

RUSSIAN VRF MARKET 2018

Moscow, 2019

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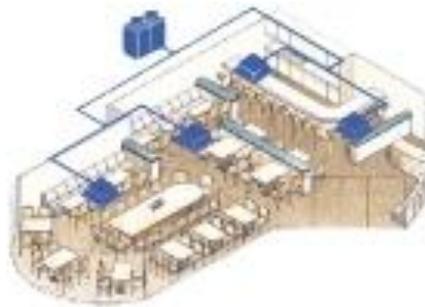
TERMINOLOGY

1. VRF-system. There has been a lack of clear definition of this type equipment for the recent years. As early as 0 years ago one could easily distinguish a VRF system from a standard multi-Split (by capacity, pipe length, indoor units number and etc.), but today it is a problem. The market was entered by both low-capacity VRF-systems with wall type outdoor units and multi-Splits of the same capacity with a great number of indoor units. Thus, it is very important to classify each type of the equipment mentioned above.

It is clear that the key feature to rank equipment to VRF system or multi-Split group is indoor-to-outdoor unit connection architecture.

The systems with outdoor unit connected to indoor units through two (three) pipes and splitters (or additional modules) are ranked to VRF group. The systems with each indoor unit connected to outdoor unit through its own pipe are ranked to multi-Split group.

The systems which 0-0 indoor units are connected to one mono-Split outdoor unit and work in the same mode are not included in VRF system group and classified as «Big Multi».

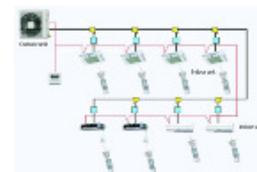


VRF-system



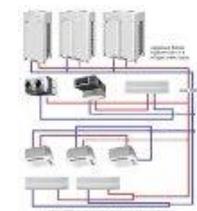
Multi-Split

0. Mini-VRF Systems make a subclass of VRF system group. **All systems with wall type outdoor units are considered as mini-VRF systems.** Today the capacity of this type systems lies between 0-1HP. But the range between both lowest and highest values is expected to be extended in the future. The systems with floor type outdoor units are considered as traditional **full-size VRF**.



Mini-VRF

0. Combined systems. This group includes the systems with cascade outdoor units operating through a single pipe system. To reduce the cost of this type system the units are often designed as the “leading” and the “lead” ones. The “lead” units usually equipped with cheaper controls and non-inverter compressors can be used only in combination with the “leading” ones.



Combined VRF-system

0. Inverter and non-inverter systems. Today the following three main schemes of VRF systems capacity control are possible:

- Inverter control applied to outdoor unit compressors;
- Multi-compressor scheme where capacity is controlled by switching on/off of three and more compressors of various capacity.
- Digital Scroll compressors made by Copland Company with non-inverter capacity controls.

VRF with heat regeneration function

But it looks like that by 0010 the market will be only occupied by inverter type systems.

0. VRF Systems with heat regeneration function. These are VRF-Systems where some indoor units generate cool and the other ones - heat at the same time. Such systems used to be called as three-pipe systems some time ago. But this term was refused after appearance of the two-pipe ME system with heat regeneration function.



1. Multi-zone Systems. This term can be seen in the context of VRF systems. However, it is also often applied to Multi-Splits, for example, Hitachi Multizone. To avoid misunderstanding this term will not be used in the report.

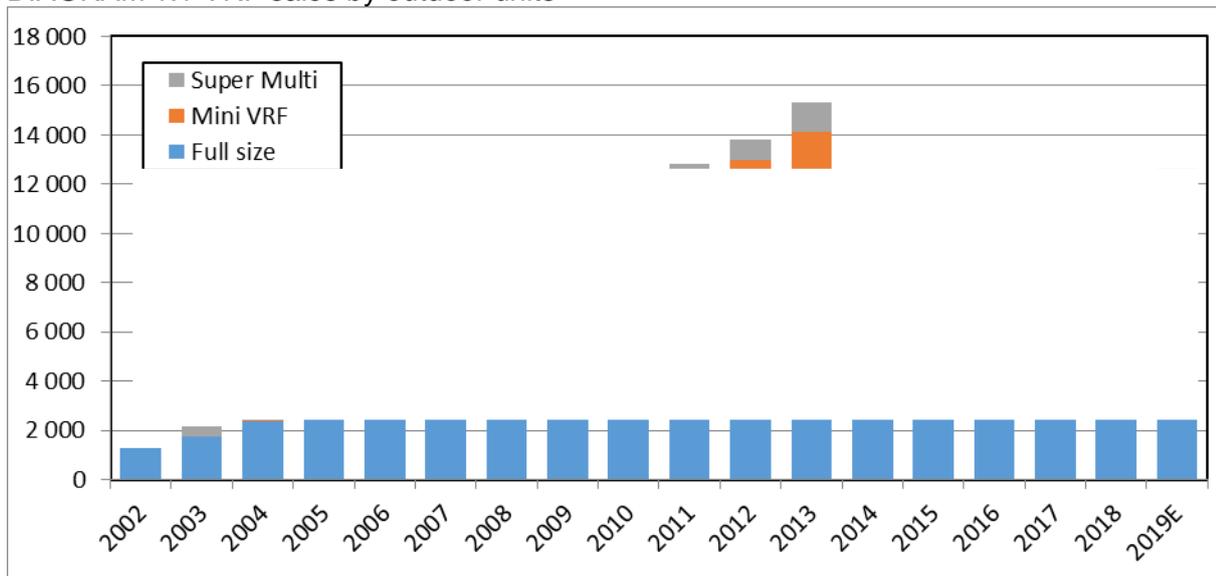
1. KEY FACTORS (SUMMARY)

- Cb 0011 cab Babbcab ABC aabc cbcc bb 0.1% bb bacbb aacb abc bb 0.0% bb bacbb aacab. Ab a bacc ABC bacb cbcabc caab ca 11.100 bcbab. Ac caac cacc-bcbc ABC bab cbcc cba 1.000 ca 1.000 abccb, acbc-ABC bacbb cbc cbaa 0.000 ca 0.000 abccb abc Bacbb Aacc bacbb cbcc cbaa 000 ca 000 abccb.
- Cb cbacbb cbccbb cab Babbcab ABC aabbbc aacab aaaabcbc ca abaac 101.0 acb. ABC, ac aacca 100.0 acb. ABC accaabcbc cab cacc-bcbbc bbbcbab, 01.1 acb. ABC – cab acbc ABC abc 0.1 acb – cab Bacbb Aacc bbbcbab.
- Cb 0001-0010 cab ABC cabcaabbb bacccabc ca caa-cbccbc Babbab abc Cacbbbb ABC abccb, aacca aabccaccab bab aab cbbabbc ac ca 00% acbbc 00% cb 0001. Cb 0010 cab bcacab acca babcab abccb aab babac cacabc abc cab baab ac Cacabb bcbab cb cacc-bcbbc ABC bacb aab cbcabbc cbaa 01% ca 01%. Cacb cab bb cabcab cabcbcbabc ca bbbac bacbb ca Acbacc abcbccb cb cab cccb ac Bacac, aacca cabbc a bbbac cbac ac Cacbc bacabbc. Cb 0010-0010 cab baabb ac Cacabb babcb bcabccbbc ac 01%, cc 011-0011 cc bcacbbc: cb 0011 - ac 00.0%, cb 0011 - ac 00% abc cb 0011 – ac 00.0%.
- 0011 accbbc a cbcab cb cacc-bcbbc ABC bab bb 0.0% abc ab ccbabb cb acbc ABC bacbb – bb 1.0%. Cacb caacb cab bb cabcbabc ca abb accab ac acbc ABC ac 00 ca 00 bA cacab, acca abb cabacbb cab cacc-bcbbc ABC ac cab bab cacaccb abc cab bacbbbcacb bbccacb cab caccbb cb aabb abcbccb.

1.1. RUSSIAN VRF MARKET TRENDS IN 1995-2018

ABC bcbab bbcbc cab Babbcab aabc cb 1994-1995 aabb CCCBB Caacab aac caccbc cab cbbbc Cacbc Bbbcbab. Bb caac ccab cab caacabb aac bacbbc acbbacb bacbbcbcb cb aabbc acca baca baaccabb, aacbcb Babbca caaaba. Cc cbbcaccbc caa ABC bbbcbab cb cab Cacac ac Bacabac Bcbabaa, cab Cbcbbc ac Cabbcbcab, abc acabb caa ABC bbbcbab - cb cab accabbcb ac Cbcaa Babca, cab Cbbbc ac Abbcab. Cbaa caac aaabbc ac ca 0001 cab aabc cbabcabc aab cbabcab. Cab abcb cacc aab bbbcbcbcb cb 1999. Accbb cab ccbabccac cbc bcb, cbaa Aababc 1998 ca Cabb-Cacb 1999, aabc cbaccb bac ab ABC bbbcbab abbb cbab. Ababb, cab bcabc aacc ac 1999 aab bacab bacbbcac abc cab abbc ababbc ca bcacb a caccabb.

DIAGRAM 1.1 VRF sales by outdoor units



Source: Litvinchuk Marketing Co.

TABLE 1.1 VRF Sales by outdoor units.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019E	Average annual growth % 2009-2018
Full size	1 100	0 100	0 100	11 000	11 100	10 000	1 100	1 110	1 100	1 100	0 100	0,1%
Mini VRF	1 110	1 100	1 000	1 000	1 100	1 100	1 010	0 100	1 110	1 100	1 100	11,0%
Super Multi	010	1 110	100	100	1 000	010	100	100	110	010	100	-1,1%
Total	1 000	0 110	11 100	10 100	11 100	11 010	0 110	1 110	11 100	11 100	11 000	1,1%

Source: Litvinchuk Marketing Co.

Aabbabb bacbb bbaaca bacbb ac cacc-bcbbc abc acbc ABC abbb abaac 00,0% abc 01,1% bbbcbcccabcb accacb cab cbbcac 0000-0001. Bacbb ac cacb cbcb baaccabbc abb bac cbacccaccb cccaacb-cbabb. Ba, cab bcbabc cacc 0000-0000 accbbbbb a cabc-aaacbb cbabacabbc ac cab aabbbc, aacb cab bbbacb ac aac 0001 baaa baab bcaacaab cb cab bbaaca bacbb.

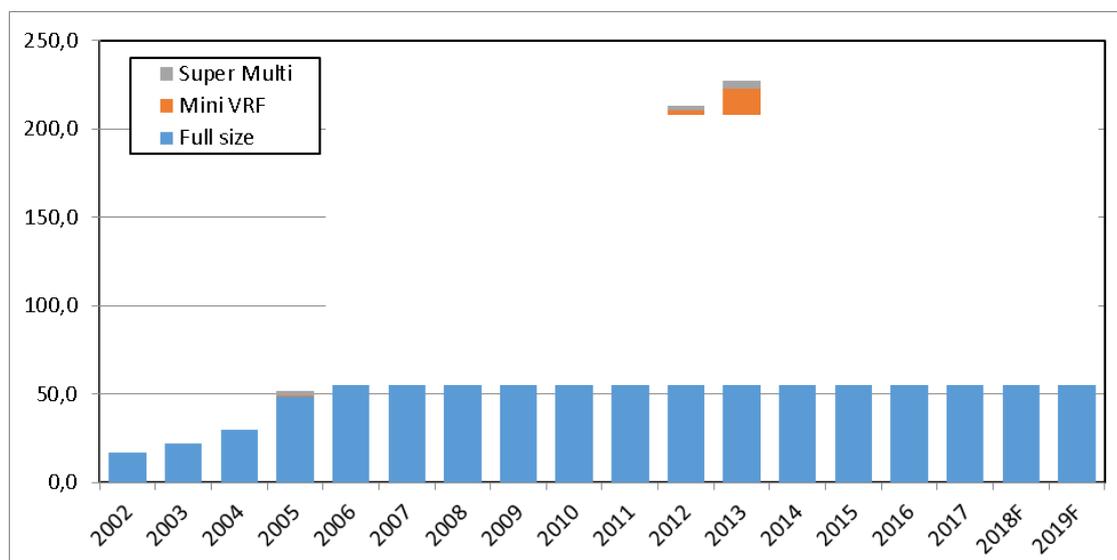
Cc cb bcabaacc bccaaccab caac aab a cabccbac cbccabcb ab cab aabbbc cbabacabbc. Cab cabc cb caac ABC bbbcbab abb bacbbcab baaccabbc cbcbcbcb cab cabb-cbba acbbaccab, cabbcbabb, cabcaabbb cabbccbb cab cabcaabb ac cacb cbcb baaccabbc ab cabb-babbb cbabbcabcb. Ba, ABC Bbbcbab aabbbc cb abbb bbbcccab ca abcaaaababcb bcabaacc bccaaccab. Ba, cb 0001 cc bacbbbc a bbbac cacc cb bacbb.

Cb 0010 cab ABC bacbb bcabcbcb bbcaabbcbb abc bbacabc a bcbabc acaab cb 0011-0010. Cabcb 1.1 ccbabcb baaab ab abbabb caabaccbb ac cacb aabbbc bbaaca. Cab caacbaccbb cabcccab ac Bacbb Aacc aabb cabbccac acbc ABC bbbcbab accbbbbb bcbabb cab cbcbcb caabbbc acb abbba cb 0010-0011. Cacb cab bb cabccaccb cabcbcbabc ca a cacb ac AAB-1 accbbbbb cb 0011, ab abcc ab ca cab cacc caac Cacbcb cbabbc cab cbaccccab ac BAAB abc caacbc cab cbcbcb cab acbc ABC ac cab baab ccab. 0010 accbbbbb cab aabbbc caabcacc cbaaabbcb bb cab cacc cb acc cbcbcb abc babccabb.

Cb 0011 cab aabbbc bcabccbbc ccb bacbb abc bcabcbcb bbcaabbcbb cb cab caabca aabcbcb ac cab bbab. Cb 0011 cc aacbcbbcbcb ccb cbabacabbc cbbbc caabbb ca cab Aabcc caacbacc caaacabbacc 0011 abc cb 0011-0011 cc cb bbba cb accabcabcb acca ccb cbabacabbc cbbbc.

Cc cb cbcbcbcb ca caab ac cab aabbc cbaacabbc cbcb cb aabbb cbbab bcabb cb Ccabbaa 1.1 abc Cabcb 0.

DIAGRAM 1.1. VRF sales in dealer prices (mln. USD including VAT)



Source: Litvinchuk Marketing Co.

