS UU21 - 3 Sectors	E3UL21UG



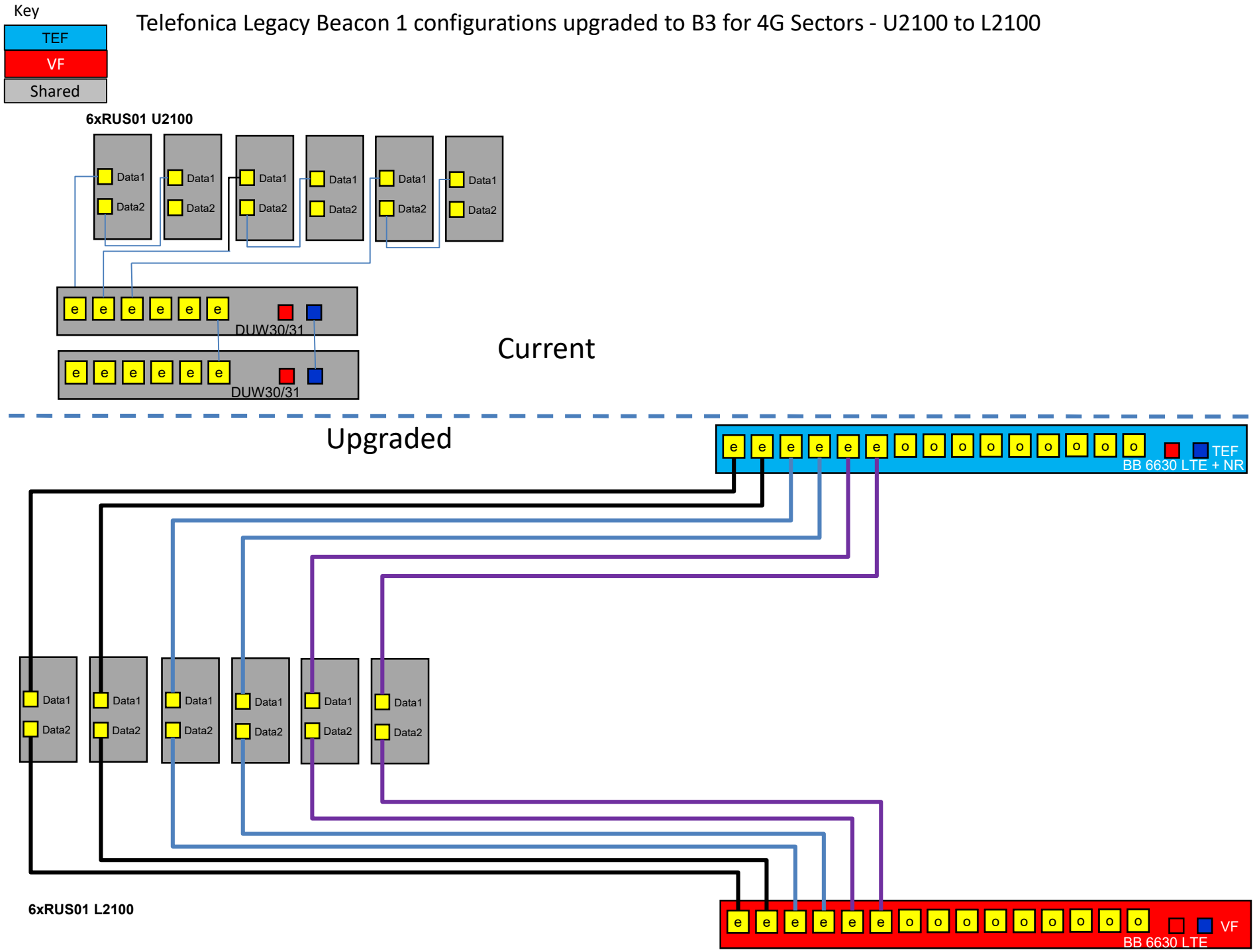
*) O2 Service Management need to agree the upgrade prior to deployment on a per site basis.

TF
VF
Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W L2100 RUS UU21 SF - 3 Sectors	E3UL21UG



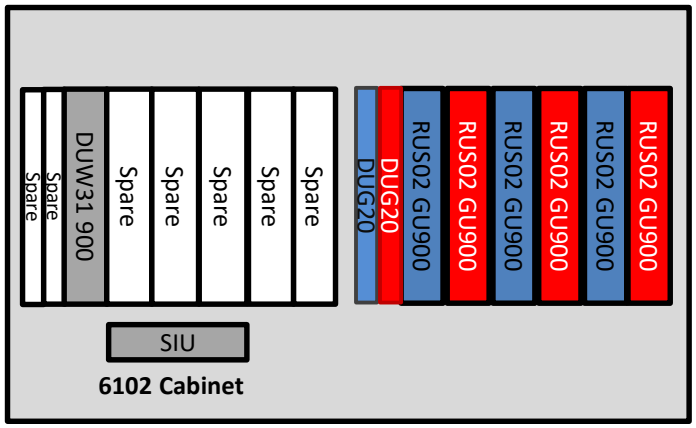
*) O2 Service Management need to agree the upgrade prior to deployment on a per site basis.

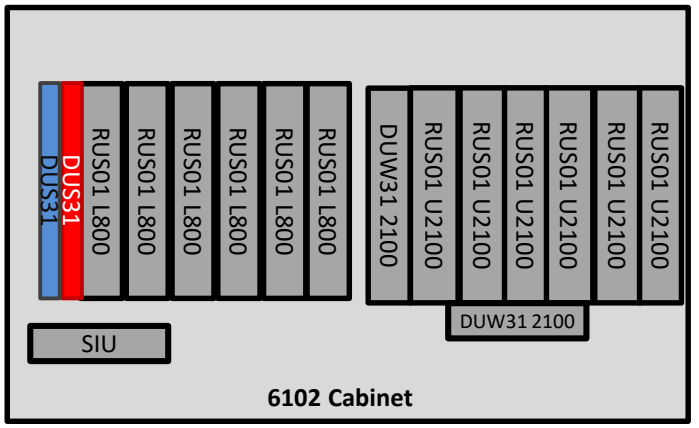

Key
TEF
VF
Shared
Telefonica Legacy Beacon 1 configurations upgraded to B3 for 4G Sectors - U2100 to L2100
6xRUS01 U2100
Data1
Data2
DUW30/31
Current
Upgraded
TEF
BB 6630 LTE + NR
6xRUS01 L2100
VF
BB 6630 LTE

TF
VF
Shared

B1 to B3 12W / 20W Small SF Upgrade or 12W / 20W L18 Small SF Upgrade - 3 Sectors - Preferred Option

B3 Upgrade Ordering Code:
6102:





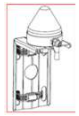
3xRadio2238 GU900/(L/NR700 TEF)
3xRadio2238 L800/L900
3 x Radio 4415 L2100 or 3xRadio 4480 L1800/L2100

TEF TDD 2300 option
3 x Radio 8808 2300

VF FDD 2600 option
3x Radio 4415 2600

5G 3400 8x8 option
3x Radio 8823 3400

GPS



Option 3xAIR 6488 B42G

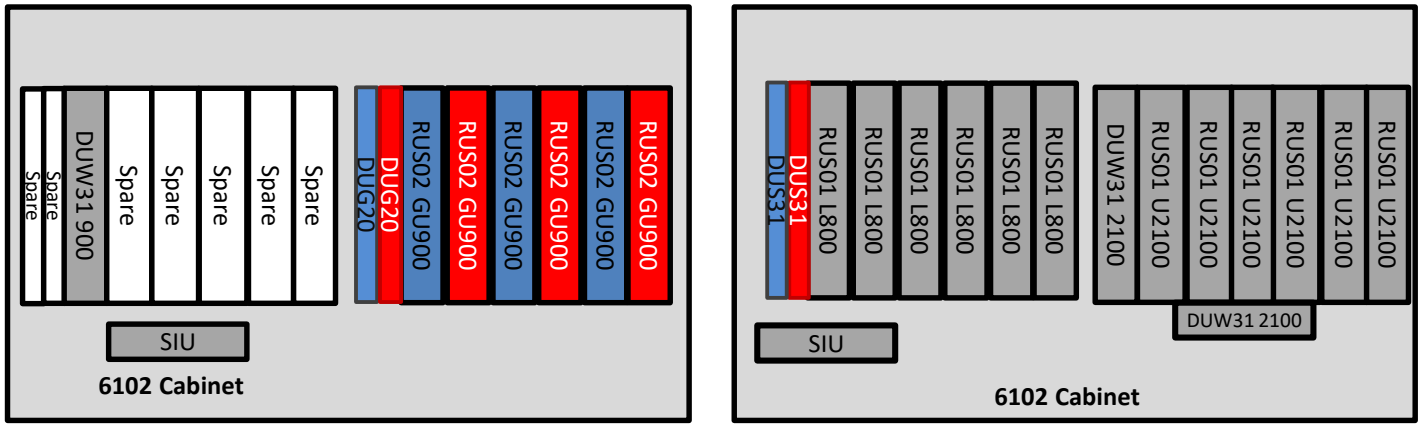
Note: For implementation of SF site with Orion pole and Yorkshire cabinet, see New Build SCD, UKRE/19/143.

