



# UK Cellular Frequency Allocations

v15 – Q3 2021





# UK Cellular Spectrum Q3 2021

Even in continued lockdown the expansion and upgrade of the UK's cellular resources continued and as we head into the Autumn of 2021, here's a round-up of what's changed –as ever, we've pooled the results of our own RF survey data with updates provided by Dr Peter Clarke (of [pedroc.co.uk](http://pedroc.co.uk)) to produce this latest UK cellular spectrum guide.

## **2G**

Vodafone is reconfiguring their 900MHz, clearing GSM channels from the top of their 900MHz spectrum and relaunching the legacy technology at primarily GSM channels 1-12. This enables new usage of their uppermost 900MHz.

The number of O2 GSM channels commonly seen have decreased, being primarily 113-124 now.

## **3G**

To facilitate the aforementioned GSM retune, Vodafone's second 3G carrier on 900MHz moves up the spectrum becoming UARFCN 3012. However, UARFCN 3012 can be short-lived as a result of LTE refarm. Vodafone has also moved from 3623 to 3625.

## **4G**

Vodafone started a rapid light up of L09 10MHz towards the end of July 2021. This deployment is on EARFCN 3623 and occupies the spectral territory of upper GSM channels, UARFCN 3012, part of UARFCN 2987.

Three launched 700MHz LTE EARFCN 9360 soon after auction completion.

'Shared Access' 1800MHz spectrum has been seen in the wild, for IMSI catchers and other relatively niche purposes, at least thus far.

## **5G**

EE launched 700MHz soon after auction closure, going for NR only with NRARFCN 156510. O2 have launched 700MHz NR as well on NRARFCN 152210.

In addition, since the last update, Vodafone launched LTE NR DSS (Dynamic Spectrum Sharing) on 2100MHz with DSS likely to come to 900MHz soon too.

We were privileged to measure a little of the NR SA n78 on Vodafone with LIMA Cell Monitor recently as well.



# UK Cellular Spectrum 700-800MHz

		Channel Numbers		Downlink Frequency (MHz)		Bandwidth (4G/5G)	Comments
<b>700 B28/n28</b>	LTE700 FDD	EARFCN		Centre			
	H3G	9360		773		10MHz channel	
	NR700 FDD	NRARFCN		Centre			
	O2	152210				TBC	
	EE	156510				10MHz channel	
<b>800 B20</b>	LTE800 FDD	EARFCN		Centre			
	H3G	6175		793.5		5MHz channel	
	EE	6225		798.5		5MHz channel	
	VF	6300		806.0		10MHz channel	
	O2	6400		816.0		10MHz channel	