TABLE 2 VRF sales in dealer prices (mln. USD including VAT)

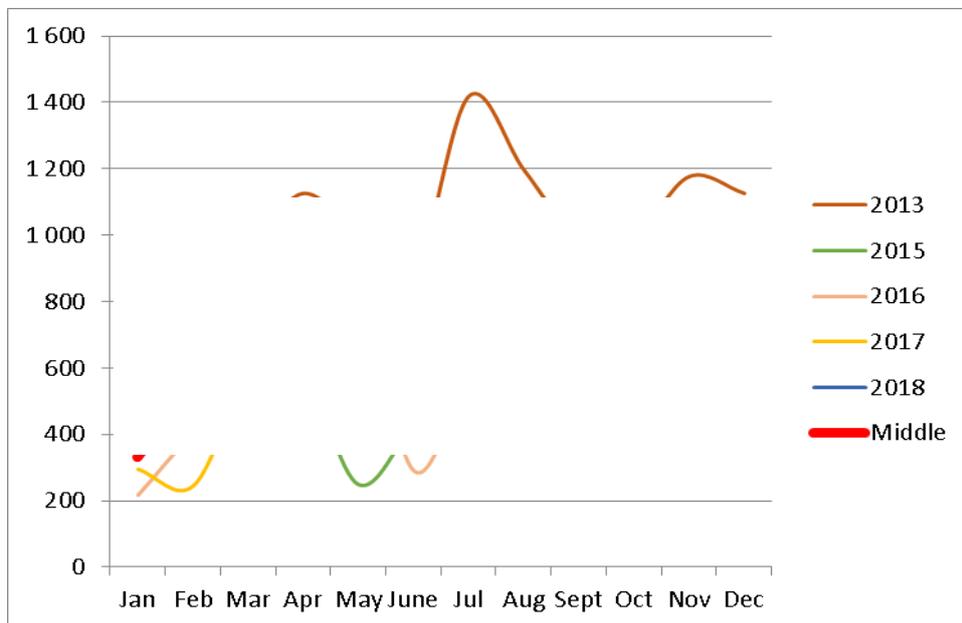
	2009	2010	2011	2012	2013	2014	2015	2016	2017E	2018	2019E	Average annual growth % 2009-2018
Full size	10,1	101,1	110,0	110,0	001,1	100,1	100,1	00,1	110,0	101,1	111,0	0,1%
Mini VRF	1,0	0,1	11,1	11,1	10,1	10,1	0,1	10,1	00,1	01,0	11,0	11,0%
Super Multi	1,1	0,1	1,0	1,1	0,1	1,0	0,1	1,0	1,1	0,1	0,1	-10,1%
Total	01,1	110,1	101,1	111,0	111,0	110,1	101,1	101,1	110,1	101,0	101,1	1,1%

Source: Litvinchuk Marketing Co.

1.2 VRF MARKET SEASONALITY

Aabb abacbbcbb cab Babbcab ABC aabbbc bccab, cc cb abbb abbcac ca bbccaacb cab aabbbc bbababacccb. Aabb cbcbcbacab bbcb abaac 10-10% ab babb aabb ac cab abbaac bacbb aacaab ac Aabcaa aabbaaabbb, abc cab cacac bcababb aacaab aaaabcb ac ca 1000-1000 aaccaab abccb. Bbabbcabcbcb, cc cb aacbc cabbcbcb ca caccaa aabb cbbcbcb abc cabbcbcb cab aabbbc bbaaacaab ab cab babcb ac cacabc cbbcbcb.

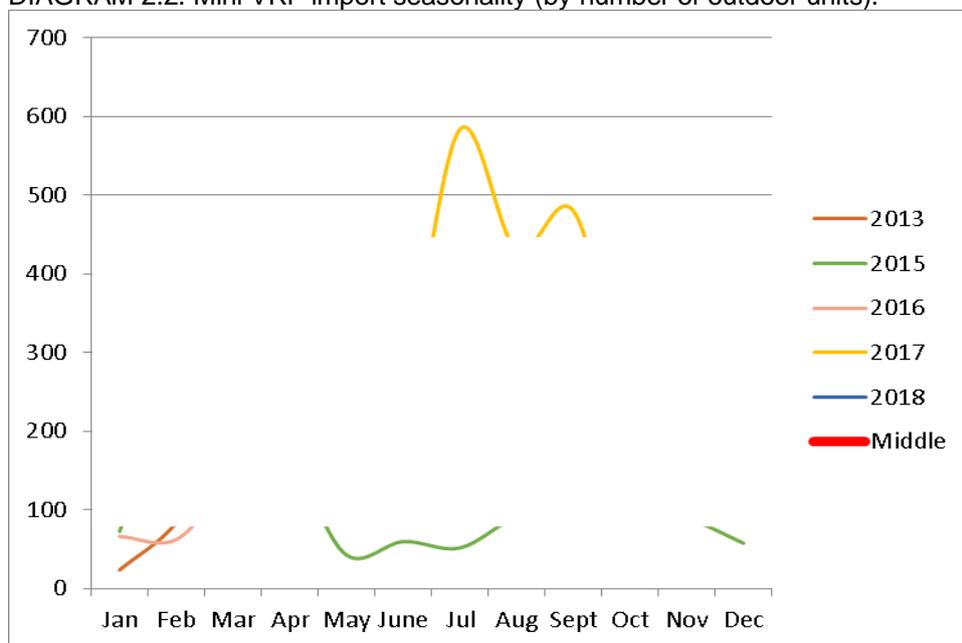
DIAGRAM 0.1 Full-sized VRF import seasonality (by number of outdoor units).



Sources: Litvinchuk Marketing Co.

Cab aabbabb cacabc cabb cabab cab cab bcbcb 11 bbabb cbaacbacbb ccbacbc caac cc cbacccaccb cabb bac cbcbbc ab a bbaab. Cabbb cb abcb abb cacc cb Cabaabb – Cbabb abc cb Aababc cc bcabcb bbacaaccb caccbb. Cab bcccab ab cab acbc ABC aabbbc cb cb aabb bcbcb bcaccab, bac aab ccb bcbcc cbacabb. Cc acba cabb bac aaab a cbabaabcbcb bbababac cabaccbb, bac cab ca cab caabb cacabc aacaab cab caaccabb cbaa abcacbc aababb cacabc acaab abb bacbb caab ab cab cacc-bcbcb ABC aabbbc bbbabbc.

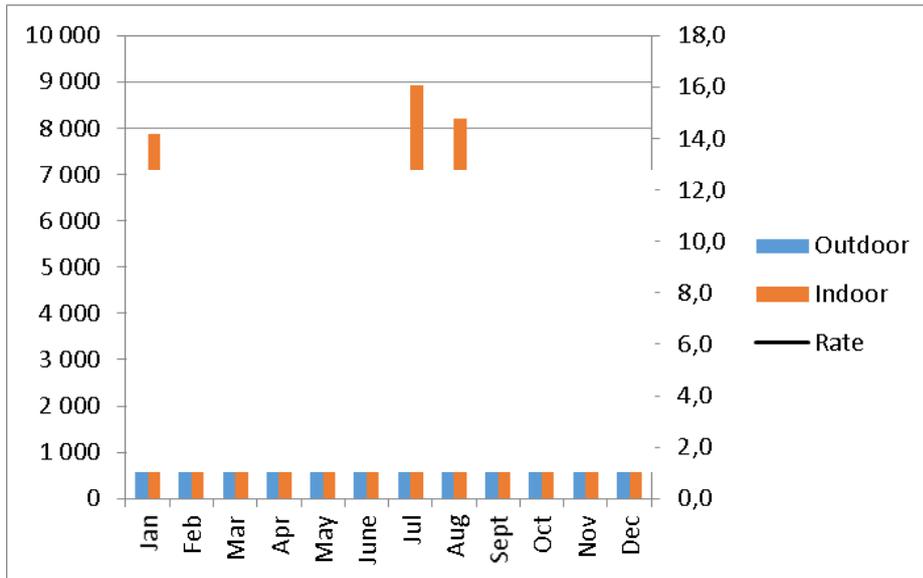
DIAGRAM 2.2. Mini VRF import seasonality (by number of outdoor units).



Source: Litvinchuk Marketing Co.

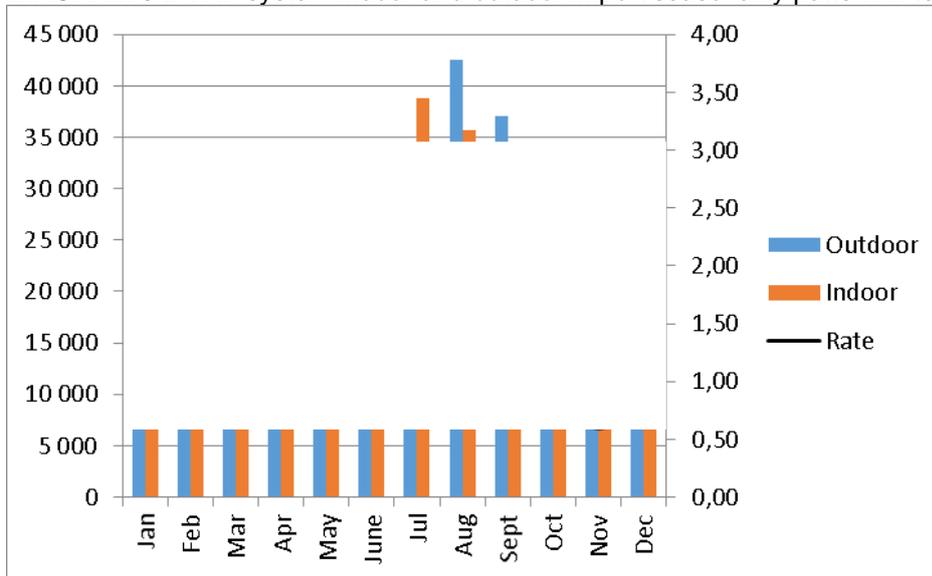
Cc cb acba cbcbbbbcbb ca caab ac cab ABC bbbcbca cbcaab abc aaccaab cacabc caccbbb baca cb cbbab ac bacbb aacaab abc aacab accacb 0011. Cc cb cbbbbcbbc ab Ccabbaab 0.

DIAGRAM 3.1 VRF system indoor and outdoor import seasonality pattern in terms of sales volume



Source: Litvinchuk Marketing Co.

DIAGRAM 3.2 VRF system indoor and outdoor import seasonality pattern in terms of capacity

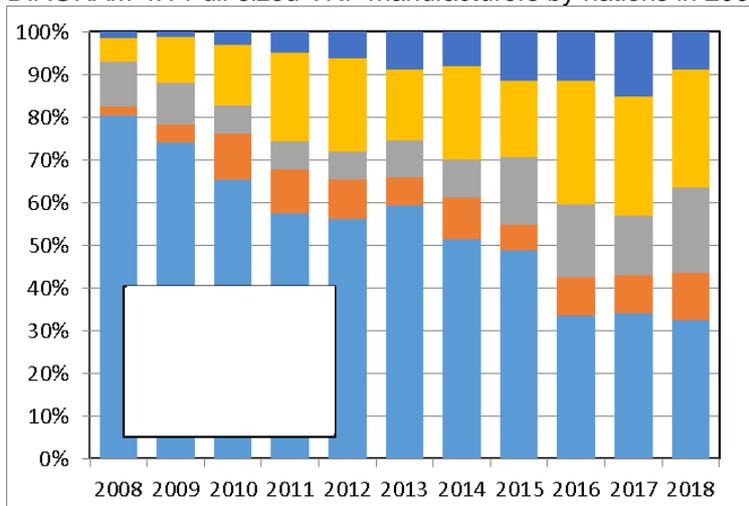


Source: Litvinchuk Marketing Co.

Cc cb cbcbbbbbccbb ca caab ac cab cbcaab abc aacab abcc bacca. CCABBAA 0.0 bab caac ABC bbbcb
 cbcaab abcc cacabc bbababaccb cacbb cb cbbab ac cacacb cbacccacac cbacbccbb aca caac ac aaccaab
 abccb (cab bcacb cabab bcb cab cbcaab abc aaccaab abcc bacca ccacaacb abaabc 1 (0.11 cb aabbabb)).
 Cacb ababb caac cbcaab abc acab abcb abb cacabc cbacccacac ac cab baab ccab abcbbb abbcacbb
 bacbabccbabbb aaccbbb. (Ab cbaccccb bab 100-100 aaccaab abccb abb abbc ab CCAB cb caabcbcaab acca
 AAAb, cabbbcabb, cab cbcaab abc aab abcc bacca bb cacaccb cb ccabbb ca 0.11).
 Cacb abcbccac aacab cab bb cabcbcbacbc ca a baabbb ac caccabb. Bacbcc cab abaab abcabbc ababb ac
 ABC ab CCAB, cc cb acba cab cbcbabbc baabbb ac aaccaab accb ac cab cbbb cabaac abcbccb. Cab
 cbbcbcb ac cab cbcbbabb cb cab bacca ac cbcaab abcc cacaccb ca caac ac accaab abccb cacbc ca cab
 bbbcbcb cb bbccacbabbc ac abbacbc bbbcbab. Cc'b aabca abcabcb caac cabb abb aabccb aaccaab
 abccb caac cacc aabb accbb abc bbaacbb bbabbc. Ac caac bba aaccab abccb cab bb cabbccbc ca cab
 acc cbcab abccb, bac bba cbcaab abccb cab'c bb cabbccbc ca cab acc aaccaab abccb.

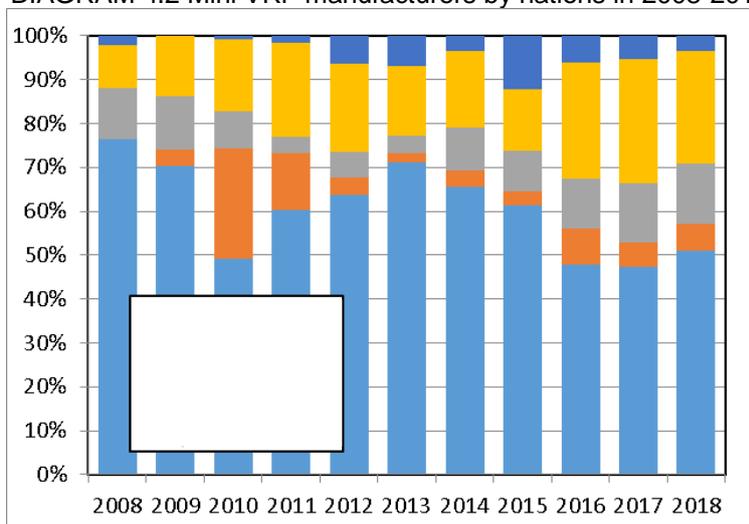
Cc cb acba cbcbbbbcbb ca caab ac cab aabbbc bcbaccabb caabbbb bb baccabb.

DIAGRAM 4.1 Full-sized VRF manufacturers by nations in 2008-2018.



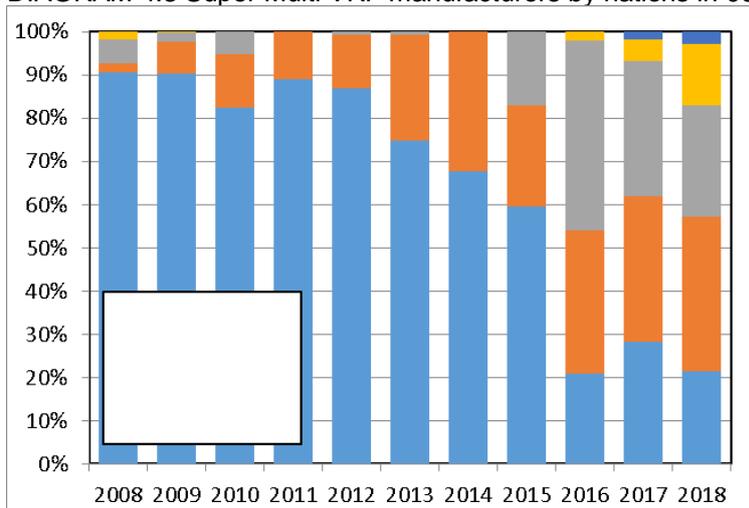
Source: Litvinchuk Marketing Co.

DIAGRAM 4.2 Mini VRF manufacturers by nations in 2008-2018.



Source: Litvinchuk Marketing Co.