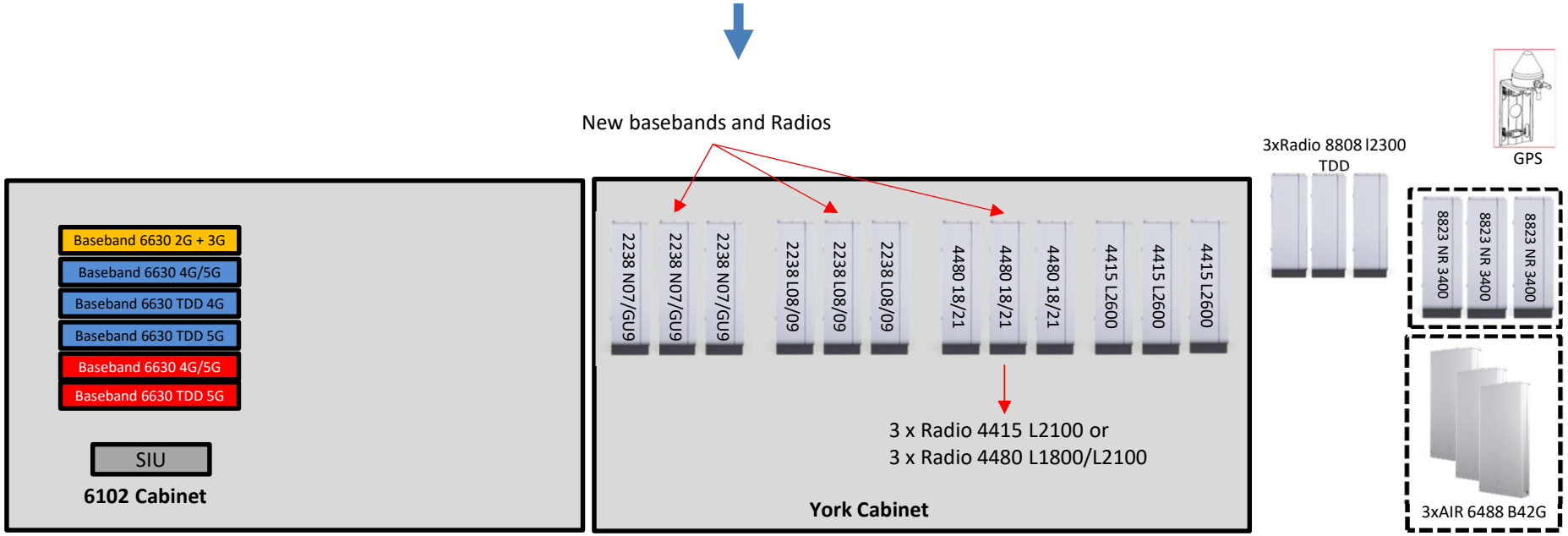
TF

VF

Shared

Configuration	Ordering Code
B1 to B3 Upgrade - Outdoor 20W RBSERS Small SF – 3 Sectors (York)	1E3SC6102OA3PPB1B3UG
B1 to B3 Upgrade - Outdoor 20W RBSERS L18 Small SF – 3 Sectors (York)	1E3SC6102OA3PPL18B1B3UG





Appendix 1

Equipment Reference

RADIO 2238 B8,B20,B28B

- 2TX/2RX – 2x120W FDD
  - Power shared between bands.
  - Per Band 2x60W Max (other bands share the Remainder of power)
  - Capable to operate as triple-band or dual-band radio.
  - Dual band support can require use of external filters dependent national regulations.
  - No inbuilt support for use as dual band B8 B20 in co-exist with DTV above 698 MHz.
- IBW:
  - Full band in each of bands
- 2 Antenna ports, each port shared by three bands
  - 4.3-10 plus (f) or equivalent
- LTE, WCDMA, GSM, NB-IoT
- 2.5; 4.9; 9.8; 10.1 Gbit/s CPRI
- 380mm x 335mm x 240mm
- 31 liter, 30 kg
- Portrait or bookshelf mounting
- -48 VDC
- AISG TMA & RET support via RF ports and RS-485
- Fan module not supported
- 2 external alarm
- IP 65, -40 to +55˚C

Carrier Configurations Examples

Radio 2238	B8	B20	B28B	Total	
Power Config #1	40	40	40	120	[W]
Power Config #2	60	60	0	120	[W]
Power Config #3	60	0	60	120	[W]
Power Config #4	60	30	30	120	[W]

RADIO 4480

- Dual band
- Up to 4TX/4RX per band
- Up to 4x60W per band (B7, B28: 4x40W)
- Up to 4x80W total without fan
- Up to 4x100W total with fan
- G, W, L, NR, NB-IoT with GSM in mixed mode
- 2x 2.5/4.9/9.8/10.1 Gbps CPRI
- 26.5 liter 32 kg (B1 B3, B2/B25 B66A, B1 B7, B3 B7)
  - 34 liter 38 kg (B0A B28, B8 B28, B5 B28)
- -48 VDC 3-wire or 2-wire (different cable connectors)
- AISG TMA & RET support via RS-485 or RF connectors
- 2 external alarm
- Optional fan for increased site flexibility and increased output power
- Convectional cooling
- IP 65, -40 to +55°C

RADIO 8823

- 8TX/8RX
- Support split mode (2 x 4T4R or 4 x 2T2R as multi-sector solution)
- Tx Power 8x20W
- 200MHz IBW TDD
- Up to 3 carriers
- Up to 100MHz NR
- Up to 40MHz LTE + 40MHz NR mixed mode
- 2x10.1Gbps CPRI
- 20 liter, 20kg
- Support NEX10 RF connector
- External antenna calibration
- -48 VDC 2-wire
- AISG RET support via RS-485
- 2 external alarm
- Convectional cooling
- IP 65, -40 to +55˚C

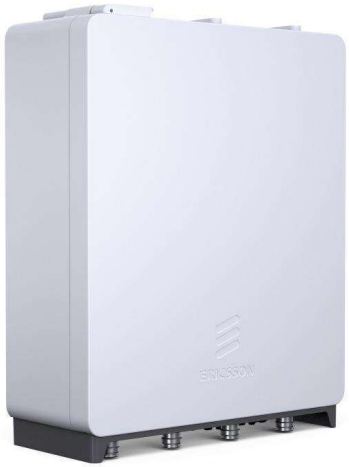
RADIO 2217

- 2TX/2RX, 4TX/4RX by use of two 2217
- 2x40W, FDD, WCDMA, LTE
- Up to 6 carriers WCDMA
- Up to 40 MHz LTE carriers (max 3 carriers)
- 2x 2.5/4.9/9.8 Gbps CPRI
- Antenna ports 2 x 4.3-10 (f)
- -48 VDC
- AISG TMA & RET support
- 2 external alarm
- Optional fan for increased site flexibility
- IP 65, -40 to +55˚C
- Maximum power consumption for B1 <300W
- Supported bands: B20, B8, B3, B1, B7A
- Dimensions without Fan Unit (H/W/D) mm: 351/298/128
- Dimensions with Fan Unit (H/W/D) mm: 351/298/138
- Weight 12-13kg
- IBW: 35MHz-B8*, 30MHz- B20, 40MHz- B1, 45MHz- B3*, 50 MHz-B7A
- OBW: 35MHz-B8*, 30MHz – B20, 40MHz- B1, 45MHz B3*, 50 MHz-B7A

*) 1.4 and 3 MHz LTE carriers within 20 MHz IBW

RADIO 4415

- 4TX/4RX
- Supported bands: B1, B3, B7A
- Up to 4x40W
- Up to 8 carriers GSM in MSR
- Up to 8 carriers WCDMA
- Up to 6 carriers LTE in MIMO
- 2x 2.5/5/9.8/10.1 Gbps CPRI
- Antenna ports 4 x 4.3-10 (f)
- -48 VDC
- AISG TMA & RET support
- 2 external alarm
- Optional fan for increased site flexibility
- IP 65, -40 to +55˚C
- 21 kg, 22.5kg with Fan Unit
- Dimensions without Fan Module (HxWxD): 380x335x137 mm (17l)
- Dimensions with Fan Module (HxWxD): 380x335x157 mm (20l)
- IBW*: B7A, B1 - 60MHz, B3-40MHz
- Power consumption for max load: 570-660 W



Optional FAN

*) 20 MHz IBW for GSM or LTE1.4/3MHz carriers

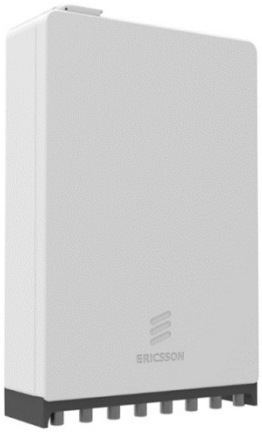
RADIO 2212

- 2TX/2RX, 4TX/4RX by use of two 2212
- Up to 2x80W
- Up to 75 MHz IBW
  - 20 MHz IBW for GSM or LTE1.4/3MHz carriers
- Up to 8 carriers GSM
- Up to 8 carriers WCDMA
- Up to 6 carriers LTE in MIMO
- 2x 2.5/4.9/9.8/10.1 Gbps CPRI
- 17 liter, 18kg for high bands, 20kg for low bands
- -48 VDC 3-wire (2-wire with adapter)
- AISG TMA & RET support via RS-485 or RF connectors
- 2 external alarm
- Optional fan for increased site flexibility
- IP 65, -40 to +55˚C
- Dimensions without Fan Module (HxWxD): 420x342x123 mm
- Power consumption for max load: 570 - 660W
- Supported bands: B8, B1

Optional FAN

RADIO 8808

- Frequency band: 2300 ofcom compliant
- 8TX/8RX
- Up to 8x20W
- 60 MHz IBW TDD
- Up to 3 LTE carriers
- Support 2 4T4R split mode
- 2x 2.5/5/9.8Gbps CPRI
- Power supply 2-wire DC -48V
- AISG RET support
- External antenna calibration
- 2 external alarm
- IP 65, -40 to +55˚C
- Dimensions: HxWxD 450x335x143 mm
- Weight: 22Kg
- Heat dissipation: @8x20w 0.553kw



On the picture is shown a version of Radio 8808 with N type connectors. The version planned for UK is with 4.3 -10 connectors.