NB: stated NRARFCNs are not necessarily the midpoint of the carrier



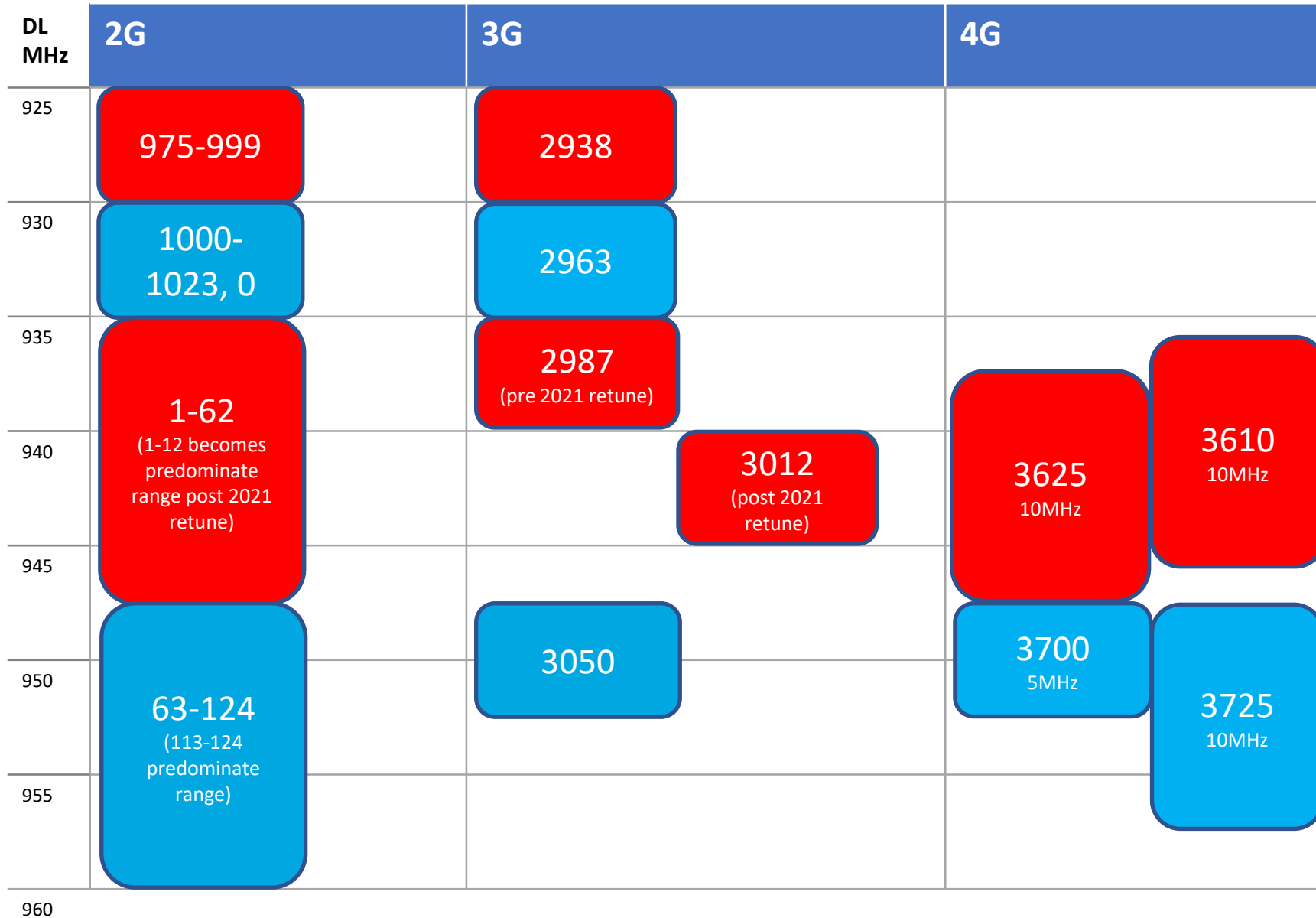
# UK Cellular Spectrum 900MHz

		Channel Numbers		Downlink Frequency (MHz)		Bandwidth (4G)	Comments
		ARFCN from	ARFCN to	from	to		
<b>900 B8</b>	<b>GSM900 FDD</b>						
	VF	975	999	925.1	930.1		Refarmed for U09 2938 +/- embedded GSM channels
	O2	1000	1023, 0	930.1	935.1		Refarmed for U09 2963 +/- embedded GSM channels
	VF	1	62	935.1	947.5		Channel range includes various usage
	VF (common post re-tune)	1	12	935.1	937.5		Primary range post 2021 re-tune
	VF (common pre re-tune)	26	59	940.1	946.9		Commonly seen GSM range pre 2021 re-tune. Becoming UMTS/LTE
	O2	63	124	947.5	959.9		Channel range includes various usage
	O2 (common)	113	124	957.5	959.9		Commonly seen GSM range
	<b>UMTS900 FDD</b>	<b>UARFCN</b>		<b>Centre</b>			
	VF	2938		927.6			
	O2	2963		932.6			
	VF	2987		937.4			Being retired as part of 900MHz retune
	VF	3012		942.4			Replacement for 2987 as part of retune, subject to reform
	O2	3050		950.0			Decreasing in use due to L09 refarming
	<b>LTE900 FDD</b>	<b>EARFCN</b>		<b>Centre</b>			
	VF	3574/5		937.4/937.5		5MHz channel	Replaces UARFCN 2987. Presumed deprecated due to retune
	VF	3610		941.0		10MHz channel	Underground. Replaces various spectrum use
	VF	3620		942.0		Unknown	Small cluster. Replaces various spectrum use
	VF	3625		942.3		10MHz channel	Replaces UARFCN 3623
	VF	3624		942.4		5MHz channel	Replaces various spectrum use
VF	3626		942.6		5MHz channel	Limited deployment	
O2	3700		950.0		5MHz channel	Replaces UARFCN 3050	
O2	3725		952.5		10MHz channel	Replaces UARFCN 3050 and some GSM channel space	