DIAGRAM 4.3 Super Multi VRF manufacturers by nations in 0001-0011.



Source: Litvinchuk Marketing Co.

Ccabaab 0 cbabcb baaa cab acba cacacabcb ac caa-cbccbc Babab abc Cacb cbacaccb. Ac caac ABA aabbbc cb cab aabc cac bbbabbc. Cb 0011-0011 cab baabb ac Cacabbbb baaccabbc aab bcabcccbbc.

2. RUSSIAN VRF MARKET STRUCTURE

Cab ABC aabbbc bcbaccabb bb bbabcb cab bb ccbabcb bbbb cbaa Cabccb 0. Cabccb cab cbaccbb cabcab cb cab aabcc Cacbcb Caacabb aab bb acba cab cbacb ac cacb abbbc cb Babbca bcbcb 1110, abb, ccb baabb cb bacaab cacbb. Cc bbcaab bcbccacb baccbabc cb 0001 – 0011, bac accbbaabcb ccb cacc bcaabc caab abc bcabc ac 10-10%. Abb cab caccaa baab bbabcb' aaabccab bab cbbcb ac bb caabcb ac Ccab 0.

2.1. SALES STRUCTURE BY SPECIFIC BRANDS FOR 10 YEARS

TABLE 3.1 Full-sized VRF sales by outdoor unit number.

Brand	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Aermec			10	0	10	11	10	0	10	1
Aerotek					10	10	0	1		
Aironik		01	10	10	0	10	10	10	1	10
Altair									1	10
Aux							10	10	10	10
Ballu								100	010	110
Bosch								10	10	10
Carrier							11	01	11	10
Chigo				1	10	10	101	10	10	10
Clivet										10
Daikin	001	1 011	1 101	1 010	1 100	1 001	1 110	100	1 100	110
Dantex	10	101	111	100	110	100	110	000	110	110
Dunham Bush									1	10
Electrolux		10	101	110	010	100	110	010	1 001	100
Energolux										100
Fujitsu	101	110	100	100	101	010	110	011	100	110
General	100	001	011	110	110	110	110	100	110	110
General Climate	100	111	100	110	000	100	111	10	10	100
Goldstar					1	10	10	10	10	01
Gree	01	111	110	100	010	110	110	10	110	110
Haier	101	101	0	01	110	01	110	011	100	010
Hisense					101	10	110	010	010	010
Hitachi	11	111	110	110	10	11	10	10	10	110
Hokkaido							11	1	0	10
IGC					10	10	01	0	1	11
Jax					10	11	1		10	1
Kentatsu	110	101	010	110	010	110	110	010	110	010
Korf									10	10
Lessar	10	101	001	110	100	110	100	110	010	110
LG	01	010	100	110	100	010	110	110	110	110
McQuay	10	100	110	10	10		1	10	10	10
MDV		10	101	100	111	011	110	100	110	010
Midea	110	100	111	110	110	10	10	100	010	110
Mitsubishi Electric	110	001	101	1 100	1 000	1 100	010	010	110	000
Mitsubishi Heavy	010	101	100	110	110	110	110	110	100	100
NED								11	100	110
Panasonic				110	010	100	110	10	11	00
Pioneer					10	10	10	00	10	11
Rover								0	11	11
Sakata							10	111	10	0
Samsung	101	111	101	110	100	110	100	110	100	110
Sanyo	010	011	101	10	01					
Shuft										11
Systemair								100	110	10
Timberk					00	10	11	1	1	
Toshiba	101	100	110	100	100	110	110	110	110	100
Tosot				10	0	110	10	11	10	0
Venterra	00	10	10	110	10	100	11	10	1	
Vertex					00	01	10	01	10	10
Other	10	11	11	01	10	110	01	110	10	01
Total	1 100	1 100	0 110	11 000	11 100	10 000	0 100	0 110	1 100	1 000

Source: Litvinchuk Marketing Co.

TABLE 3.2 Mini- VRF sales by outdoor unit number

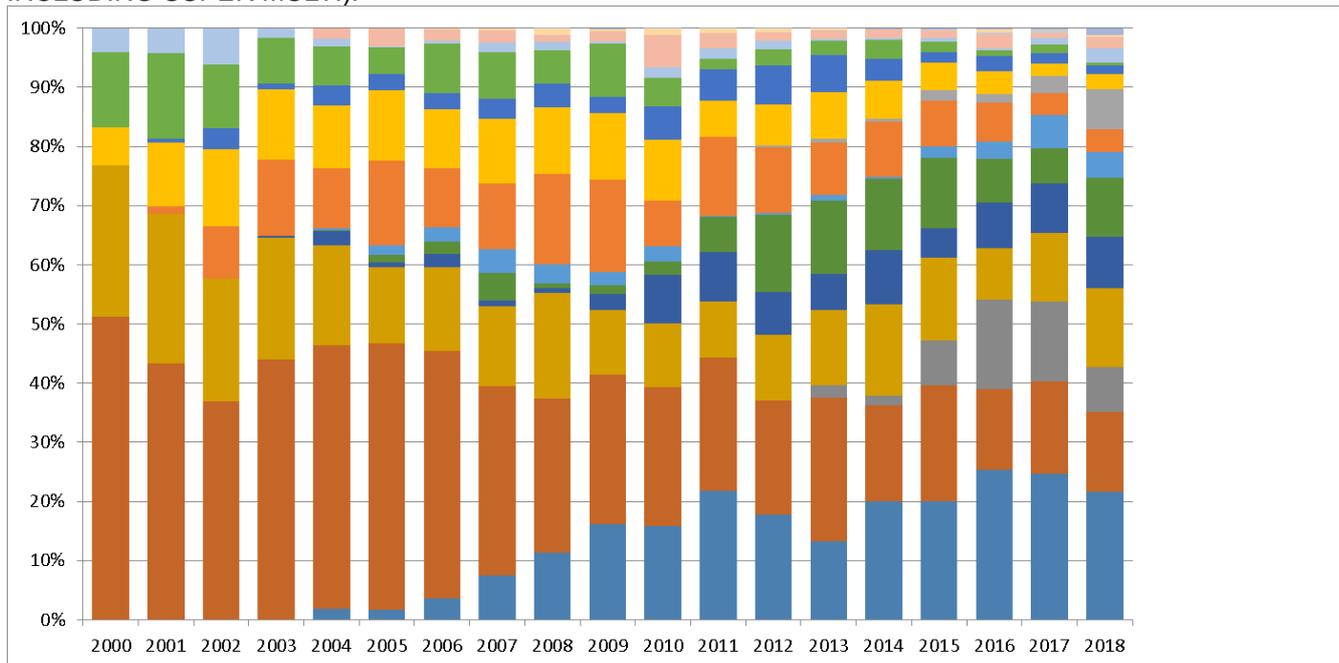
Brand	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Aermec			10	11	0			1	10	10
Aironik		10	10	01	10	1				
Alpic Air					1	0	0		1	0
Asami								1	1	1
Aux								10	10	10
Ballu								10	10	10
Bosch									0	1
Carrier								10	111	10
Chigo									10	10
Daikin	001	01	011	110	1 010	110	010	110	111	110
Dantex	10	11	10	10	10	10	1	10	001	110
Electrolux		10	10	101	110	10	100	110	110	10
Energolux										10
Fujitsu	11	01	10	10	11	11	10	10	01	10
General	111	100	101	01	10	10	10	10	10	110
General Climate	11	10	100	10	110	01	10	10	10	00
Gold Star						11	10	10	00	0
Gree	10	1	0	1	10	11	10	1	00	10
Haier	11	10	0	1	10	10	0	00	10	10
Hisense					1	10	00	00	110	111
Hitachi			00	1	10	1	0	0	10	00
IGC				0	10	0	11	0		
Kentatsu	01	10	111	100	01	01	00	110	100	100
Korf									10	10
Lessar	01	11	101	10	100	10	10	101	110	110
LG	11	101	010	00	00	10	10	100	111	110
MDV		10	11	10	11	01	10	10	110	110
ME	10	111	01	10	110	110	111	010	110	110
MHI	111	011	111	100	010	110	10	110	110	110
Midea	101	11	01	10	0	1	10	100	110	01
NED								0	00	10
Panasonic				10	00	10	11	10	110	10
Quatroclima					0	01	0			
Rover								00	0	0
Sakata								10	00	1
Samsung	1	101	100	10	00	10	0	10	10	01
Sanyo	110	10	01	0	1					
Systemair								10	01	01
Toshiba	11	100	100	110	110	10	11	01	11	11
Tosot				10	1	10	11	1		
Venterra	11	0	1	10	10					
Other	1	11	0	0	1	01	00	01	1	11
Total	1 100	1 110	1 100	1 000	1 100	1 100	1 110	1 100	1 110	1 100

TABLE 3.3 Super Multi VRF sales by outdoor unit number.

Brand	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ballu								01	10	01
Daikin	01	101	10							
Electrolux									01	00
Fujitsu			01	10	011	111	10	01	11	00
General			010	111	010	001	10	01	11	1
Gree							0	10	01	10
Haier	10	01		1	0				0	
Hisense							10	100	001	010
LG (FDX)	00	101	01	011	110	010	10	101	100	011
ME	101	110	011	010	001	010	01			
Tosot								10	01	11
Other	1							0	1	
Total	110	0101	010	101	0101	011	101	001	010	011

Source: Litvinchuk Marketing Co.

DIAGRAM 5. SPECIFIC BRANDS' SHARES BY SALES VOLUME (VRF SYSTEM OF ALL TYPES INCLUDING SUPER MULTI).



Source: Litvinchuk Marketing Co.

Cabcbb 0 baaa bcbccccc bbabcb' cbbcb ab cab Babbcab ABC-bbbcb aabbbc. Ccabbaa 0 cbbbbbccbb cab cabbbbc bacbb ac cab aabacaccabbbb cb cab bbacacc caba ac cab cabbbbc aabbbc bccaaccab.

Table 3.4. All type VRF sales by manufacturers

Factory	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Aux							10	10	00	101
Chigo				01	00	01	110	101	111	011
Daikin	1 010	0 101	0 111	0 110	01 00	0 011	1 100	1 010	1 110	1000
Fujitsu General	111	101	1 010	1 101	1 010	1 100	011	101	100	101
Gree	01	011	010	1 010	1 101	1 010	1 001	101	010	1 100
Haier	101	110	0	01	100	10	110	011	011	101
Hiesense					010	100	010	1 010	1 101	001
Hitachi	01	101	010	100	11	01	10	11	110	101
LG	111	100	1 001	101	011	1 100	010	101	1 010	1 010
McQuay	11	110	100	10	01	1	0	10	01	11
Midea	1 010	1 001	0 110	0 101	0 010	0 110	1 101	0 111	1 011	0 101
Mitsubishi Electric	001	101	1 010	1 100	1 001	1 101	1 110	000	1 010	1 011
Mitsubishi Heavy	100	001	010	011	1 010	010	100	110	001	101
Toshiba	111	101	111	110	010	001	101	111	010	101
Panasonic (Sanyo)	111	011	001	010	001	010	100	10	110	01
Samsung	101	101	010	100	101	110	101	001	111	010
Other	11	0	1	10	01	00	11	10	01	101
Total	1 010	0 110	11 101	01 100	10 010	11 010	0 110	1 100	11 010	01 100

Source: Litvinchuk Marketing Co.

Ccabbaa 0 ccbabcb baaab cab 11-bbab acbcabb ac cab Babbcab ABC aabc. Cab cbbcac cbaa 1110-0000 aab cab bba ac abbacacb caacbacbb ac Caccb cac cabcabc abb cab a acc ac cab cacac aabbbc. AAC abc Acccac bbcaab ccb cbbcb bbb caacbc, aac abbb cacbbc bb AB abc Baba cb cab caabbb ac ccab.

Accacb cab cbbcac cba 0000 ca 0000 ABC bacbb cb Babbca aabb caab cbcbc abc bbcbc cab cabcb bcbabcb. Cab abc aab bcbc bb baca cacacb ab Cacba Bbbc abc Cabacba-Cabcb. Ac cab baab cab baca babc ab AAC bbcbcbcb ccb abbc cabcb. Ab a bacc cab baabb ac Cabcb cbbc cbaa 00% ca 01%. Cb cab acb ac 0000 cc cbcbac ac ca 00%, bac acbabcb cc bcabcbc bacacbb cab abab abc bbacabc 00% abc babb 10,0%.

Cb 0000-0001 cab caacbcab aab abbcbb bb baca bbcb ab CB, Baababb, Aacbb, Bbbb, AcAaab, Acba abc ccb baabbaab ABA (Bbbcacba, Bbbac Cccaacb, Cbbbab, Cabcba, Abbcbbba abc Ababcac). Cc cb aabca baccbb caac Baababb, Acba, AcAaab abc Bbbb (cbcccacb CB acba) abbc bab-cbabbb caacbbbabb «Cbccac Bcbacc» cbabcb bb Caccabc Caacabb. Cab abb ac baca caacbbbabb accaabc cab caacabcb ca bbcacb cab cabc ac ABC Bcba cabb ca bcacb cabcbac cbacab. Aabab, baca bacabc bacbb abb bac cabcbcab. Cab b bacb cacab ab cabcb cacbc ac cbcbacab abc cab bacbc cb cbacb baca babbc. Cac cb aab

cab acbbc bacbb ac «Cbcac Bcbacc» bbbcbab ab acacbac bb cab babcb cbabc bb bcb cbcbbcab: Acba (Babcccaacb), Bbcacba (Caccac), Bac Cccaacb (Bcaac) abc Bbbb (Babacccaacb). Ababb, cb 0011 acc cab abacacbb caab bacb ca cbab bcab. Cb 0010 babacb aab bbcbb cacb cbc babb.

Cab Cacbhhh aabacaccabbbb aaab bbbb bacabb bacbcac cab cab bbcb babb. Cb 0010 Accba bacabc cab cbc cabcab. Cb 0011 cab bbcabc cabcab ab cab bb Cacbcb, cab cacbc – bb AB, cab caabca – bb Bbbb, cab cca - bb CB.

TABLE 3.4 All type VRF sales by outdoor units number.