ENCLOSURE 6140

Main characteristics

- Power systems
  - DC distribution: 15x CB
  - AC ≤ 8 kW (200 A) DC power
    - 15x CB (6x Prio + 9x Main)
  - 12Ah-210Ah internal batteries
  - Additional DC distribution as option (15x CBs)
- Climate system
  - HEX / DAC (for battery compartment)
  - Designed for self-sustained equipment
  - Temp. range: -33°C - +50°C (Heater optional)
- Mechanical
  - 10U equipment space (19”) + up to 210Ah (AC Config)
  - 21U equipment space (19”) (DC Config)
  - IP55
  - HxWxD: 1607x700x752 mm
  - Weight: 190kg (AC Config)
- Control
  - Integrated with OSS/ENM
  - External alarms

ENCLOSURE 6150

- Power systems
  - AC: ≤ 8 kW (200 A) DC power
    - 15x CB (6x Prio + 9x Main)
  - AC: ≤ 20 kW (400 A) DC power
    - 31x CB (6x Prio + 25x Main)
  - 12Ah-210Ah batteries
  - Additional DC distribution as option (15x CBs)
- Climate system
  - HEX / DAC or A/C (for battery compartment)
  - Designed for self-sustained equipment
  - Temp. range: -33°C - +50°C (Heater optional)
- Mechanical
  - 9U/13U/24U equipment space (19”) + up to 420Ah battery back-up (AC Config)
  - IP55
  - HxWxD: 2050x800x740 mm
  - Weight: 230kg (AC Config)
- Control
  - Integrated with OSS/ENM
  - External alarms

ENCLOSURE 6320

Main characteristics

- Power system
  - DC Distribution
- Climate system
  - HEX
  - Temp. range: +5°C - +50°C
- Mechanical
  - 12U equipment space (19”) (DC Config)
  - IP55
  - HxWxD: 905x520x585 mm
  - Weight: 60kg (empty)
- Control
  - Integrated with OSS/ENM
  - External alarms

ENCLOSURE 6147

- Space for up to 12 ERS Radios
  - Less for upcoming dual-band
- ERS Rail system
  - 2x rails
- No active components
  - Natural convection
- Cost effective solution
- Delivered as flatpack or assembled
  - Site dependent
- Scalable system

ENCLOSURE 6147

- Dimensions:
  2064 x 1100 x 680mm (H x W x D)
- Weight: 209kg
- Galvanized steel (G60, 182g/m2)
- Powder paint (NCS 2002-B)
- IP20
  - No access using finger/tool
- Vandal/theft RC1 with additional brace
  - Hand tools
- Combiners in base frame / rail bracket

ENCLOSURE 6215

- **Capacity**
- ERS Radio Up to 12x ERS Radios
  MECHANICAL SPECIFICATION
- Weight 73 kg (excl. active equipment)
- Dimension (H x W x D) 2000 x 1100 x 676mm
- Mounting position Ground
- Enclosure material Galvanized steel

POWER 6302

- AC input 172-275VAC, 50-60 Hz
- 2.3 kW DC -48V output power
- High efficiency rectifier > 95%
- 3 separate -48VDC feeds for rail Radio
- 3 separate APC light interfaces
- Ericsson Rail mounting
- Max 9 kg
- Size H: 300mm W: 290mm W:90mm
- Convection cooled
- IP 65, -40 to +60°C

BASEBAND 6620 AND 6630

- LTE, WCDMA and GSM capacity and Mixed Mode capability
  - Baseband 6630 equivalent to Baseband 5216
  - Baseband 6620 equivalent to Baseband 5212

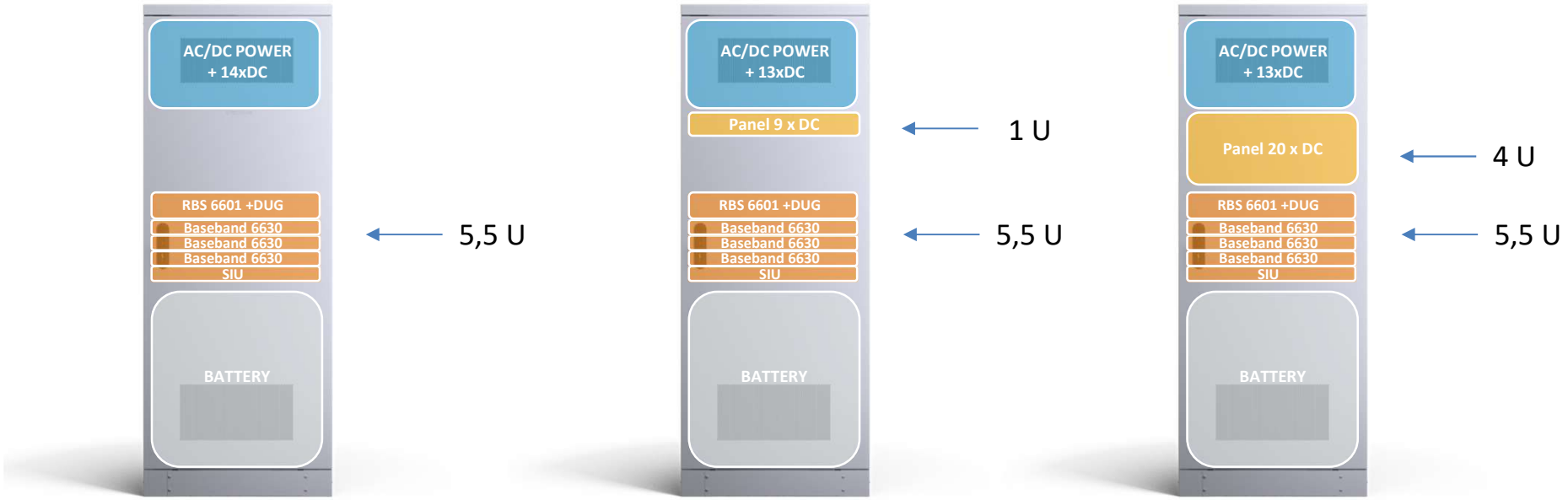
- Optimized for main-remote configurations
  - 19 inch wide, 1U high, <350mm deep
  - 15 SFP/SFP+ for CPRI inter-connect to Radio Units
  - Eight External Alarm ports
  - Dual 48V DC power feeding
  - Self-contained environmental control & fans

ENCLOSURE 6140

9xDC and 8KW available for
ERS Radios
Low Capacity (6xERS)

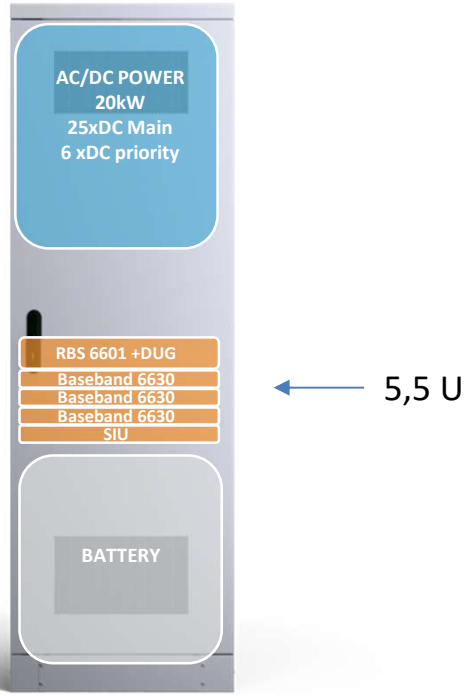
17xDC and 8kW available for
ERS Radios
Small Capacity (15xERS)
Network Rail (15xERS)

32xDC and 8kW available for
ERS Radios
Medium Capacity (18xERS)
Stealth Capacity (18xERS)



Space available for baseband/transport and additional DC panels – 10U

ENCLOSURE 6150



20kW available for ERS Radios and basebands
Small Capacity (15xERS)
Network Rail (12xERS)
Stealth Capacity (15xERS)
Medium Capacity (18xERS)

Space available for baseband/transport and additional DC panels – 10U

Appendix 2

Archived Configurations

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B3 Upgrade of B1 20W Small 1800RRU U2100 RRU – 3sectors

B2 Upgrade Ordering Code:
6102: 1E3SC6102OAL18RB2UGL21AD6
6201: 1E3SC6201IDL18RB2UGL21AD6