# Band 8 – 900MHz

Graphic for illustration only



O<sub>2</sub>

vodafone



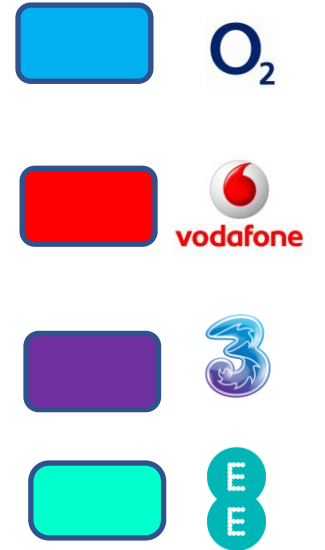
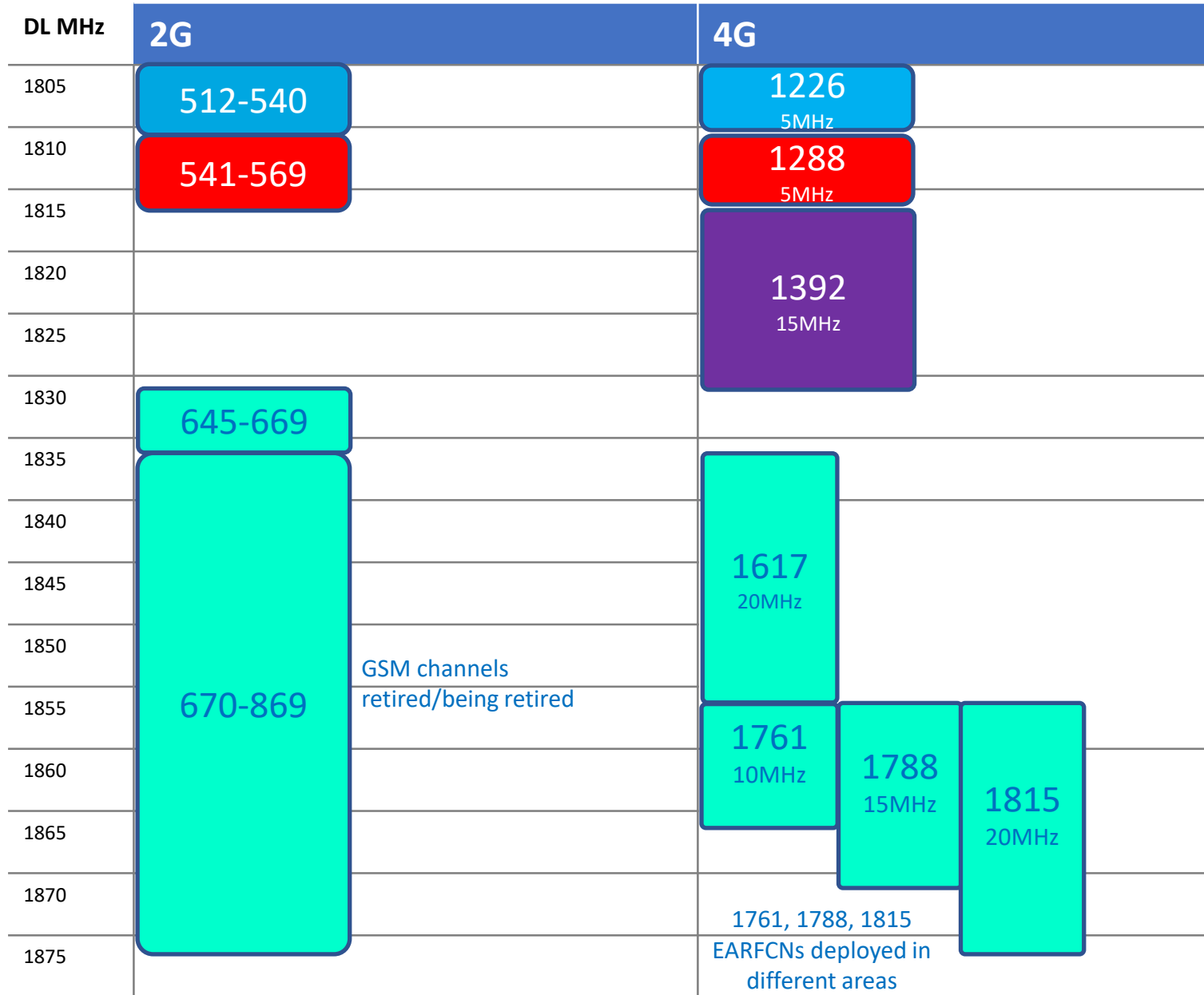
# UK Cellular Spectrum 1500-1800MHz