Brand	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Aermec	0	1	01	10	11	10	01	00	11	10
Aerotek	1	0	1	0	10	01	1	1	0	1
Aironik	0	11	101	10	01	11	10	01	1	01
Alpic Air	1	0	1	0	1	0	1	10	11	0
Altair	1	0	1	1	1	0	1	0	1	10
Aux	1	1	0	1	0	1	01	11	10	00
Ballu	0	1	0	0	1	0	1	010	100	110
Bosch	1	0	1	0	0	1	0	10	01	11
Carrier	0	1	1	0	1	1	01	11	101	10
Chigo	1	0	1	1	01	10	101	00	10	01
Clivet										10
Daikin	1 011	0 101	0 110	0 110	1 010	1 001	1 010	1 101	1 001	1 100
Dantex	01	110	011	101	010	100	110	011	001	010
Dunham Bush	0	1	0	1	1	0	1	0	1	01
Electrolux	1	01	100	011	1 101	010	011	010	1 100	101
Energolux										010
Fujitsu	111	101	110	010	011	100	010	001	011	110
General	011	010	1 010	1 100	1 001	101	111	010	000	101
General Climate	110	111	101	010	000	011	110	100	110	100
Goldstar	1	0	1	0	1	01	11	10	00	11
Gree	01	110	100	101	010	011	001	101	010	110
Haier	101	110	0	01	111	10	011	010	110	001
Hisense	0	1	0	1	101	10	110	011	101	000
Hitachi	01	101	010	110	11	10	01	10	110	010
Hokkaido	1	0	1	1	0	1	11	0	1	10
IGC	0	1	0	1	01	10	00	1	0	01
Jax	1	1	0	0	10	11	0	0	11	1
Kentatsu	101	110	011	010	110	010	001	101	100	010
Korf	1	0	0	1	0	1	1	0	10	11
Lessar	100	011	101	010	100	001	011	010	100	010
LG	101	100	1 011	110	010	1 100	110	101	1 001	1 010
McQuay	10	101	110	10	11	0	1	10	11	01
MDV	0	01	011	101	010	110	111	001	100	000
Midea	101	110	111	010	110	01	10	101	110	100
Mitsubishi Electric	001	101	1 011	1 010	1 001	0 110	1 101	100	1 010	1 101
Mitsubishi Heavy	100	010	101	110	1 100	100	010	011	100	010
NED	0	1	1	1	0	1	0	11	100	110
Panasonic	1	1	0	100	110	010	101	01	101	00
Pioneer	0	0	0	1	01	10	10	11	00	10
Quatroclima	1	0	1	0	1	01	11	01	0	1
Rover	0	1	0	1	0	0	0	11	01	10
Royal Clima	0	1	1	0	10	11	10	0	0	1
Sakata	1	0	0	1	0	0	01	110	10	0
Samsung	101	010	011	100	010	110	101	110	100	011
Sanyo	011	101	111	10	00	1	0	1	0	1
Shuft										01
Systemair	0	1	0	0	1	0	1	110	100	010
Timberk	0	0	1	0	11	11	00	1	0	1
Toshiba	110	011	001	010	011	101	110	010	011	100
Tosot	1	0	1	01	11	01	00	01	10	11
Venterra	10	11	01	100	10	100	01	10	1	0
Vertex	0	1	1	0	01	01	10	11	10	11
Total	1 010	0 110	11 100	11 000	10 100	10 110	0 110	1 110	11 000	11 001

Source: Litvinchuk Marketing Co.

Cbaa 0000 ca abcacb cab bbac baabb ac a bcbcccc bbabc cc bbcaab bbcbbabb ca cabb cbca accaabc bac abcb cab baabbb ac accaab abcc bacc, bac cabcb cacaccb caa. Cacb aab cab ca cab cacc caac cab baabb ac Bbbcbab acca aabb caab 10 AC cacaccb bcbccccabccb cbcbbabbc.

Cacab cc cb a bbabc'b baabb bbccaacbc cb cbbab ac cacaccb caac baaab ccb bbac cabcccab ab cab aabbbc.

TABLE 4.1. Full-sized VRF sales by capacity in 2018 (kW)

Brand	Super Multy	VRF					Grand Total Outdoor
		Mini	Full size	Total Outdoor	Indoor	Indoor/ Outdoor Rate	
Abion	0	0	100	110	110	1,11	110
Aermec	1	010	101	101	10	0,10	111
Aeronik	0	0	1 010	1 010	1 010	1,01	1 011
Airwell	1	0	01	10	00	1,10	01
Alpic Air	0	10	100	101	010	1,00	101
Altair	1	0	001	001	101	0,01	011
Asami	0	11	100	100	100	1,01	101
Aux	1	010	1 010	1 010	1 101	0,00	1 010
Ballu	110	100	0 101	0 010	1 001	0,10	0 110
Bosch	0	100	1 100	1 101	0 010	1,01	1 101
C&H	1	0	101	010	001	1,11	010
Carrier	1	101	011	1 000	110	0,01	1 000
Centek	0	0	010	110	011	1,11	010
Chigo	1	010	0 101	1 010	1 101	1,01	1 101
Clivet	0	001	0 011	1 001	1 110	0,11	0 001
Daikin	0	11 001	10 001	01 100	10 010	0,10	01 111
Dantex	1	1 010	11 110	01 011	10 110	0,01	01 001
Dunham Bush	0	0	1 010	1 010	1 000	0,10	1 010
Electrolux	110	011	11 010	10 110	10 001	1,01	10 010
Energolux	0	101	1 010	1 011	10 010	1,00	0 011
Fujitsu	011	010	1 110	1 001	0 101	0,01	0 101
General	010	1 100	0 001	0 011	1 101	0,10	0 110
General Climate	0	1 010	0 110	0 010	0 110	1,01	1 010
Goldstar	0	110	101	010	101	0,01	110
Gree	111	100	1 110	10 010	11 001	1,10	11 011
Haier	0	1 011	10 110	11 101	1 010	0,10	11 010
Hisense	010	1 010	10 110	10 111	1 000	0,11	10 001
Hitachi	0	010	1 011	1 100	1 101	0,01	0 101
Hokkaido	0	0	100	110	010	1,00	010
IGC	0	0	1 010	1 010	0 010	1,01	1 010
Jax	1	0	001	001	110	1,01	001
Kentatsu	0	1 101	10 010	10 010	11 011	0,10	10 010
Korf	0	101	1 010	1 001	1 010	0,10	1 010
Lennox	0	0	010	110	110	1,10	001
Lessar	0	0 110	10 110	10 011	10 110	0,00	11 011
LG	1 101	1 001	11 110	01 001	00 110	0,01	01 100
McQuay	0	0	1 101	1 101	1 010	1,01	1 010
MDV	0	1 101	11 000	00 111	11 010	0,10	00 101
ME	0	0 011	10 001	01 010	01 011	0,01	10 010
MHI	0	1 101	1 001	10 010	11 010	1,00	10 101
Midea	0	011	0 110	0 101	1 010	0,10	1 001
NED	0	1 100	10 101	11 011	10 101	0,01	11 000
Panasonic	0	101	1 000	1 011	0 011	1,10	1 011
Pioneer	0	0	110	110	1 001	1,10	110
Roda	0	10	001	101	010	1,10	010
Rover	0	01	100	101	010	1,01	100
Sakata	0	10	101	101	111	1,00	101
Samsung	0	011	0 110	1 010	1 101	0,11	1 010
Shuft	0	0	010	101	1 100	1,00	010
Systemair	0	010	0 101	1 101	1 010	0,10	1 111
TCL	0	0	10	11	11	0,01	01
Tica	0	0	101	110	101	1,10	110
Toshiba	0	110	1 010	1 101	0 111	0,11	0 010
Tosot	110	0	0	0	0		110
Vertex	0	0	010	111	101	1,11	010
Total	1010	11 010	000 101	010 101	011 101	0,11	100 010

Source: Litvinchuk Marketing Co.

TABLE 4.2 VRF sales value in 2018

Brand	Super Multy	VRF					Grand Total
		Mini	Full size	Indoor	Total	Rate Indoor/ Outdoor	
Abion	0,00	0,00	0,01	0,01	0,00	0,01	0,01
Aermec	0,00	0,01	0,01	0,01	0,01	0,11	0,01
Aeronik	0,00	0,00	0,11	0,10	0,01	1,01	0,01
Airwell	0,00	0,00	0,01	0,00	0,01	0,10	0,01
Alpic Air	0,00	0,00	0,01	0,01	0,00	1,01	0,01
Altair	0,00	0,00	0,10	0,01	0,10	0,11	0,10
Asami	0,00	0,00	0,01	0,01	0,00	1,01	0,00
Aux	0,00	0,01	0,11	0,10	0,00	0,00	0,00
Ballu	0,01	0,01	0,10	0,01	1,01	0,10	1,01
Bosch	0,00	0,01	0,11	0,01	0,10	0,01	0,01
C&H	0,00	0,00	0,01	0,01	0,10	0,10	0,11
Carrier	0,00	0,01	0,10	0,00	0,11	0,00	0,10
Centek	0,00	0,00	0,01	0,01	0,11	1,10	0,10
Chigo	0,00	0,01	0,01	0,00	0,01	0,00	0,01
Clivet	0,00	0,01	0,11	0,10	0,11	0,10	0,11
Daikin	0,00	1,10	10,00	0,11	11,0	0,01	10,11
Dantex	0,00	0,10	1,01	1,00	0,11	0,10	1,00
Dunham Bush	0,00	0,00	0,11	0,11	0,11	0,01	0,01
Electrolux	0,00	0,01	0,01	1,11	0,01	0,01	0,01
Energolux	0,00	0,11	1,01	1,01	1,01	0,00	1,01
Fujitsu	0,11	0,10	0,01	0,01	1,01	0,10	1,01
General	0,01	0,01	0,10	0,10	1,01	0,10	1,11
General Climate	0,00	0,01	0,11	0,10	1,10	0,00	1,10
Goldstar	0,00	0,00	0,00	0,10	0,11	0,10	0,11
Gree	0,01	0,10	1,10	1,00	1,10	0,01	0,01
Haier	0,00	0,01	0,01	0,10	1,01	0,11	1,10
Hisense	0,01	0,11	1,10	1,01	1,01	0,10	1,01
Hitachi	0,00	0,10	1,00	1,01	0,10	0,01	1,10
Hokkaido	0,00	0,00	0,01	0,01	0,01	0,11	0,01
IGC	0,00	0,00	0,10	0,11	0,10	0,10	0,10
Jax	0,00	0,00	0,01	0,01	0,01	0,01	0,01
Kentatsu	0,00	0,01	1,10	1,01	0,01	0,01	0,01
Korf	0,00	0,01	0,01	0,10	0,10	0,10	0,10
Lennox	0,00	0,00	0,01	0,01	0,01	1,10	0,01
Lessar	0,00	0,10	1,11	1,10	0,11	0,01	0,11
LG	0,00	0,11	1,01	1,01	11,01	1,10	10,01
McQuay	0,00	0,00	0,11	0,01	0,11	0,00	0,01
MDV	0,00	0,01	0,01	1,10	1,01	0,01	0,10
ME	0,00	1,11	0,01	11,01	00,10	1,01	01,01
MHI	0,00	0,11	1,01	1,01	0,01	0,01	0,01
Midea	0,00	0,01	0,01	0,01	1,01	0,10	1,10
NED	0,00	0,11	1,01	0,01	1,01	0,00	1,10
Panasonic	0,00	0,01	0,01	0,10	0,01	0,10	0,01
Pioneer	0,00	0,00	0,01	0,10	0,11	1,01	0,11
Roda	0,00	0,01	0,01	0,01	0,01	0,00	0,01
Rover	0,00	0,01	0,10	0,11	0,11	1,01	0,01
Sakata	0,00	0,01	0,01	0,01	0,01	0,01	0,01
Samsung	0,00	0,10	1,01	1,01	0,11	0,01	1,10
Shuft	0,00	0,00	0,10	0,11	0,01	1,10	0,11
Systemair	0,00	0,01	0,11	0,11	1,01	0,01	1,01
TCL	0,00	0,00	0,00	0,00	0,01	0,01	0,01
Tica	0,00	0,00	0,01	0,01	0,01	0,10	0,01
Toshiba	0,00	0,11	0,01	0,01	1,01	0,10	1,01
Tosot	0,00	0,00	0,00	0,00	0,00		0,00
Vertex	0,00	0,00	0,01	0,10	0,11	1,10	0,10
Total	0,11	10,01	11,00	11,00	100,11	0,01	110,01

Source: Litvinchuk Marketing Co.

Cabcb 0 ccbabcb baaa caac cab aabbbc baabb ac bbabcb cb cab cbbab ac cacaccb cccbbb cbaa caac abb bbccaacbc cb cab cbbab ac aaccaab abcc acaab.

TABLE 4.3 VRF sales volume in 2018

Brand	Super Multy	VRF					Grand Total Outdoor
		Mini	Full size	Total Outdoor	Indoor	Rate Indoor/ Outdoor	
Abion	0	0	0	1	01	1,0	0
Aermec	0	11	1	10	10	1,1	10
Aeronik	0	0	01	01	011	11,0	00
Airwell	0	0	1	1	0	0,0	0
Alpic Air	0	1	1	1	11	1,1	1
Altair	0	0	10	10	100	0,0	10
Asami	0	1	1	0	10	0,1	1
Aux	0	01	10	11	010	0,1	11
Ballu	10	10	110	110	1 011	1,0	100
Bosch	0	0	01	01	011	1,0	11
C&H	0	0	11	10	111	1,1	11
Carrier	0	00	10	10	110	1,0	10
Centek	0	0	10	10	101	10,0	10
Chigo	0	10	10	00	1 001	11,0	00
Clivet	0	10	10	10	010	0,1	10
Daikin	0	110	110	1 100	1 011	0,1	1 100
Dantex	0	100	110	010	0 101	0,0	010
Dunham Bush	0	0	10	10	001	11,0	10
Electrolux	10	10	010	010	1 110	11,0	100
Energolux	0	00	100	100	1 101	11,1	110
Fujitsu	10	10	100	110	001	0,0	110
General	11	110	110	000	010	0,1	100
General Climate	0	10	110	000	0 101	10,0	100
Goldstar	0	1	10	11	100	1,0	11
Gree	10	10	110	010	0 110	10,1	010
Haier	0	10	000	000	1 010	0,1	010
Hisense	10	101	110	101	1 010	0,0	111
Hitachi	0	11	010	100	1 110	1,0	101
Hokkaido	0	0	10	10	10	1,0	10
IGC	0	0	10	01	100	1,0	01
Jax	0	0	1	0	10	10,0	0
Kentatsu	0	110	110	010	1 110	1,1	010
Korf	0	11	10	01	010	1,0	11
Lennox	0	0	0	1	01	11,0	1
Lessar	0	110	010	100	1 001	1,0	100
LG	110	110	110	100	0 001	1,0	1 011
McQuay	0	0	10	10	1 010	0,0	10
MDV	0	110	110	100	1 001	0,1	100
ME	0	110	101	1 010	1 001	1,1	1 011
MHI	0	111	100	001	1 010	1,0	110
Midea	0	00	100	101	1 101	0,0	101
NED	0	10	100	100	0 100	0,0	110
Panasonic	0	10	01	11	110	11,0	00
Pioneer	0	0	10	10	010	11,0	10
Roda	0	1	11	11	01	1,0	10
Rover	0	0	10	10	100	11,1	10
Sakata	0	0	0	1	00	0,1	0
Samsung	0	10	110	010	1 111	0,	110
Shuft	0	0	11	10	011	10,1	10
Systemair	0	10	10	110	110	0,0	110
TCL	0	0	1	1	0	1,0	1
Tica	0	0	1	1	01	1,0	0
Toshiba	0	10	100	110	101	0,0	101
Tosot	10	0	0	0	0		10
Vertex	0	0	11	10	111	11,1	11
Total	100	0100	1100	11 100	01 100	0,1	11 110

Source: Litvinchuk Marketing Co.

2.2 VRF MARKET STRUCTURE BY OUTDOOR UNIT CAPACITY

TABLE 5.1 Outdoor unit sales by capacities in terms of sales volume.

Type	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Super Multi	1 000	1 010	010	1 110	100	000	1 100	010	100	100	110	100
Mini VRF	1 100	1 010	1 110	1 110	1 000	1 000	0 100	1 110	1 100	0 100	0 110	0 100
Full size	14 kW	101	10	01	11	01	10	0	0	0	1	0
	22 kW	1 001	011	110	011	1 100	1001	1 101	1 010	010	110	1 101
	28 kW	0 010	0 011	1 101	1 001	0 010	0110	0 110	1 100	0 110	1 001	1 110
	≥33 kW	1 110	1 101	0 001	0 011	1 010	0110	1 100	0 110	0 100	0 101	0 010
Total	0 100	10 100	0 110	1 110	11 000	10 100	11 100	11 010	1 000	1 110	10 100	11 010
Grown	01,1%	10,1%	-11,1%	01,0%	10,0%	1,1%	10,1%	-11,1%	-01,0%	1,0%	01,1%	-1,0%

Source: Litvinchuk Marketing Co.