5G M-MIMO option
3xAIR 6488 3400B42G

Optional GPS

TEF TDD 2300 option
3x Radio 8808 2300

VF FDD 2600 option
3x Radio 4415 2600

5G 3400 8x8 option
3x Radio 8823 3400

New basebands and radios

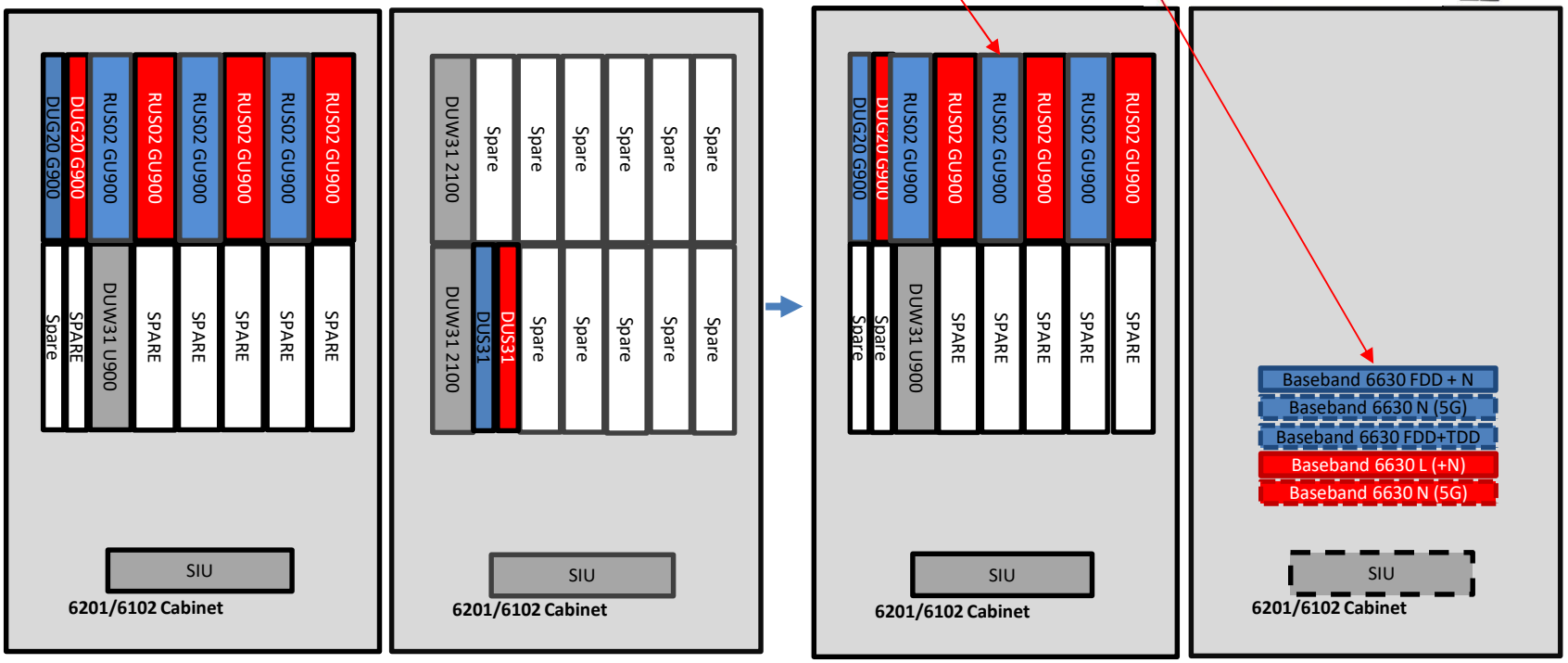
3xRadio 2217 L800 (or RRUS-11*))
3xRadio 2217 L1800
3xRadio 2217 U2100 (or RRUS12 2100)

3xRadio
2238 L800/L900

3xRadio
4415 L2100

3xRadio
2217 L1800

RUS02 900 reconfigured to G+U
Max 6xTRX + 4x3Ucc per sector



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

**)3xRRUS 12/Radio 2217 2100 will be replaced with 3xRadio 4415 2100

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B3 Upgrade of B1 20W Small 1800RRU U2100 RRU – 2sectors

B2 Upgrade Ordering Code:
6102: 1E2SC6102OAL18RB2UGL21AD6
6201: 1E2SC6201IDL18RB2UGL21AD6

5G M-MIMO option
2xAIR 6488 3400B42G

Optional GPS

TEF TDD 2300 option
2x Radio 8808 2300

New basebands and radios

2xRadio 2217 L800 (or RRUS-11*))
2xRadio 2217 L1800
2xRadio 2217 L2100

2xRadio
2238 L800/L900

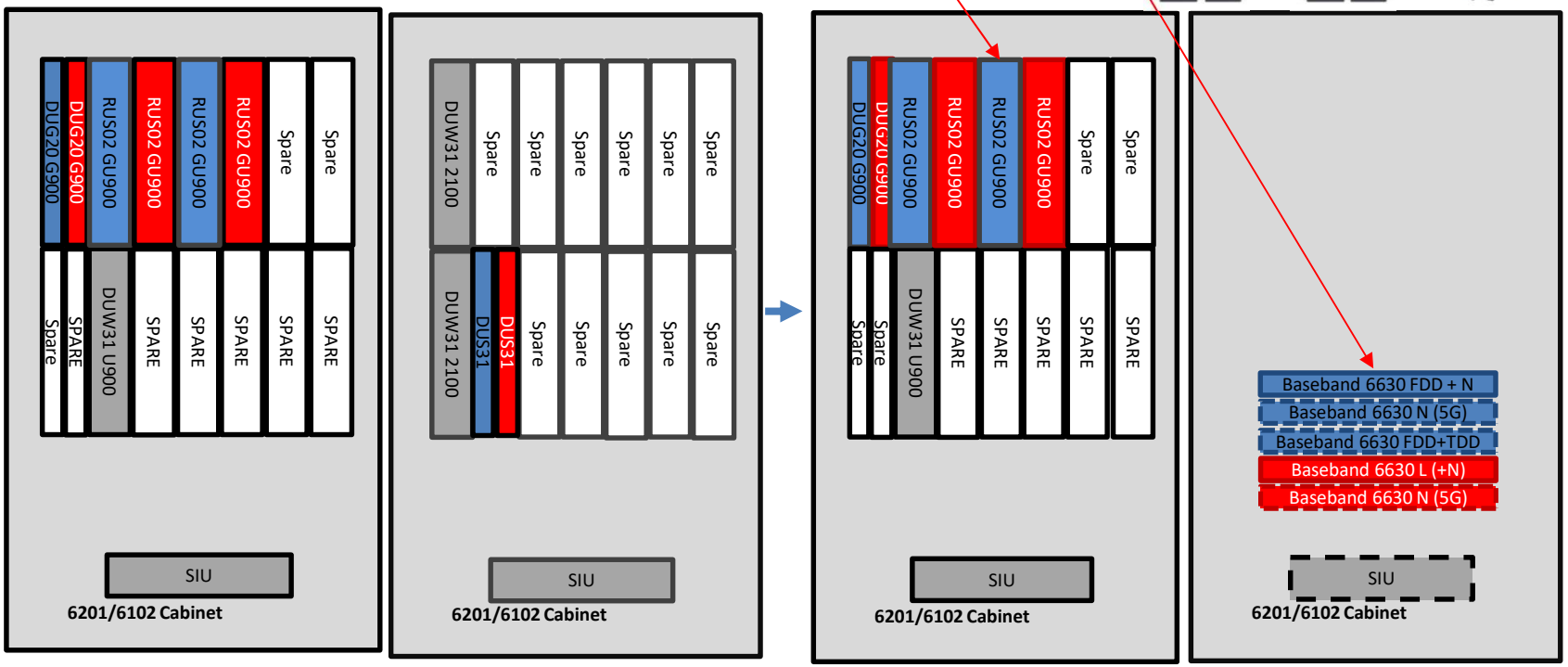
2xRadio
4415 L2100

2xRadio
2217 L1800

VF FDD 2600 option
2x Radio 4415 2600

RUS02 900 reconfigured to G+U
Max 6xTRX + 4x3Ucc per sector

5G 3400 8x8 option
2x Radio 8823 3400



*) RRUS-11/Radio 2217 800 will be replaced with Radio 2238 8/900

**)3xRRUS 12/Radio 2217 2100 will be replaced with 3xRadio 4415 2100

B3-CCR-024
CONVERT HIGH AND MEDIUM CONFIGS NOT NEEDING L1800 TO SMALL

Solution Proposal

There are Beacon 1 High and Medium sites that are deployed with G1800 technology, which is not radiating, there is also no L1800 demand. There is no upgrade available within the B2 Upgrades, or soon to be available B3 Upgrades SCD, this causes issues during the upgrade process.