		Channel Numbers		Downlink Frequency (MHz)		Bandwidth (4G/5G)	Comments
<b>1500 B32</b>	LTE1500 SDL	EARFCN		Centre			Supplementary Downlink band
	VF	10020		1462.0		20MHz	Downlink Only
	H3G	10220		1482.0		20MHz	Downlink Only
<b>1800 B3</b>	GSM1800 FDD	ARFCN from	ARFCN to	from	to		
	O2	512	540	1805.1	1810.9		Mostly refarmed for 4G
	VF	541	569	1810.9	1816.7		Mostly refarmed for 4G
	EE	645	669	1831.7	1836.7		Primary GSM channels
	EE	670	869	1836.7	1876.7		Mostly/completely retired for 4G refarm
	EE	845	869	1871.7	1876.7		Secondary GSM channels seen in some locations; being retired
	LTE1800 FDD	EARFCN		Centre			
	O2	1226		1807.6		5MHz channel	
	O2	1227		1807.7		5MHz channel	Niche use
	O2	1228		1807.8		5MHz channel	Small cell use
	O2	1229		1807.9		5MHz channel	Niche use
	O2	1230		1808.0		5MHz channel	Niche use
	VF	1288		1813.8		5MHz channel	
	H3G	1392		1824.2		15MHz channel	
	EE	1617		1846.7		20MHz channel	Primary L18
	EE	1761		1861.1		10MHz channel	10MHz secondary L18 carrier
	EE	1788		1863.8		15MHz channel	15MHz secondary L18 carrier
EE	1791		1864.1		15MHz channel	Small cells	
EE	1815		1866.5		20MHz channel	20MHz secondary L18 carrier	
Shared Access	1934		1878.4		3MHz	Various purposes: IMSI Catcher, Niche Coverage Solutions	



# Band 3 – 1800MHz

Graphic for illustration only





# UK Cellular Spectrum 2100MHz

	Channel Numbers		Downlink frequency (MHz)	Bandwidth (4G/5G)	Comments
<b>2100 B1/n1</b>	<b>UMTS2100 FDD</b>	<b>UARFCN</b>	<b>Centre</b>		
	H3G	10564	2112.8		
	H3G	10588	2117.6		Being retired for 4G reform
	H3G	10612	2122.4		Being retired for 4G reform
	O2	10637	2127.4		Being retired for 4G reform
	O2	10661	2132.2		Being retired for 4G reform
	VF	10687	2137.4		Being retired for 4G reform
	VF	10712	2142.4		Being retired for 4G reform
	VF	10736	2147.2		Being retired for 4G reform
	EE	10761	2152.2		
	EE	10786	2157.2		Deprecated. Retired for 4G reform
	EE	10811	2162.2		Rare. Retired for 4G reform mostly
	EE	10836	2167.2		Deprecated. Retired for 4G reform
	<b>LTE2100 FDD</b>	<b>EARFCN</b>	<b>Centre</b>		
	H3G	76	2117.6	5MHz channel	Deprecated
	H3G	99	2119.9	10MHz channel	Replaces UARFCNs 10588 & 10612
	H3G UKBB	124	2122.4	5MHz channel	Deprecated
	O2	199	2129.9	10MHz channel	Replaces UARFCNs 10637 & 10661
	O2	224	2132.4	5MHz channel	Niche use. Replaces UARFCN 10661 only
	VF	299	2139.9	10MHz channel	Replaces UARFCNs 10687, 10712
VF	323	2142.3	15MHz channel	Replaces UARFCNs 10687, 10712 & 10736. Also DSS, see below.	
VF	347	2144.7	10MHz channel	Replaces UARFCNs 10712 & 10736 only	
EE	522	2162.2	15MHz channel	Replaces UARFCNs 10786, 10811 & 10836	
<b>NR2100MHz FDD</b>	<b>NRARFCN</b>				
VF DSS	429390		15MHz channel	DSS 2100MHz: LTE 323 and NR 429390 dynamically sharing the spectrum	