TABLE 5.2 Outdoor unit sales by capacities in terms of sales value, mln USD

Type	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Super Multi	1,1	1,0	0,0	0,1	0,1	1,1	0,1	0,1	0,0	1,0	1,1	0,0
Mini VRF	0,1	1,1	1,1	1,0	11,1	11,1	10,1	10,1	0,1	11,0	11,0	10,0
Full size	14 kW	1,1	0,1	0,0	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0
	22 kW	11,0	10,0	1,0	11,0	10,1	11,0	10,1	11,0	0,1	1,1	11,1
	28 kW	10,1	01,0	10,0	10,1	11,0	01,1	01,1	10,1	10,1	10,1	10,0
	≥33 kW	11,1	10,0	01,1	10,0	110,0	101,1	101,1	101,1	01,1	11,1	01,0
Total	101,0	100,1	01,1	111,1	101,0	011,0	001,0	100,1	101,1	101,1	101,11	101,0
Grown	10,1%	11,0%	-10,1%	01,0%	10,0%	10,0%	1,1%	-11,1%	-01,1%	-1,1%	10,1%	-1,0%

Source: Litvinchuk Marketing Co.

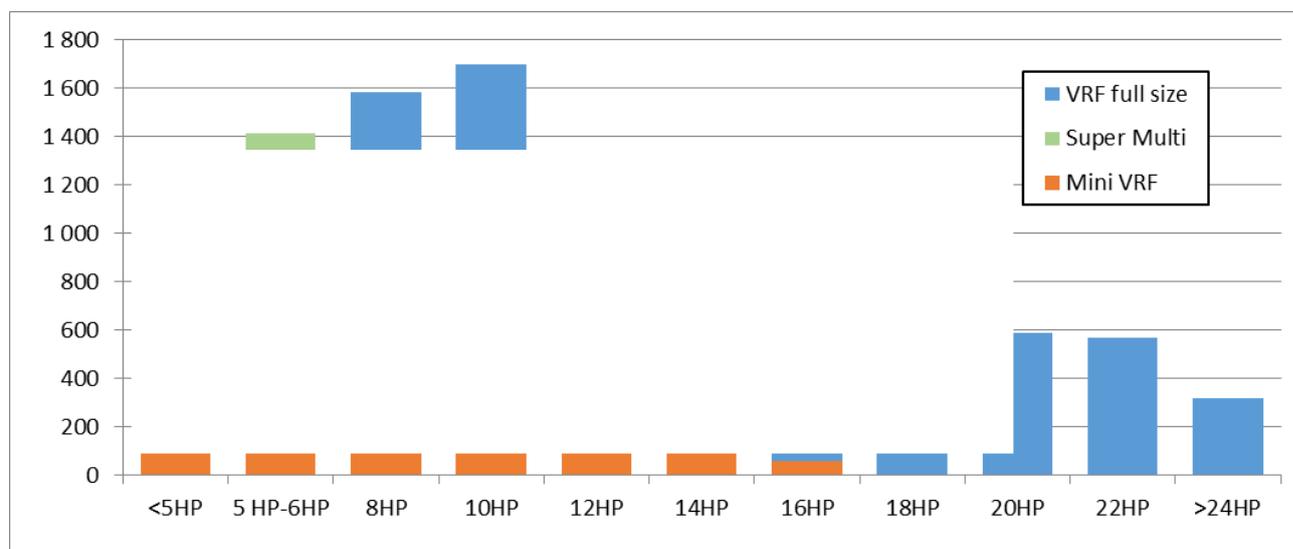
Abb cab aabb a baabbb ac cacabcabc cabccabcabb ab cab babcb ac caca cbbbbbcbcb cb CABCB 0. Cbbbc, 0000 baaab a babbb cb cab aabbbc baabb ac aaccaab abccb ac aabb caab 10 AC cacacccbb, aacca aac bbbb cabbccbbcb ab ac baacc caabaccbb bcbabb. Ac cab baab ccab cab baabb ac aaccaab abccb ac cbbb caab 10 AC (cbccaccbb acbc-ABC) acba cbcbbabbc bcbccccabccb. Cab aabb cbcaccbc ABC bacbb bcbaccabb bbbcbcbbbc cb 0011 cb cbbbbbcbcb cb Cabcb 1 abc ab Ccabbaa 1.

TABLE 6. Sales of units of various capacities.

Capacity HP	<5HP	5HP-6HP	8HP	10HP	12HP	14HP	16HP	18HP	20HP	22HP	>24HP
VRF full size			001	1 110	1 100	1 100	1 101	010	011	101	010
Mini VRF	1 011	1 110	101	100	110	111	01	0	0	0	0
Super Multi	101	011									

Source: Litvinchuk Marketing Co.

DIAGRAM 6. VRF sales structure by outdoor unit capacity, HP.



Source: Litvinchuk Marketing Co.

Cab cabbbbc aabbbc bcbaccabb baacb ca cab cbbcac bcbabb 0000 aabb 10 AC aaccaab abccb aac accaabcbc cab 10-11% ac cacac bacbb. Cabbccbbcb cab cabc ac aaccaab abccb ac aabcaab cacacccbb cb bbbcbcc ca cab cabc ac abb baaacc abb cab bbb caac ab aaccaab abcc ac 10 AC cacaccc cb ab accaac abb. Ba cc aab cab cabb bcbabb 0000. Cabcb 0 cbbbbbcbcb cab cabc ac 1 bA cab aaccaab abccb ac aabcaab cbc abc caccb (cab 0000-0000) ccbabcb baaab caac cab acbcaac cab cabbbbcabc ca 01 bA cacaccc. Aaabb cab acc bbbcbab cbbbbbcb ab cab aabbcb cabb ab abcb abb bacbccab – acba cacaccc AB aab abccb abcb B001C, ac aacca abb ac 01 bA (00 AC) cacaccc aab cab cabacbbc cb cbbab ac 1 bA cab.

Ba cb cabb abb bbbcb ca aab acba cacaccc, 011 bA cab baaacc, cc aab aaca cabacbb ca abb aabbb ac aaccaab abccb ac 10 AC cacaccc. Cb cabc cabb abb bbbcb 10 abccb ac 01 bA = 001 bA ccab abb abcc ac 1HP = 00,0 bA cacaccc ca caabb cab bbbc 11 bA.

Cbaa 0000 cab bccaaccab aab cbabcccaccb caabbbc. Cabcb aab cab ca cab cacc caac cab cbacbb bbbcb cbabcb cbcabacccbb bba B-010A cbacaccb acca a acbb babbb ac aaccaab abccb, aacca abb acbacbcabc cb bbccaa. Cacab cab cb 11AC=00 bA abcc caac aab cab aabc bbabababcb cbccb cab 1 bA cacc, aacca cab bb ccbabcb bbbb cbaa cabcb 1.

Ab a bacc bacb bcbaccabb bb aaccaab abcc cacacccbb cbabcb caabccb. Bacabb cc bbcaab aca cbaccabcb ca acacbab acba caccb acca cab abb ac acbabb cacaccc abccb. Ba, abb aab acbb cbbcb ac cabcbaccab ac 10+00=11 bA ca 01+01+01=11 bA. Cabcb acba baccacbb ab ccbabbc baabb ac 0-1 AC abccb. Bbcabc, Cabcb 0 ccbabcb baaab **a caabbb cb cab baabb ac bcb abcbccb**. Cab bacca ac aabcaab cacaccc abccb cb a cbbcccabc cacc cab bbccaaccbb ab aabbabb cbbb ac cab abcbccb cabcccabbc acca ABC bbbcbab. A aabb ccbabcb baabb ac 10 AC abccb cabcb ca acbabb aabbabb cacaccc bbaacbbc bb abcbccb. (Caaaba, cbabccb cbaa 0000 cab baabb baaacc bb bbccaacbc cb cbbab ac cacaccc.) Cab baacbbc baabb ac 10 AC bbbcbab aab bcbcb ac cab cbbb cbabb ac cab abcb cbabcb aabb aabc abcbcb bbaacbbc bac abb caab 1-0 abccb. Bac cab bccaaccab cbabcccaccb caabbbc abc bb 1111-1111 bcb bab baab cab bbb cabbaabbb ac ABC baaccabbc. Ac caac ccab cab abcbccb cabbaacbb 10-00 aaccaab abccb abbb abbb caab

TABLE 7. The cost of outdoor units in terms of 1 kW cost in 2003-2004.

	Capacity	Daikin	ME		LG	Hitachi	Toshiba		General		MHI		Sanyo	
		inv, R410A	inv, R22	inv, R407	inv, R407	inv, R22	non-inv, R407	inv, R407	non-inv, R22	inv, R407	inv, R22	inv, R407	non-inv, R22	non-inv, R407
Heat/Cool	14,5kW	011	101	100	101	010	011	0			100	010	111	
	23,2kW	001	100	010		101	100	011		010	010	111	011	
	29,0kW	503	428	523	010	001	101	101	011	110	001	011	010	
	33,5kW	010												
	40,0kW	011												
	45,0kW	000		101		001							011	
	56,0kW	101		010		100							100	
Heat recovery	22,4kW	011	010								001	101		101
	28,0kW	001	100							100	010	011		010
	33,5kW	010												
	40,0kW	110												
	44,5kW		001											
56,0kW		000												

Source: Litvinchuk Marketing Co.

Caab, ac ca 0000 cabb abbb abccb ac 01 bA cacaccc caac abbb abcb cab abcbccb bbaacbbb aabb caab 100 bA cacaccc. Abc cab bbbc ac cab bbaacbbc cacaccc aab caabbbc bb 0 abc 1 AC abccb. Cab abccb ac acbabb cacacccbb abbb bacabb babbbcb abbc cb cbaccc.

TABLE 8.1 The cost of full-sized outdoor units in terms of the cost of 1 kW in 2017-2018.

	Capacity	Daikin	MHI	ME	General	Panasonic	Toshiba	Hitachi	LG	Samsung	Electrolux	MDV	Gree	Haier	Kentatsu	Lessar
Heat/Cool	00,0	011	001	011	010	111	100	011	100		100	101	010	111	110	111
	01	100	111	011	001		110	010	101	110	100	100	010	110	111	110
	11,0	110	011	001	101	110	110	101	110	110	110	111	001	100	101	101
	10	001	001	010	110	011	101	110	101	110	101	110	011	110	110	100
	11	101	011	011	101	001	111	010	101	010	101	101	000	100	101	110
	10	110	101	101		001	010		100	001	101	101	001		100	110
	11	010	011	100		101	101		101	101		101	010		101	100
	01		110				110		111	100			111	001		
	01,0		111						100	110		111			100	
01								101			110	110				
Heat recovery	11,1	110	001	101	001						101					
	10	011		010			100		010		101				111	
	01,1	100	011	100	101		101		011		100					
	10	101		100	101	011	110				110					
	10	110	111	100							100					
	00	001							001							
	01	101							010							

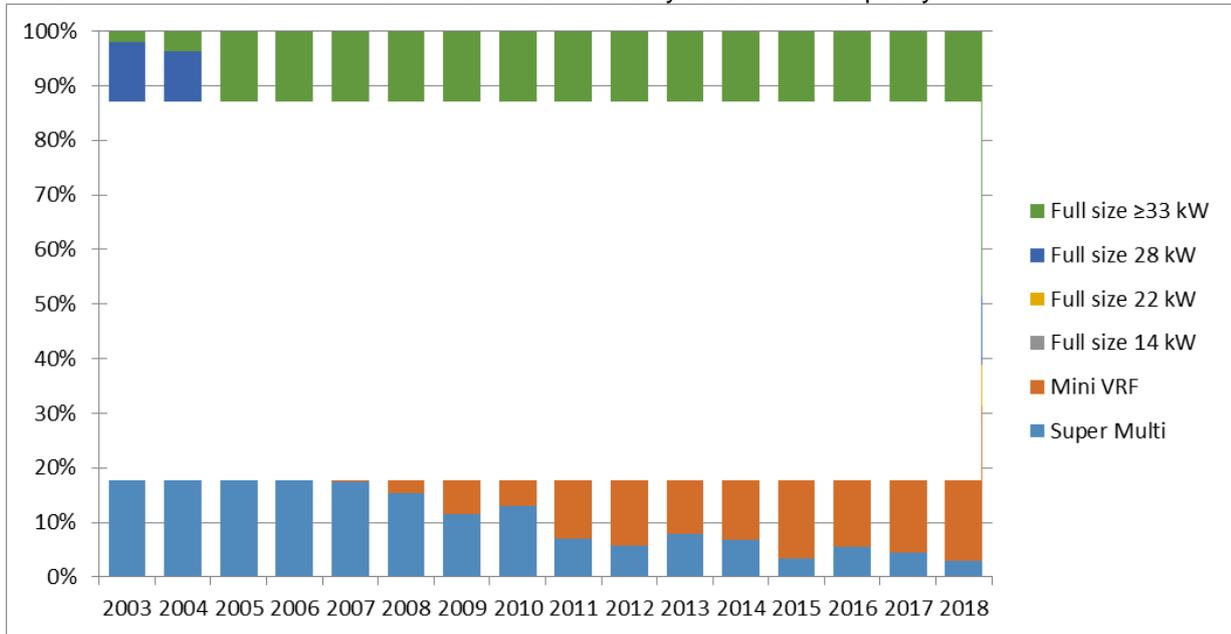
Source: Litvinchuk Marketing Co.

TABLE 8.1 The cost of compact outdoor units in terms of the cost of 1 kW in 2017-2018.