This CCR requests that prior to upgrading the type of sites below, if they do not have L1800 demand, they are converted to either 12W or 20W Small configurations, depending on the sites pre-existing GSM configuration:

- RBS 6102 or RBS 6201 20W High (or High U2100 RRUS)
- RBS 6102 or RBS 6201 20W Medium (or Medium U2100 RRUS)
- RBS 6102 or RBS 6201 12W High (or High U2100 RRUS)
- RBS 6102 or RBS 6201 12W Medium (or Medium U2100 RRUS)

The existing configuration based on B2 Configuration
Upgrade consist of:

Removing the existing RUS01 or RUS02 B3
Installation materials
Services

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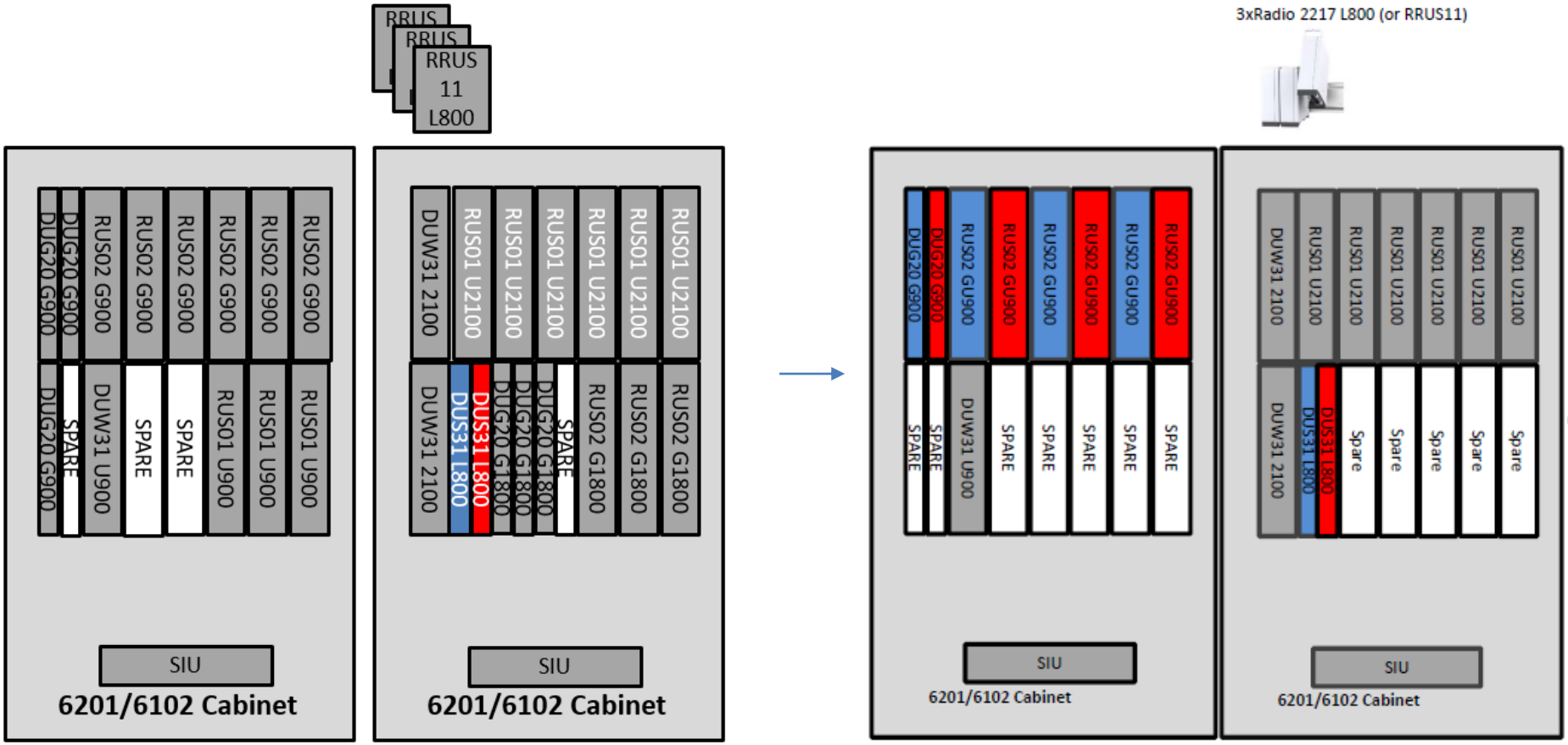
Convert High 20W to Small 20W - 3 sectors



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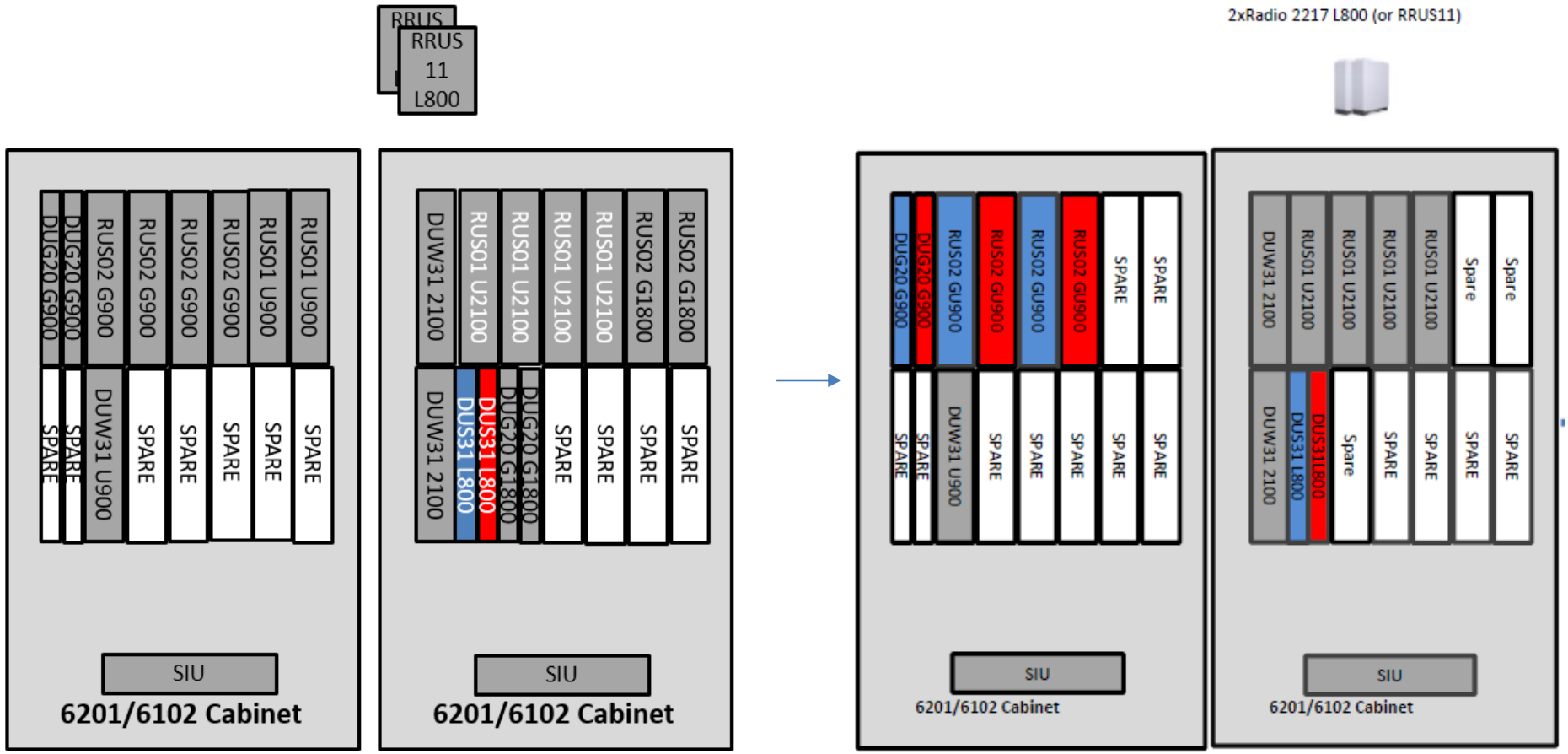
Convert High 20W to Small 20W - 2 sectors



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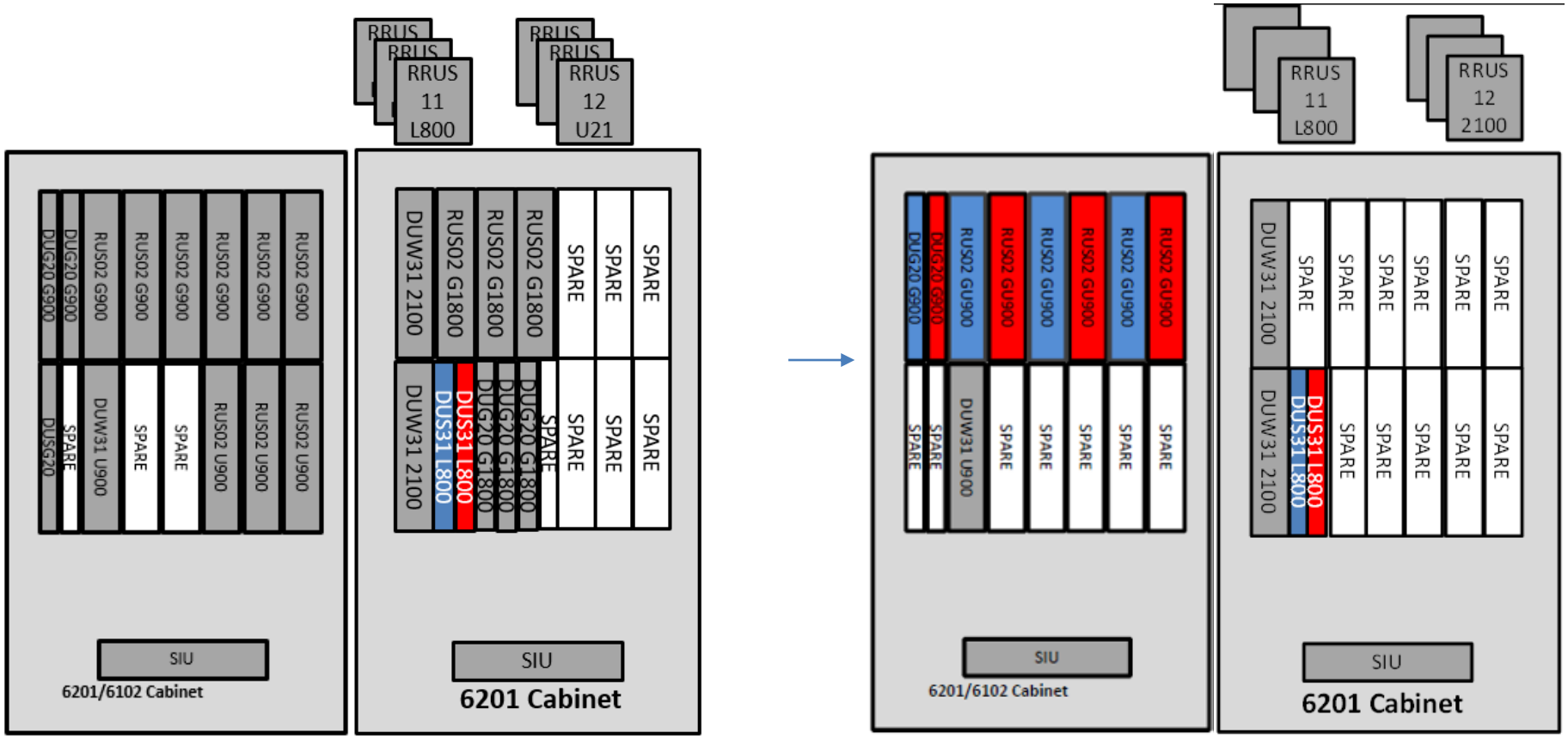
Convert 20W High U2100 RRU to 20W Small U2100 RRU - 3 sectors