NB: stated NRARFCNs are not necessarily the midpoint of the carrier





# Band 1 – 2100MHz

Graphic for illustration only

DL MHz	3G	4G
2110	10564	
2115	10588	99 10MHz
2120	10612	
2125	10637	199 10MHz
2130	10661	
2135	10687	323+ (429390) 15MHz
2140	10712	
2145	10736	347 10MHz
2150	10761	299 10MHz
2155	10786	
2160	10811	522 15MHz
2165	10836	

- O<sub>2</sub>
- vodafone
- 3
- EE

All UARFCNs apart from 10564 and 10761 are being refarmed to 4G+/- 5G



# UK Cellular Spectrum 2300-2600MHz

		Channel Numbers		Downlink frequency (MHz)	Bandwidth (4G/5G)	Comments
<b>2300 B40</b>	LTE2300 TDD	EARFCN		Centre		
	O2	39250		2360.0	20MHz channel	
	O2	39448		2379.8	20MHz channel	
<b>2600 B7</b>	LTE2600 FDD	EARFCN		Centre		
	VF	2850		2630.0	20MHz channel	
	EE	3026		2647.6	15MHz channel	Small cells
	EE	3029		2647.9	15MHz channel	Third L26 carrier, currently ultra loaded sites only
	EE	3176		2662.6	15MHz channel	Small cells
	EE	3179		2662.9	15MHz channel	Secondary L26 carrier
	EE	3350		2680.0	20MHz channel	Primary L26 carrier
<b>2600 B38</b>	LTE2600 TDD	EARFCN		Centre		
	VF	37900		2585.0	20MHz channel	



# UK Cellular Spectrum 3400-3800MHz

		Channel Numbers		Frequency (MHz)		Bandwidth (4G/5G)	Comments
<b>3400 to 3700 B42/B43</b>	LTE34-3700 TDD	EARFCN		Centre			
	UK BB (H3G)	42490		3490.0		20MHz channel	UK BB 4G being phased out to refarm for H3G 5G
	UK BB (H3G)	43490		3590.0		20MHz channel	UK BB 4G being phased out to refarm for H3G 5G
	UK BB (H3G)	43740		3615.0		20MHz channel	UK BB 4G being phased out to refarm for H3G 5G
	UK BB (H3G)	43940		3635.0		20MHz channel	UK BB 4G being phased out to refarm for H3G 5G
	UK BB (H3G)	44140		3655.0		20MHz channel	UK BB 4G being phased out to refarm for H3G 5G
	UK BB (H3G)	44290		3670.0		20MHz channel	UK BB 4G being phased out to refarm for H3G 5G
	UK BB (H3G)	44340		3675.0		20MHz channel	UK BB 4G being phased out to refarm for H3G 5G. Noted in sib5 list only
<b>3400 to 3800 n78</b>	NR34-3800 TDD	NRARFCN					
	VF	627638				50MHz channel	
	VF	627648				50MHz channel	
	VF	627932				50MHz channel	
	VF	628032				40MHz channel	
	VF	628320				40MHz channel	
	VF	628588				40MHz channel	
	VF	629332				40/50MHz channel	Zone dependent
	O2	633696				40MHz channel	
	O2	634368				20MHz channel	
	O2	634656				40MHz channel	
	O2	634666				40MHz channel	
	EE	637334				40MHz channel	
	H3G	640548				40/60/100MHz channel	

NB: stated NRARFCNs are not necessarily the midpoint of the carrier



If you have questions or comments please let us know

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