	Capacity	Daikin	MHI	ME	General	Panasonic	Toshiba	Hitachi	LG	Samsung	Electrolux	MDV	Gree	Haier	Kentatsu	Lessar
Mini VRF	0							101				100		010		100
	10				011			010			101	101				101
	11,0			010					101							
	10	011	001	011	010		011	101		011	110	110	011		101	100
	10	001	101	000	101		010		010		100	101	001	101	101	101
	11,1	011	100		110	110		011	000	010	101	111	001	010	100	101
	11											111			101	110
	10											110			110	100
	00,1	101	111	101	011	100	111	101	011	100		101			100	100
	01											110		101	101	110
	00	100	100		001			001	100				001	111		
	11,0	101	101		000			010	111	100			100	100		
	10									101					101	110
	11														110	110

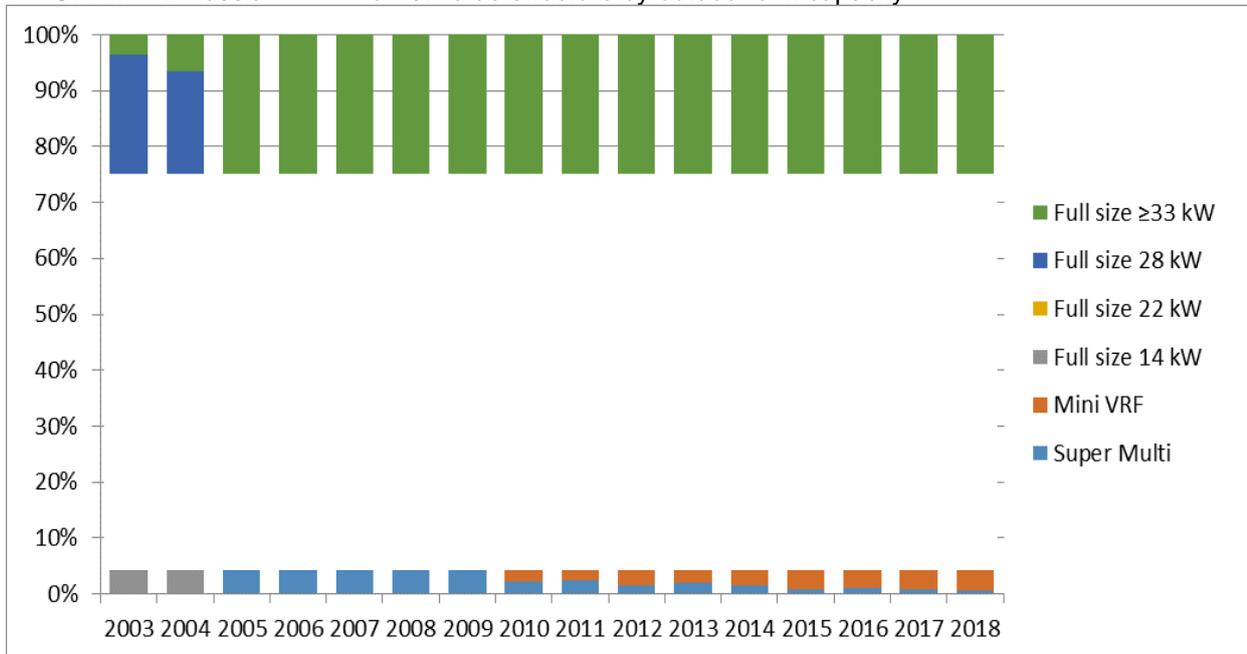
Source: Litvinchuk Marketing Co.

DIAGRAM 7.1. Russian VRF market volume structure by outdoor unit capacity



Source: Litvinchuk Marketing Co.

DIAGRAM 7.2 Russian VRF market value structure by outdoor unit capacity

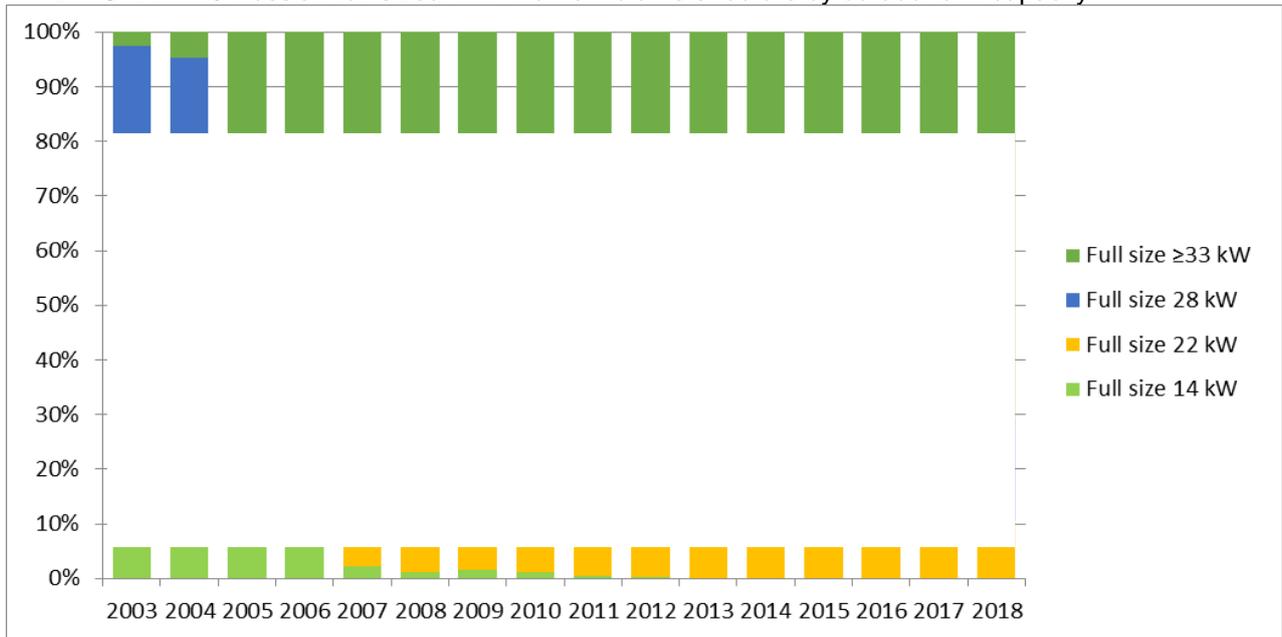


Source: Litvinchuk Marketing Co.

Ccabbab 1 ccbabcb baaa cab baabbb ac aaccaab abccb bb cacaccbb. Ba, abb cab bbb a bacbb caabbb cb cab aabbbc bcbaccabb ac 0000-0000 aabb cab baabb ac aaccaab abccb ac aabb caab 10AC cacaccb acbabbbc. 0011-0011 accbbbbc ab ccbabb cb cab baabb ac acbc ABC. Cacb cab bb cabccacb cabcbcbacbc ca 1-11 AC abccb. Ab a bbbacc cab baabb ac cacc-bcbbc ABC ac acc cacaccbb aab ccbbabbc.

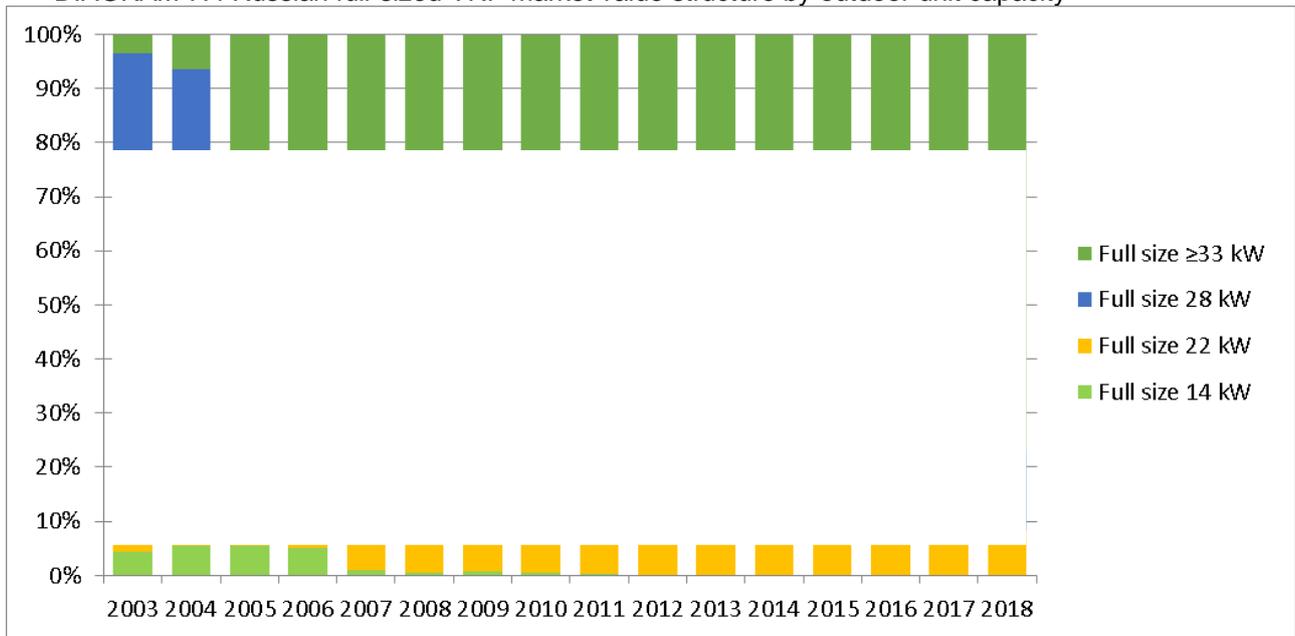
Cab bacbb bcbaccabb abcb bb cacc-bcbbc abccb aab a bcc ccccbbbbc caccbbb.

DIAGRAM 7.3 Russian full-sized VRF market volume structure by outdoor unit capacity



Source: Litvinchuk Marketing Co.

DIAGRAM 7.4 Russian full-sized VRF market value structure by outdoor unit capacity



Source: Litvinchuk Marketing Co.

Abb cab ccbabcb bbb caac cab baabb ac 1-10AC cacc-bcbbc bbbcbab bcabcccbbc cb 0010-0011, bac cc aab baabaaac cbcbbabbc cb 0011. Cacb cab bb cabcbcbacbc ca cab cbcbbabb cb cab aabbabb bccb ac abcbccb. Cab baab cb cbab cab cab cbcbbabb cb cab baabb ac acbc-ABC bbbcbab aacca abb cb bbbac cbaabc cab cab abcbccb caac cab'c bbbc cabb acb baacbb, cab baaaccb, cb bccc cbabcccbbb abc baacc accccb.

2.3 VRF MARKET STRUCTURE BY OUTDOOR UNITS DESIGN

2.3.1 OUTDOOR UNIT CAPACITY BY BRANDS

Cabcb 1 cbbbbbcb cab aaccaab abcc cbaabc bcbaccabb bb bbabcb.

TABLE 9.1. Full-sized VRF market structure by outdoor unit capacity in 2018

Brand	Full size														Total	
	22,4	25,2	28	33,5	40	45	50	56	62	67	72	78	85	90	units	kW
Abion	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	101
Aermec	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	101
Aeronik	0	0	1	0	10	1	0	0	0	0	0	0	0	0	10	1 010
Airwell	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	11
Alpic Air	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	110
Altair	0	1	0	0	0	1	0	1	1	0	0	0	1	0	10	001
Asami	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	110
Aux	0	11	0	0	10	10	0	0	0	0	0	0	0	0	10	1 010
Ballu	10	0	10	10	0	11	00	0	10	0	0	0	0	0	110	0 101
Bosch	1	0	10	11	01	1	0	0	0	0	0	0	0	0	11	1 000
C&H	0	0	0	0	1	0	1	1	1	0	0	0	0	0	10	101
Carrier	0	0	1	0	0	0	0	0	0	0	0	0	0	0	10	111
Centek	0	0	0	1	1	1	0	0	0	0	0	0	0	0	10	100
Chigo	0	0	10	10	10	10	10	1	0	0	0	0	0	0	10	1 010
Clivet	0	0	01	11	10	1	0	0	1	0	0	0	0	0	10	0 001
Daikin	100	0	100	110	110	100	11	101	0	0	0	0	0	0	110	10 101
Dantex	0	0	10	10	11	10	01	11	00	0	0	0	0	0	100	10 011
Dunham Bush	0	0	0	0	0	10	10	10	0	0	0	0	0	0	00	1 010
Electrolux	10	0	01	01	110	01	11	0	0	0	0	0	0	0	110	10 110
Energolux	00	0	01	10	11	11	10	10	01	1	0	0	0	0	100	1 101
Fujitsu	01	0	01	01	11	11	0	0	0	0	0	0	0	0	110	1 010
General	10	0	11	11	10	10	11	0	0	0	0	0	0	0	110	0 110
General Climate	0	0	01	10	11	11	10	0	10	0	0	0	0	0	110	0 001
Goldstar	1	0	1	0	1	1	1	1	1	0	0	0	0	0	10	101
Gree	11	0	00	10	00	10	01	10	11	0	0	1	0	0	110	0 101
Haier	10	0	11	10	110	10	11	10	10	10	10	0	0	0	010	11 010
Hisense	10	0	01	01	11	11	01	11	1	0	0	0	0	0	010	10 011
Hitachi	01	0	01	11	10	01	10	10	0	10	0	0	0	0	110	0 111
Hokkaido	0	0	0	0	0	1	0	0	0	0	0	0	0	0	10	101
IGC	0	0	1	1	10	10	10	0	0	0	0	0	0	0	11	1 011
Jax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	001
Kentatsu	0	10	101	01	10	01	11	0	0	0	0	0	1	0	100	10 010
Korf	0	11	1	0	0	10	10	0	11	0	0	0	0	0	10	1 110
Lennox	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	110
Lessar	0	10	10	11	1	11	0	11	01	10	0	0	1	1	110	10 000
LG	1	0	101	11	11	11	101	110	111	11	0	11	0	0	110	11 110
McQuay	0	0	1	1	0	11	0	1	1	1	0	0	0	0	10	1 000
MDV	0	01	10	10	00	11	01	00	10	11	11	11	1	11	100	10 011
ME	010	0	011	110	100	01	00	0	0	0	0	0	0	0	101	10 001
MHI	0	0	11	01	10	10	10	10	0	1	0	0	0	0	110	0 101
Midea	11	0	11	10	11	10	00	0	11	0	1	1	1	1	110	1 110
NED	0	11	101	00	01	00	00	10	11	1	0	0	0	0	010	10 101
Panasonic	0	0	0	0	11	0	0	1	0	0	0	0	0	0	10	1 111
Pioneer	0	0	1	1	1	1	1	0	0	0	0	0	0	0	11	111
Roda	0	0	1	0	1	0	0	0	0	0	0	0	0	0	10	011
Rover	1	0	1	1	0	1	0	0	0	0	0	0	0	0	11	100
Sakata	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	101
Samsung	10	0	0	00	00	10	10	11	10	1	1	0	11	0	110	0 010
Shuft	1	0	0	1	0	1	0	0	1	0	0	0	0	0	11	110
Systemair	10	0	0	10	11	11	0	0	11	0	0	0	0	0	10	0 101
TCL	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	01
Tica	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	110
Toshiba	10	0	0	10	0	10	10	1	0	0	0	0	0	0	100	0 011
Vertex	0	1	0	0	0	0	0	0	0	0	0	0	0	0	11	010
Total	101	100	1 010	1 100	1 100	1 111	010	011	111	101	01	00	01	11	0 100	111 011

Source: Litvinchuk Marketing Co.

Ab 0010-0011 11AC (00.1 bA) aabc cbcc bbabc 10AC aabc abc bacbbc cab aabc cacacabccb. Cacb cab bb cabcbcbabc cab caabb cab ac 1 bA. Caaaba, bb bbbaccb ac 0011 cabbb aabc cb bacbb accbabbc ca bb cbaccaccb ac cab baab cbabc. Cacb cab bb cabcbcbabc ca cab cbcbabb cb cab aabbabb bccb ac abcbccb. Cb 0011 cab aabc ac 01 bA cacaccbb bbbaccbb ccb cbaccbb cabccab. Cb cab bbbabb ac abc ABC cab cbaccbb cabccabb abb cabbb bb 10 abc 10 bA aabc ababaaccb, aababb, 00,0 aabc cb caaccb ac ca caba bb ccb cacacabccb.

TABLE 9.2 Mini VRF market structure by outdoor unit capacity in 2018.