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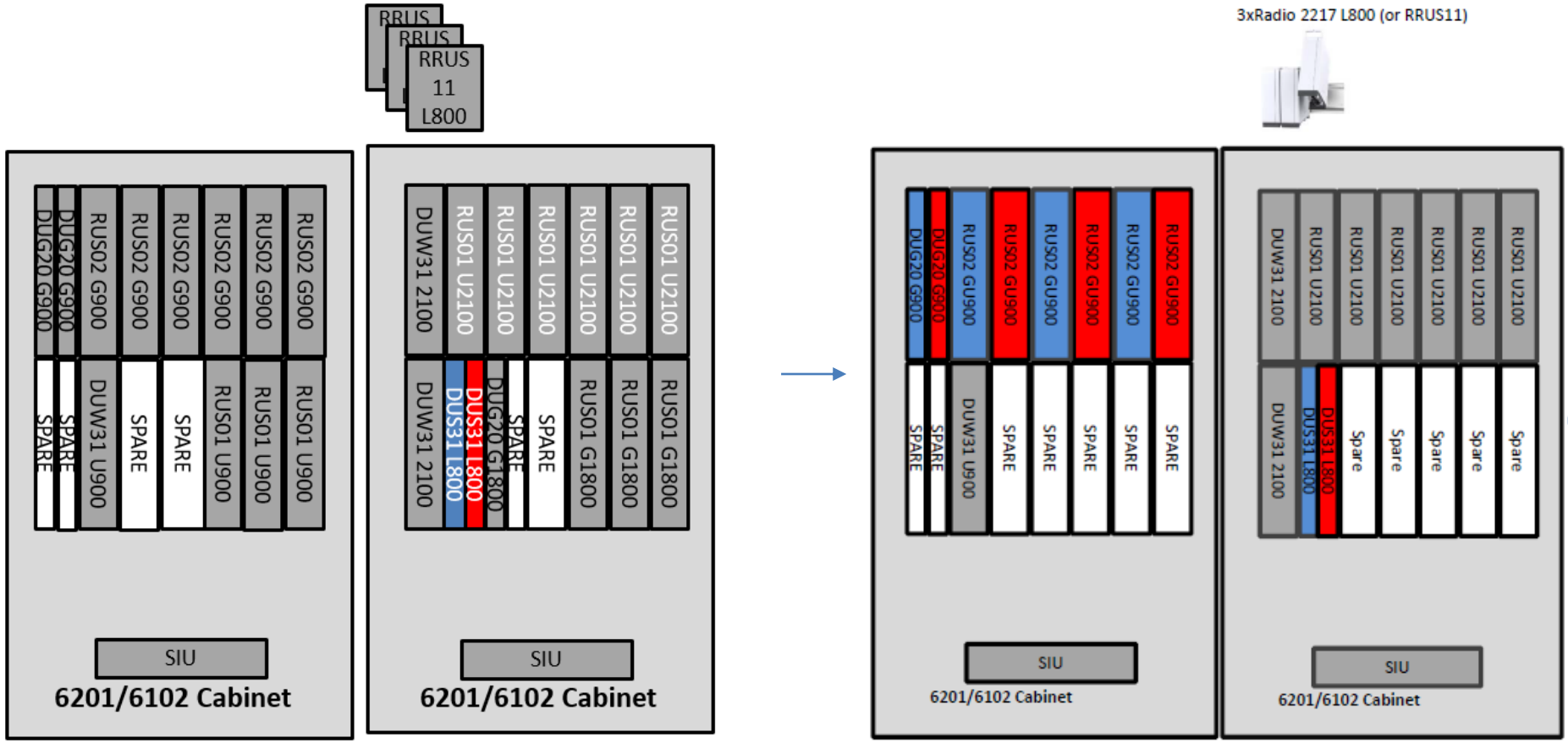
Convert Medium 20W to Small 20W - 3 sectors



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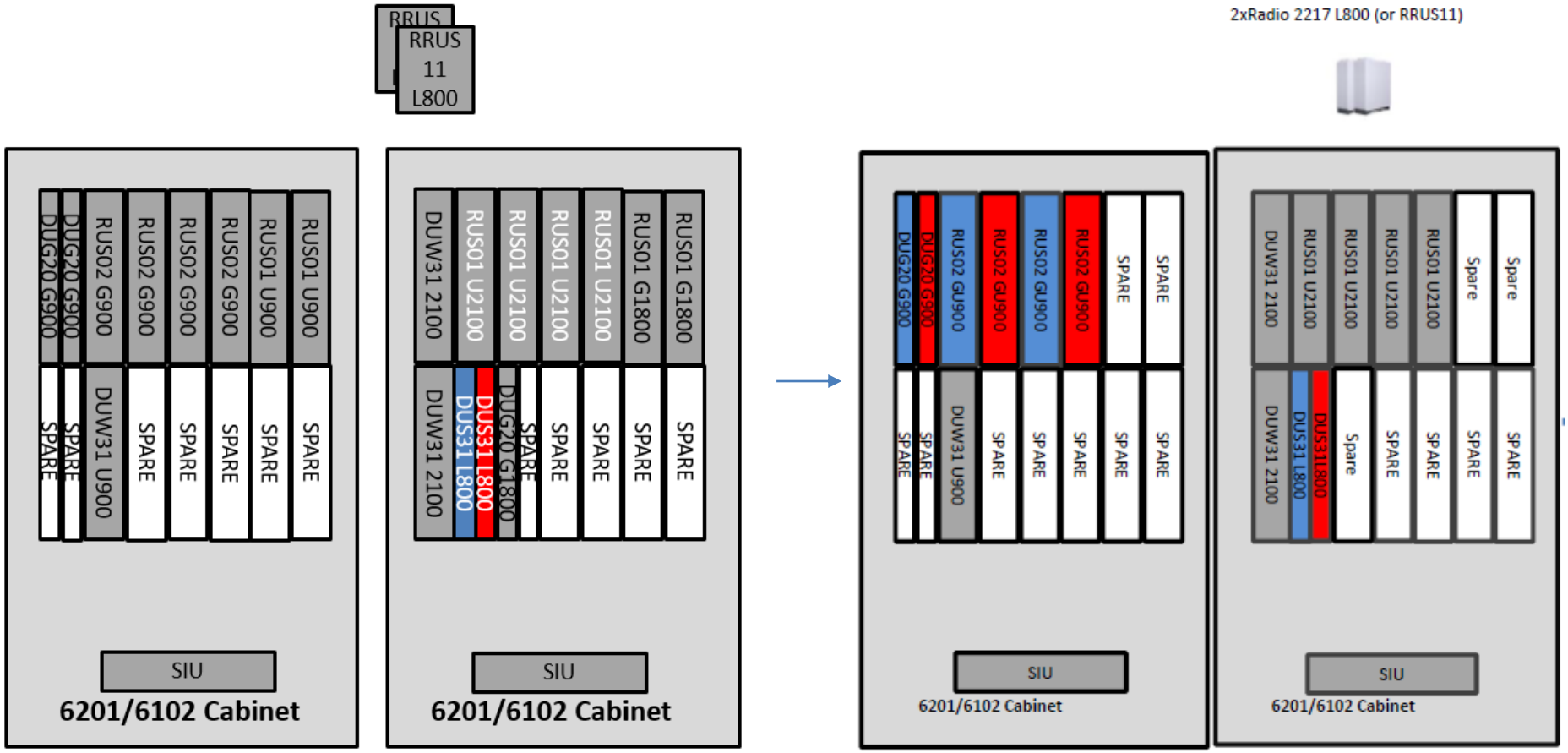
Convert Medium 20W to Small 20W - 2 sectors