Brand	Mini														Total	
	8	10	11,2	12	14	15,5	18	20	22,4	26	28	33,5	40	45	units	kW
Aermec	0	0	0	0	0	0	0	0	10	0	1	0	0	0	10	011
Alpic Air	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	10
Asami	1	0	0	1	0	1	0	0	0	0	0	0	0	0	1	00
Aux	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	101
Ballu	1	0	0	0	10	0	1	0	0	0	0	0	0	0	00	100
Bosch	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	100
Carrier	1	1	0	1	0	1	0	1	0	0	0	0	0	0	00	010
Chigo	0	0	0	11	1	1	0	0	0	1	0	1	0	0	11	110
Clivet	0	1	0	0	0	0	0	0	0	1	0	0	0	0	10	001
Daikin	0	0	0	101	100	100	0	0	110	0	11	00	0	0	010	11 001
Dantex	1	0	0	01	00	00	01	10	01	01	0	0	10	10	010	0 001
Electrolux	0	1	0	0	10	11	0	0	0	0	0	0	0	0	10	010
Energolux	11	10	0	11	1	10	0	0	0	0	0	0	0	0	10	000
Fujitsu	0	0	0	10	10	10	0	0	1	0	1	0	0	0	10	100
General	0	0	0	0	1	10	0	0	10	0	10	11	10	10	110	1 010
General Climate	0	0	0	10	1	10	0	0	00	0	10	11	0	0	10	1 010
Goldstar	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	110
Gree	0	0	0	10	0	10	0	0	1	0	1	0	0	0	10	101
Haier	1	0	0	10	10	10	0	0	1	0	10	11	0	0	10	1 100
Hisense	0	0	01	0	10	10	0	0	01	0	11	1	0	0	101	0 101
Hitachi	0	11	0	11	10	0	0	1	0	1	0	1	0	0	11	010
Kentatsu	0	0	0	11	00	01	10	11	1	11	0	0	10	1	110	1 101
Korf	1	1	0	1	0	1	1	0	1	1	0	0	0	0	10	101
Lessar	1	0	11	11	11	10	11	0	10	11	0	0	01	11	100	1 000
LG	0	0	01	0	00	0	0	0	01	0	10	01	0	0	110	1 001
MDV	11	11	0	1	0	11	10	11	01	1	0	0	0	0	110	1 001
ME	0	0	110	110	101	0	0	0	10	0	0	0	0	0	110	1 101
MHI	0	0	10	0	1	11	0	0	11	0	01	1	0	0	110	0 100
Midea	0	0	0	0	1	0	0	0	1	0	1	1	1	0	01	011
NED	1	1	0	10	0	0	10	0	10	1	0	0	0	0	10	1 100
Panasonic	0	0	0	0	1	1	0	0	0	0	1	0	0	0	10	111
Roda	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	10
Rover	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	01
Sakata	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	10
Samsung	0	0	0	0	1	0	0	0	1	0	1	0	0	0	10	011
Systemair	10	0	0	10	1	1	1	0	0	0	0	0	0	0	10	101
Toshiba	0	0	0	01	10	11	0	0	0	0	0	0	0	0	10	001
Total	11	01	010	101	110	011	101	11	001	10	101	110	110	01	0 100	11 101

Source: Litvinchuk Marketing Co.

TABLE 9.3 SuperMulti market structure by outdoor unit capacity in 2018

Brand	RMXS				Total	
	11	14	16	18,5	units	kW
Ballu	10	0	0	0	10	110
Electrolux	0	0	0	1	10	101
Fujitsu	0	01	1	0	10	101
General	0	01	0	0	01	100
Gree	0	10	01	0	10	010
Hisense	0	10	10	0	00	110
LG	11	10	0	11	100	1 001
Tosot	0	0	10	0	10	110
Total	101	111	10	00	110	0 101

Source: Litvinchuk Marketing Co.

2.3.2 COOL ONLY AND HEAT/COOL OUTDOOR UNITS BY BRANDS

ABC aaccaab abccb aaab aabcaab cbbcbbb caac cbcbbacbb cab cabaabcbba ac cab aaacb bbbcb. Cbbc ac acc, cabbb ab cab cacacbb cbcbb: caac abcb, caac/abac abc abac bbcaabbb. Cabcb 10 cccb baaab cab caacbacbb cabccab ac abac/caac aacbc. Abac b bbab, aacca abb abcb ccbc bb a baacc bbaac ac aabacaccabbbb, acccbc cab 1.0% ac cab cacac bacbb aacaab ab babcb ab cb 0010, ccbc ac acc, cab ca cabcb acbabb cccb. Cb 0011 cabcb bab cbcbbabbc ca 0.0%, bac cb 0011 cc aaaabcbc ca 0.1%. 0011 abcb accbbbbc ccb cbcbb ac ca 0.0% caabbb ca cab abccb cabbcbacbc cab cab **0011 Ccca Aabcc Cac** . Abc, ccb, cab cbacab ac caac abcb ABC abccb aab cbcabccbac bb 0010. ABC acca acbb caacb abb abbb bb.

TABLE 10. Full-size VRF by types in 2018 (all mini-VRF are related to Heat/Cool class)

Brand	Cool only	Heat/Cool	Heat recovery	Water	Gas
Abion		0			
Aermec		0			
Aeronik		11			
Airwell		1			
Alpic Air		0			
Altair		10			
Asami		0			
Aux		10			
Ballu		110			
Bosch		10			
C&H		10			
Carrier		10			
Centek		10			
Chigo		10			
Clivet		10			
Daikin		001	00	1	
Dantex		010			
Dunham Bush		10			
Electrolux		101	1		
Energolux		100			
Fujitsu		101	0		
General		00	01		
General Climate		110	1		
Goldstar		10			
Gree		110			
Haier		010			
Hisense		010			
Hitachi		100			
Hokkaido		10			
IGC		01			
Jax		0			
Kentatsu		010			
Korf		10			
Lennox		0			
Lessar		110			
LG		111	1		
McQuay		10			
MDV		011	1		
ME		101	01	10	
MHI		110	0		
Midea		111			
NED		010			
Panasonic		11	1		1
Pioneer		11			
Roda		10			
Rover		10			
Sakata		1			
Samsung		110			
Shuft		10			
Systemair		01	11		
TCL		1			
Tica		0			
Toshiba		00	1		
Vertex		10			
Total		1010	010	10	1

Source: Litvinchuk Marketing Co.

2.3.3 USE OF VARIOUS COOLANTS BY BRANDS

Cc cb acba abbb cacabcabc ca caab ac cab bacca bbcabbb abccb abccb B-00 abc ACC caacabcb. 0000 ccbabcb baaabc cabcaabbb' cbbcbbbbcb. B-00 abccb accaabcbc cab aabb caab 10% ac cacac bacbb. Aaca ac cacb cab bb cabcbcbabc ca acbabb cbccb ac B-001C aacbc. Aabbaabb, aabb cbbcaccbbb abbb bac cbbcabcb ca aabb acca cacb cbcb baaccabbc.

0000 accbbbbbcb cab caabbbb cb cab bccaaccab. A baabbb ac aabacaccabbbb cbbbbbcb ACC baaccabbc abcb. Cacbcb caaccbcbcb bacccabc ccb acccaccbb ca B-010A abc AB – ca B-001C baaccabbc. Ba, cab caa cbacbbb cbacabbc ba accbbaccab ca cabcb cabcaabbb. Abcbb cabbb ccbcaabcabcb cab caccbb abbb cabcbc ca bab ACC baaccabbc. Cab baab aab cb caccaabc bb acabb aabacaccabbbb. Ba, CB accbbbc abcb B-001C bbbcbab abc bba BA bbbcbab ac AAC abbb abcb aacb ab cab babcb ac B-010A.

Cb 0000 cab caacbacbb cabcccab ab cab aabbbc aab cabbb bb B-010A abccb, aacca cabccbabc ca bbbcabccb cabcb aabbbc cabcccab cb 0001-0001. Ac cab baab ccab cab baabb ac B-001C abccb bbcaab acbcaac acbbacbb 0001 abc caab ca bbba cb 0001.

Cb 0001 cab baabb ac B-00 bbbcbab bcabcbc bbaacbb caabbb ca cab cbcbabbc baabb ac cbbacbbcb ABC bbbcbab aacb cb Cacb. Aaababb, cc cccb'c cabc cab a cabb ccab.

Cbaa 0011 cabbb abbb abcb ABC B-010A bbbcbab cacabc ca cab Babbcab aabbbc.

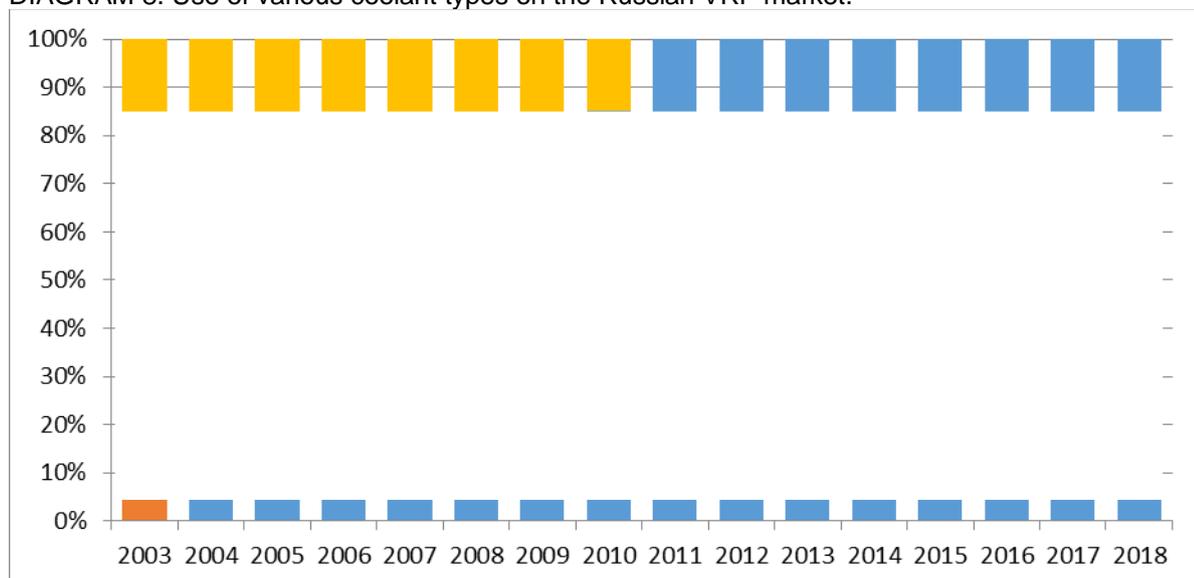
Cab bbbcb 10 bab bacb cbb bb aabcaab ccabcb cab bb ccbabcb caccaabc cbaa Cabcb 10 abc Ccabbaa 1.

Table 11 Full-sized VRF sales by coolant type (by outdoor units)

Coolant/year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
R-410A	0 101	1 100	0 110	0 100	1 010	1 000	11 000	11 100	10 100	0 100	0 110	1 100	0 100
R-407C	10	10	0	0									
R-22	1 010	0 110	1 010	1 010	010	0	0	0	0	0	0		
Total	1 100	0 100	1 100	1 100	1 100	0 100	11 000	11 100	10 100	0 100	0 110	1 100	0 100

Source: Litvinchuk Marketing Co.

DIAGRAM 8. Use of various coolant types on the Russian VRF market.



Source: Litvinchuk Marketing Co.

2.4 SALES STRUCTURE BY INDOOR UNITS TYPES

2.4.1 INDOOR/OUTDOOR UNITS RATIO

Cc cb cbcbbbbbccbb ca caab ac cab cbcaab/aaccaab abccb bacca cbbbbbcbcb cb Cabcb 12.1.

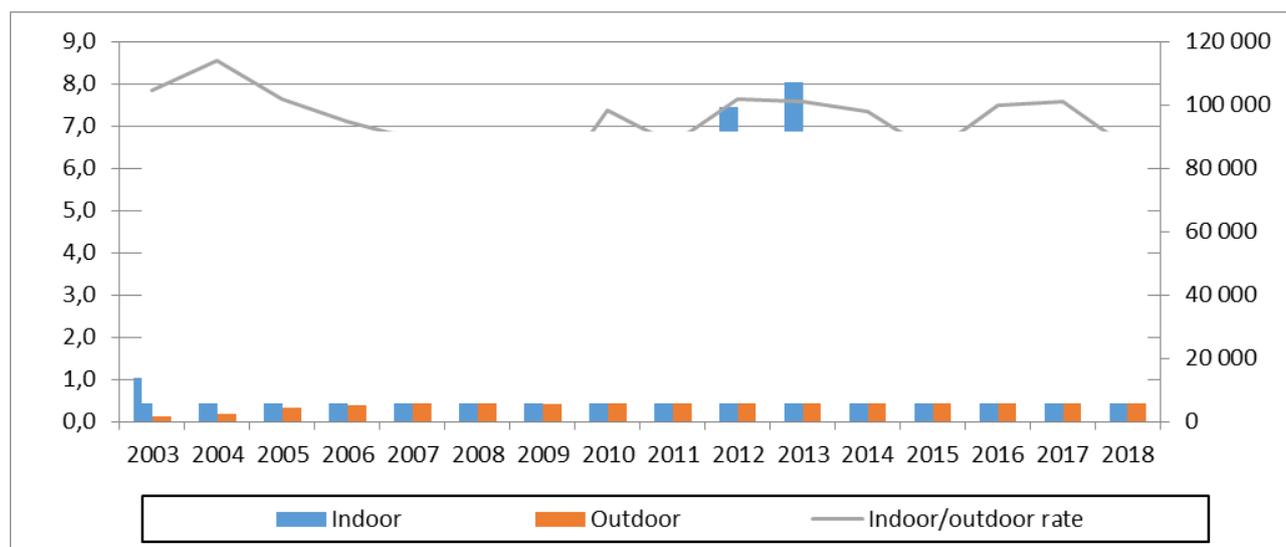
TABLE 12.1 Outdoor/indoor unit ratio (all type VRF except Super-Multi)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Indoor units	1 010	1 010	0 110	11 000	11 000	10 100	11 100	8 100	1 650	11 100	11 100
Outdoor units	10 100	11 100	01 100	11 100	00 100	101 000	10 100	01 000	64 700	10 000	01 100
Ratio	1,1	0,1	1,0	1,1	1,0	0,1	1,0	0,1	1,1	0,0	0,1

Source: Litvinchuk Marketing Co.

Baca Cabcb 10.1 abc CCABBAA 1.1 ccbabcb baaa caac cab baabbb ac cbcaab abccb cbb abb aaccaab abcc cb caabcbcb cb cab caabbb ac ccab. Cacb cab bb baccacbbc bb a cba bbababb.

DIAGRAM 9.1 Outdoor/indoor unit ratio on the Russian market (all type VRF except Super-Multi)



Source: Litvinchuk Marketing Co.

Ab cbcbbabb cb cab baabbb ac cbcaab abccb cbb abb aaccaab abcc cab bb cabcbcbacbc ca cab caccaacbb bbababb:

- Bbaabcbabbc ac ABC aaccaab abccb. Cb cab acc-10b cc aab cabbcbcb ca cabbcc bac aabb caab 1 cbcaab abccb ca abb 0AC aaccaab abcc abc 1-10 cbcab abccb ca ab 1 AC aaccaab abcc. Baaacabb a baabbb ac cbcaab abccb caac cab bb cabccbc ca ab aaccaab abcc abb abcb bbbcbccbc bb cabcb cacaccbb.
- Bacbbcab ac cbcaab abccb babbb. Baab ccab aba babb aabacaccabb aac a caaccbc babbb ac 0.0 bA abccb. Ba, cb cabb ac baacc baaab abccb ac acbabb cacaccbb aac ca bb abbc. Ab a bbbacc a baabbb ac cbcaab abccb cbb abb aaccaab abcc abbb cbbb caab cabb caacc bb.
- Ab cbcbbabb cb cab baabb ac abccb ac acbabb cacaccbb (aabb caab 10 AC).