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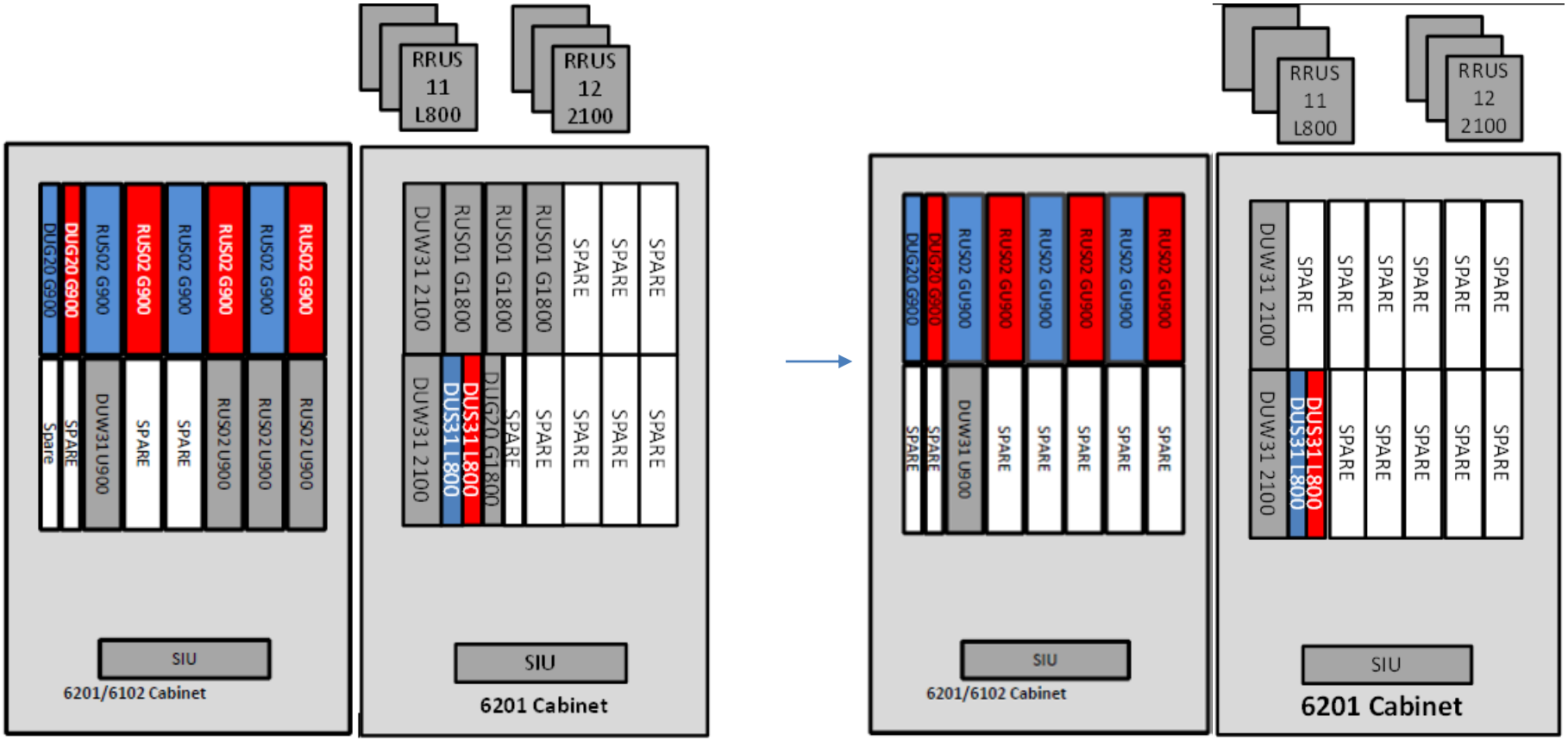
Convert 20W Medium U2100 RRU to 20W Small U2100 RRU - 3 sectors



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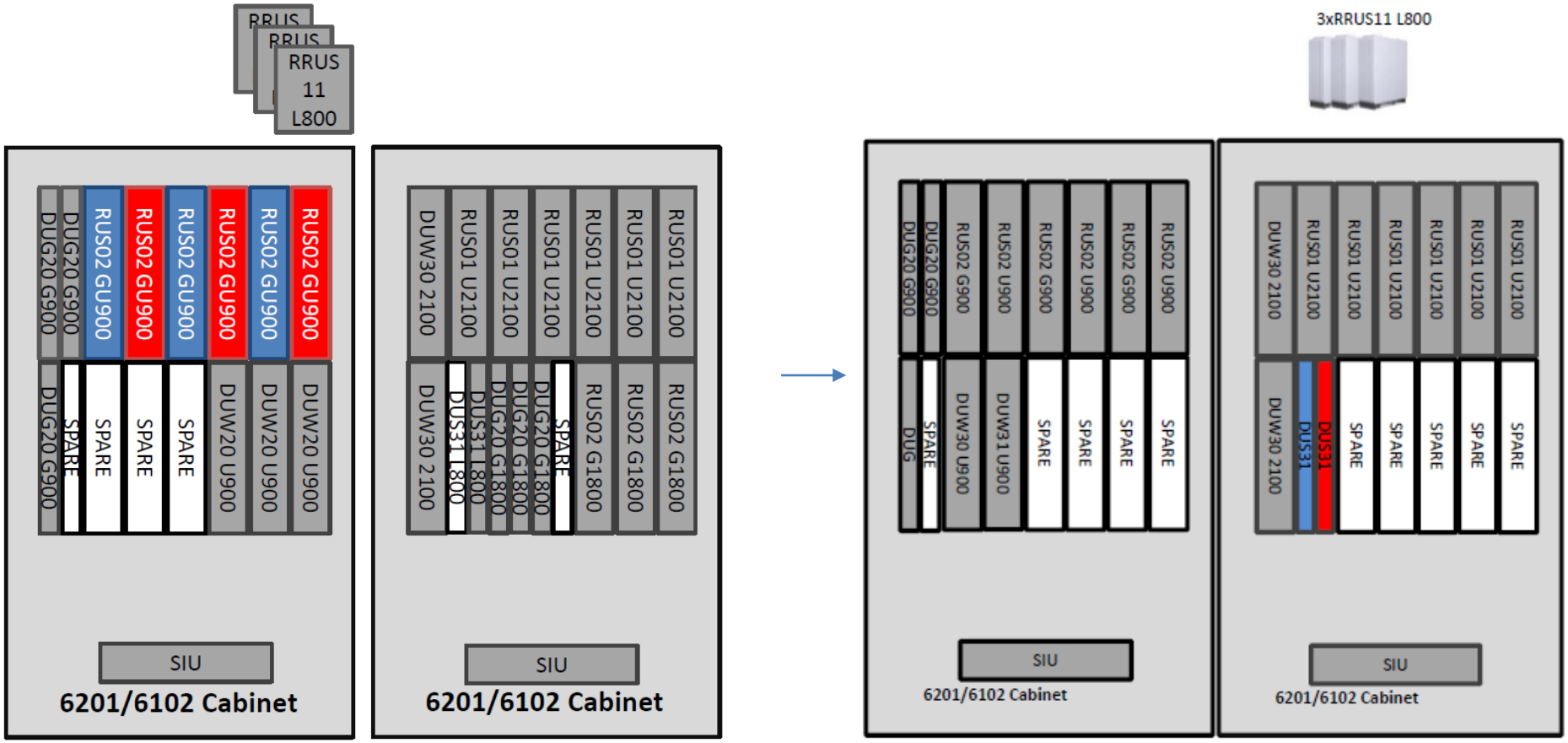
Convert High 12W to Small 12W – 3 sectors



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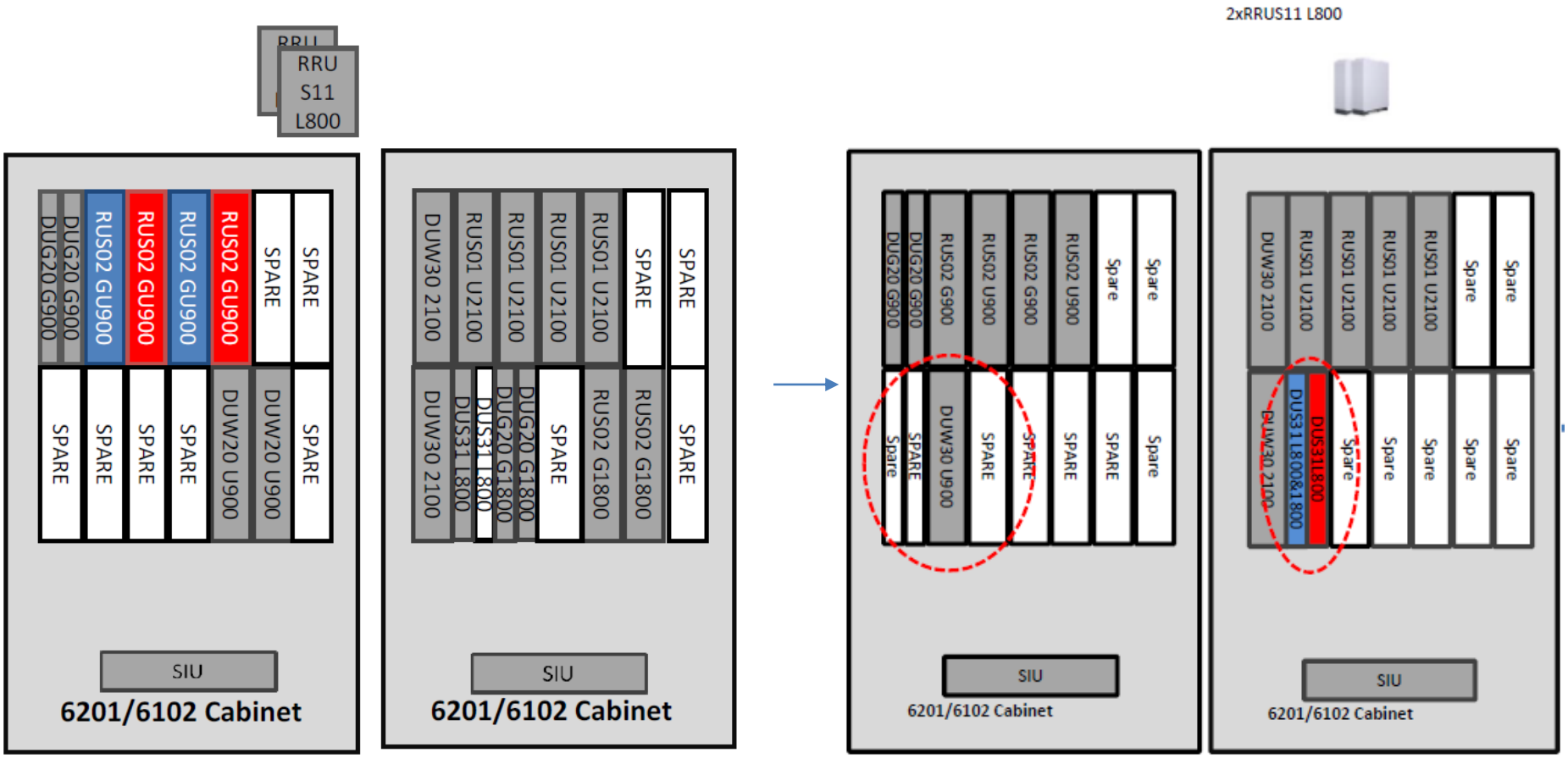
Convert High 12W to Small 12W – 2 sectors



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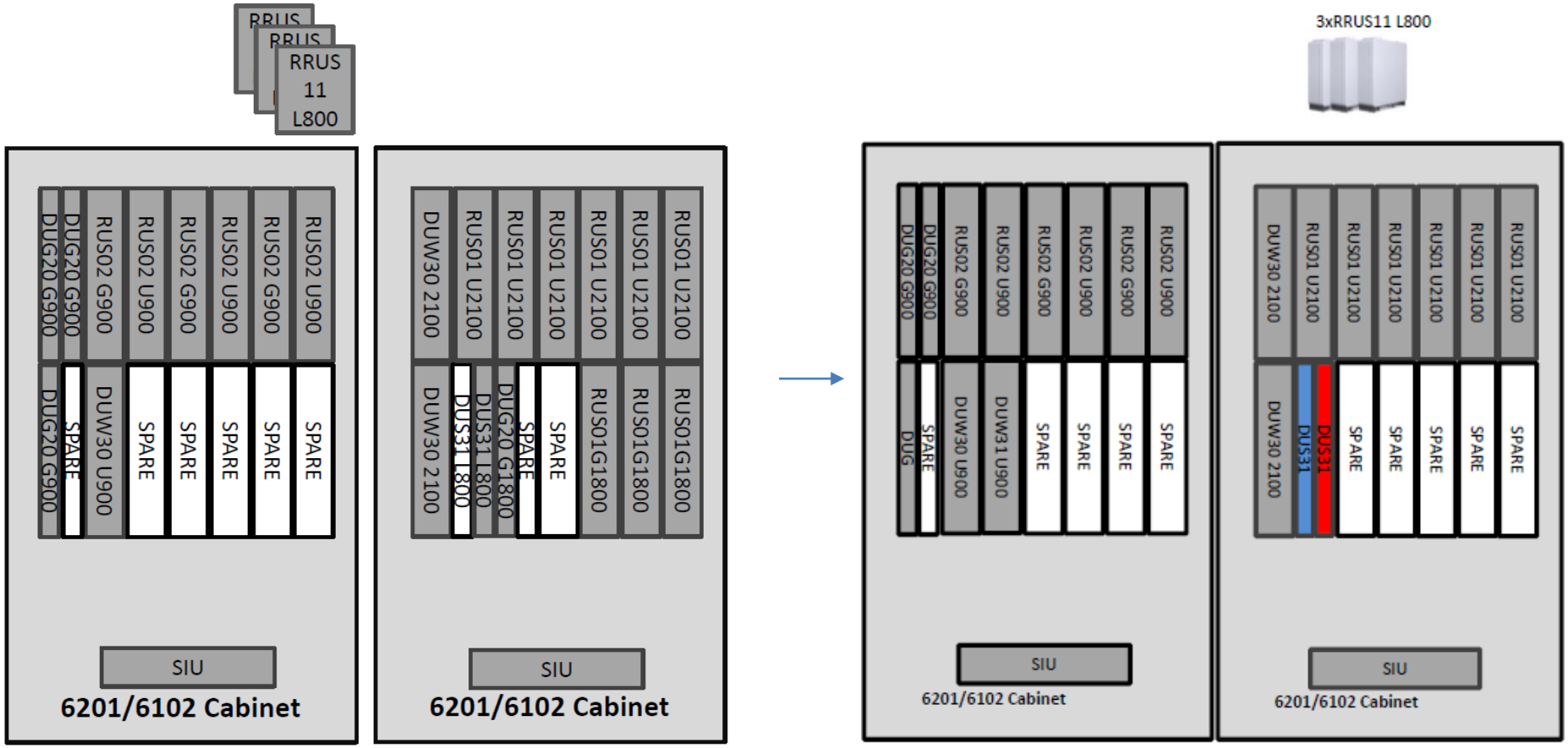
Shared

Convert Medium 12W to Small 12W – 3 sectors



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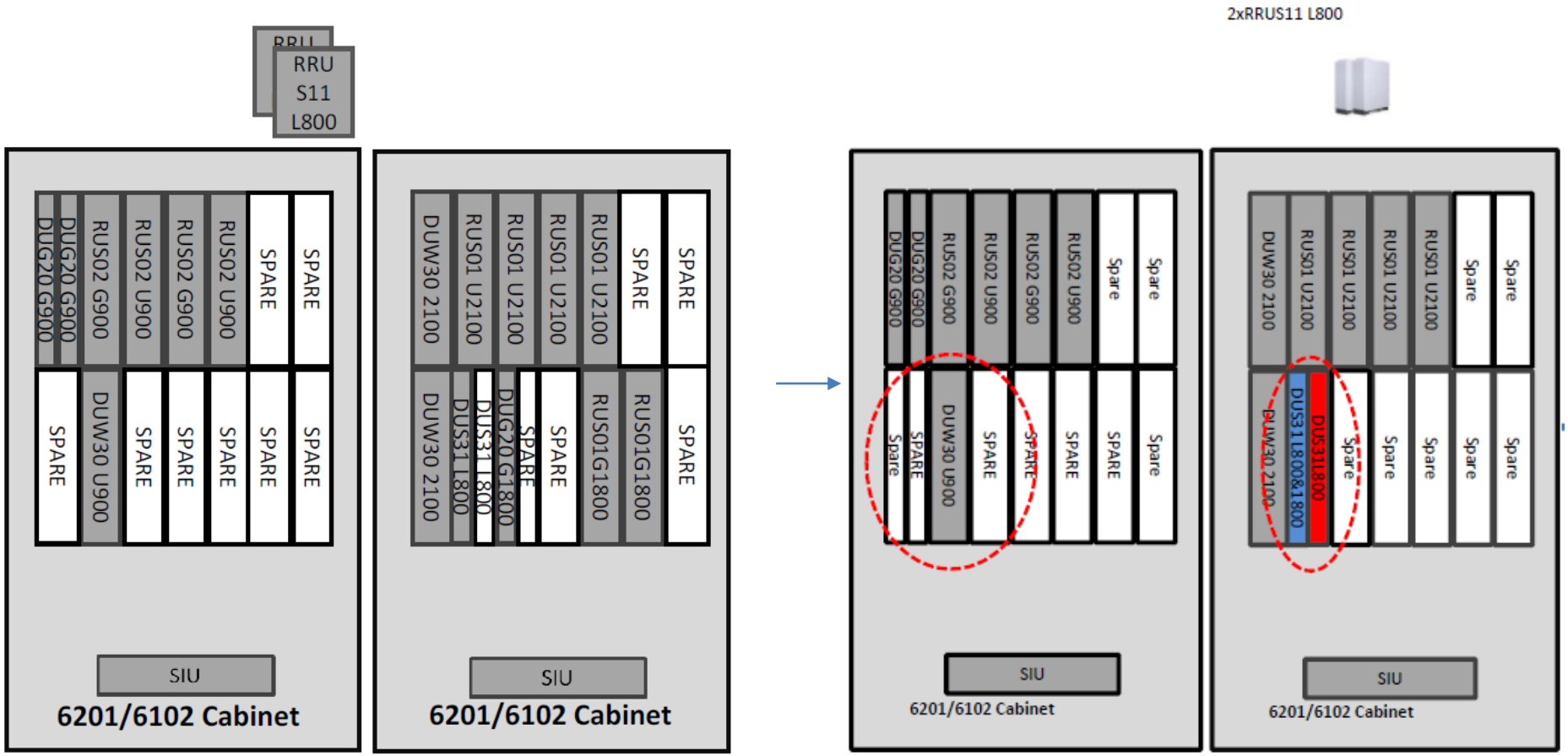
Shared

Convert Medium 12W to Small 12W - 2 sectors



ERICSSON