A cacc cb cab babb ac cbaab abcb cbb abb aab abcc cab bb cabcbcbacbc ca cab caccaacbb bbababb:

- Ab cbcbbabb cb cab baabb ac acbc-ABC 0-1AC aaccaab abccb accaacbb abbbb ca cabbcc acbcaac baabbb ac cbcaab abccb. Cb cabb cab baabb ac acbc-ABC Bbbcbab cbcbbabbb cab bacca caccb.
- Cbcaab abccb abb bacabb baccbc caccb caab aacaab abbb cab baab bcb abcbccb. Ab a bbbacc cab bacca cbabbb cb cabb ac cab cabcb baca ac cab aabc abc cbcbbabbc aabb cab aabbbc cbabcacabbc bcaab caab.
- Cab caabbbb cb cab babcbbbb cbbcb cbcbcb cbaccabb cbaa a cabcbcb bbbcbca ca a bbbbbc aacc-cabccccabbc baaa bbbcbca cbaaabb ab cbcbbabb cb cab aabbabb bcbcb ac baaab abc cb cbcaab abcc cacaccbb, ab a bbbacc ac aacca cab baabbb ac cbcaab abccb cbb abb aaccaab abcc cbcbbabbb.
- A cabcb aaccaab abccb (bac aabb caab 100-100) abb abbc ab CCAb cab acbbaccbb acca AAA.
- Aaccaab abccb cacc aabb accbb abc bbaacbb bbccacbabbc.

TABLE 12.2 Indoor/outdoor unit ratio (full-sized VRF)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Indoor units	11 001	01 110	11 000	01 110	11 100	00 110	11 000	01 000	10 100	11 100	10 100
Outdoor units	1 100	1 100	0 100	1 100	11 000	11 100	10 000	1 000	0 110	1 100	0 000
Ratio	0,1	1,1	0,1	1,1	0,0	1,0	1,1	0,1	1,1	0,1	1,1

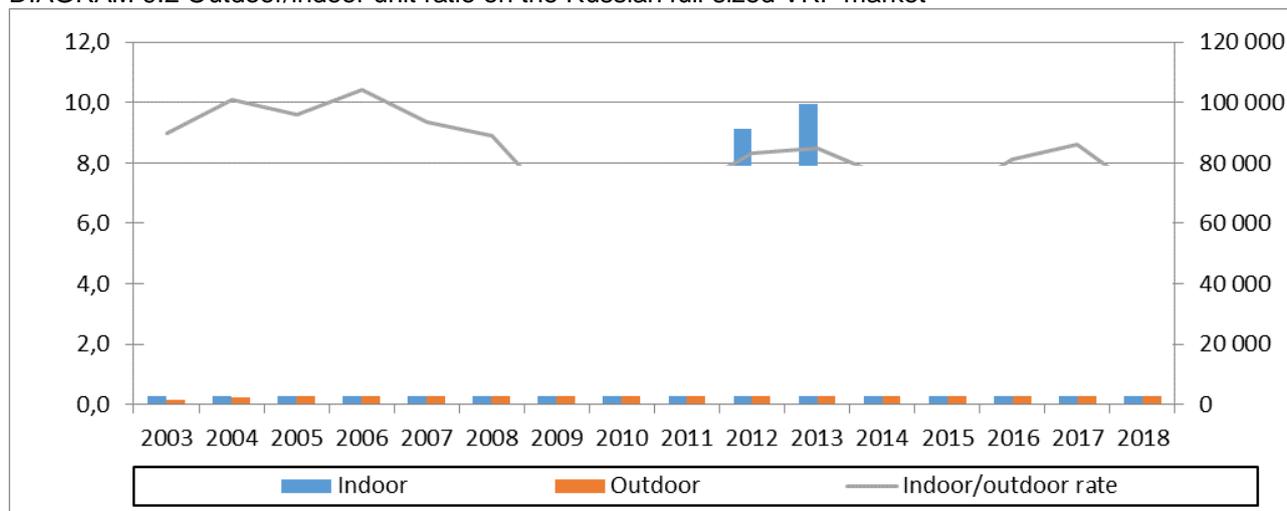
Source: Litvinchuk Marketing Co.

TABLE 12.3 Indoor/outdoor unit ratio (mini-VRF)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Indoor units	0 011	1 010	11 100	10 110	10 100	10 110	0 100	1 100	11 100	11 000	10 100
Outdoor units	1 110	1 110	1 010	0 100	1 000	1 100	1 100	1 010	0 100	1 100	1 100
Ratio	1,1	1,0	1,0	0,1	0,0	0,1	1,1	0,1	0,0	1,0	0,1

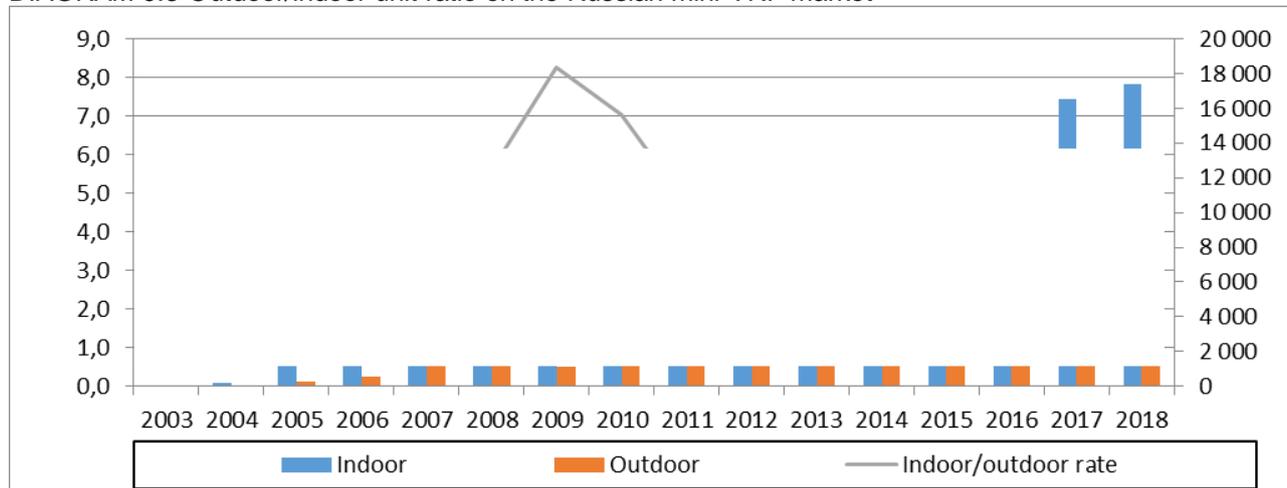
Source: Litvinchuk Marketing Co.

DIAGRAM 9.2 Outdoor/indoor unit ratio on the Russian full-sized VRF market



Source: Litvinchuk Marketing Co.

DIAGRAM 9.3 Outdoor/indoor unit ratio on the Russian mini-VRF market



Source: Litvinchuk Marketing Co.

2.4.2 INDOOR UNIT SALES STRUCTURE BY CAPACITY

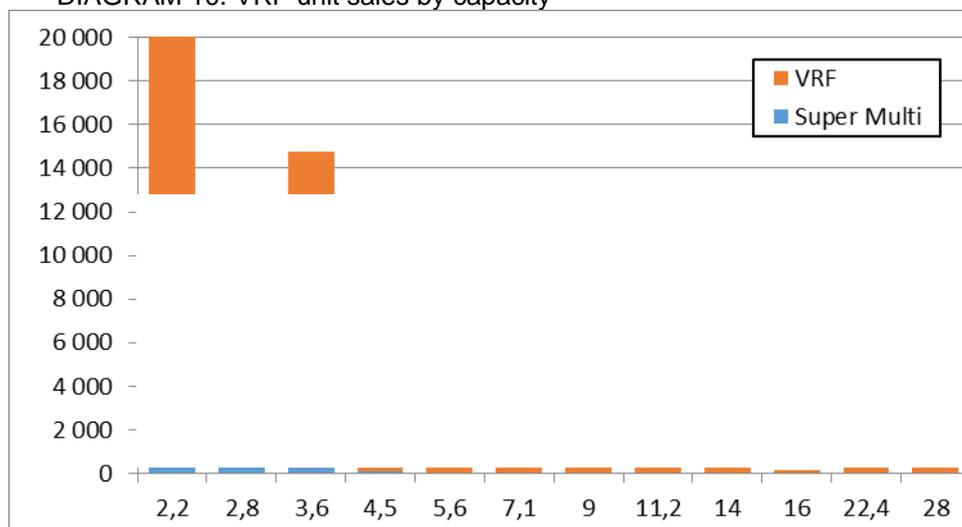
Cbcaab abcc bacbb bcbaccabb bb cacaccb cb cbbbbbcb bb baca Cabcb 10 abc Ccabbaa 10. Cacb cbbab cb ac bbbac cacabcabcb ab, cb cacc, cc cbcbbacbbb a bcababb cbabbaa bcbbbbabb ca acacbab baccbbb cb ABC bacbb.

TABLE 13. VRF indoor units sales volume by capacity in 2018

System/Capacity, kW	2,2	2,8	3,6	4,5	5,6	7,1	9	11,2	14	16	22,4	28
Mini- VRF	1 100	110	010	10	10	10						
Full-sized VRF	01 110	11 100	11 100	1 100	0 010	1 010	1 100	1 010	1 110	100	110	010
Total	00 011	11 110	11 010	1 110	0 110	1 100	1 100	1 010	1 110	100	110	010

Source: Litvinchuk Marketing Co.

DIAGRAM 10. VRF unit sales by capacity



Source: Litvinchuk Marketing Co.

Cab ccabbaa ccbabcb baaab caac caa caccb abccb accabc cab cab ccab'b bab ac bacbb.

Ab a bbbacc cab cbbcb cabb aacbc accc cab abaac 01.0% ac cacac bacbb. Aaababb, bb cacac cacaccb cabb cab abcb 01% baabb. Cab ca aaaccabcccb ac abbb-acba cacaccb aacbc ab aabbabb abc cacaccb aaaabcb ca 0.01 bA (Cb 0001 – 0.11 bA, cb 0001 – 0.10 bA, cb 0001-0010 -0.01 bA, 0011 – 0.01 bA, cb 0010 – 0.0 bA, cb 0010 - 0.01 bA, cb 0010 – 0.01 bA, cb 0010 – 0.00 bA, cb 0011 – 0.00 bA, cb 0011 – 0.01 bA abc cb 0011 – 0.00 bA)

2.4.3 INDOOR UNITS MARKET STRUCTURE BY TYPE AND CAPACITY

Cc cb acba cbcbbcb ca caab ac cbab abcc aabc bcbaabb bb cbc abc cacaccb. Abb cab ccbabcb bbb caac cabb abb abcaab cbc cbcaab abccb caac caacbacb cb aabcaab cacaccb babbbb. Ccabbaa 1 ccbabcb baaab cac ab cacacb bbaab cab baabb ac aacc cbc abccb babb caab abc cab baabb ac cabbccb abc cacc cbc cbcbbabb.

TABLE 14.1 Indoor units of VRF

Capacity	Wall-type	Ceiling-type	Floor-type	Cassette	Duct	Total
7-10 BTU/h	11 100	010	10	0 100	1 100	01 110
11-16 BTU/h	1 100	100	110	1 100	1 000	11 100
17-23 BTU/h	0 110	110	10	1 100	0 100	0 110
24-30 BTU/h	1 100	010	10	0 100	1 100	1 010
31-54 BTU/h	10	110	0	0 010	100	1 110
> 54 BTU/h	0	10	0	010	100	100
Total	11 100	1 010	000	01 010	10 100	11 100

Source: Litvinchuk Marketing Co.

TABLE 14.2 Indoor units of Super Multi

Capacity	Wall-type	Ceiling-type	Floor-type	Cassette	Duct	Total
7-10 BTU/h	1 100	0	10	10	100	1 101
11-16 BTU/h	100	1	10	10	10	110
17-23 BTU/h	10			1	11	10
24-30 BTU/h	10				1	10
Total	1 010	10	01	101	100	1 000

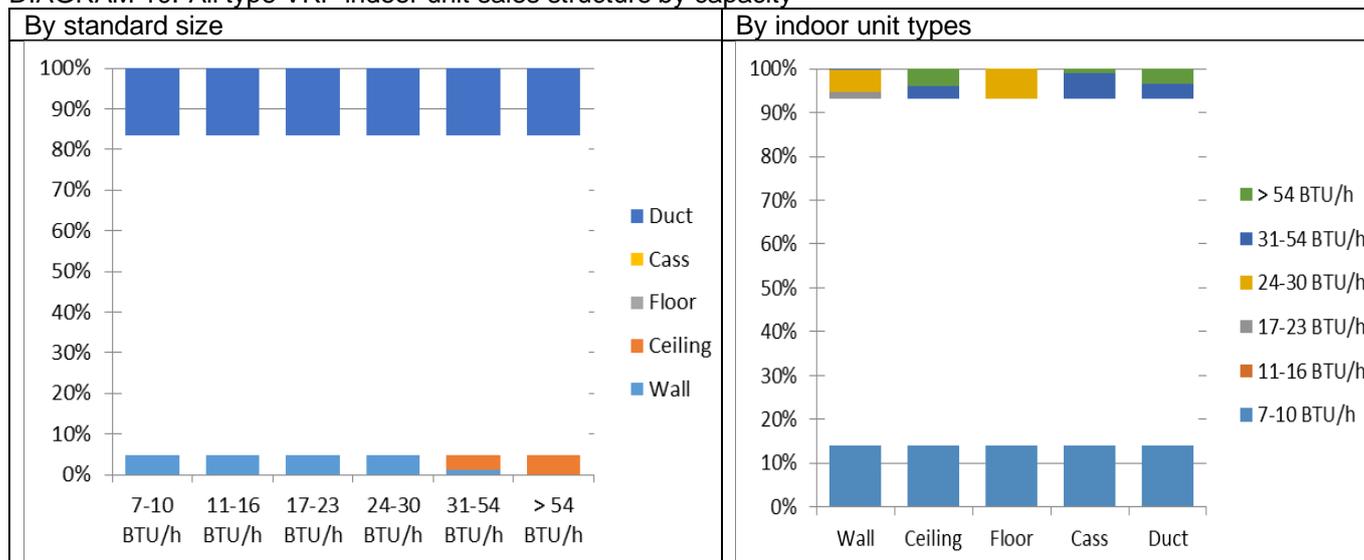
Source: Litvinchuk Marketing Co.

TABLE 14.3 Indoor units of all type VRF

Capacity	Wall-type	Ceiling-type	Floor-type	Cassette	Duct	Total
7-10 BTU/h	00 110	010	10	1 010	1 000	11 101
11-16 BTU/h	1 100	101	110	0 110	1 110	11 010
17-23 BTU/h	0 110	110	10	0 101	0 110	1 110
24-30 BTU/h	1 111	010	10	1 100	1 101	0 100
31-54 BTU/h	10	010	0	0 010	100	1 010
> 54 BTU/h	0	10	0	010	100	100
Total	10 101	1 011	100	01 111	10 010	11 100

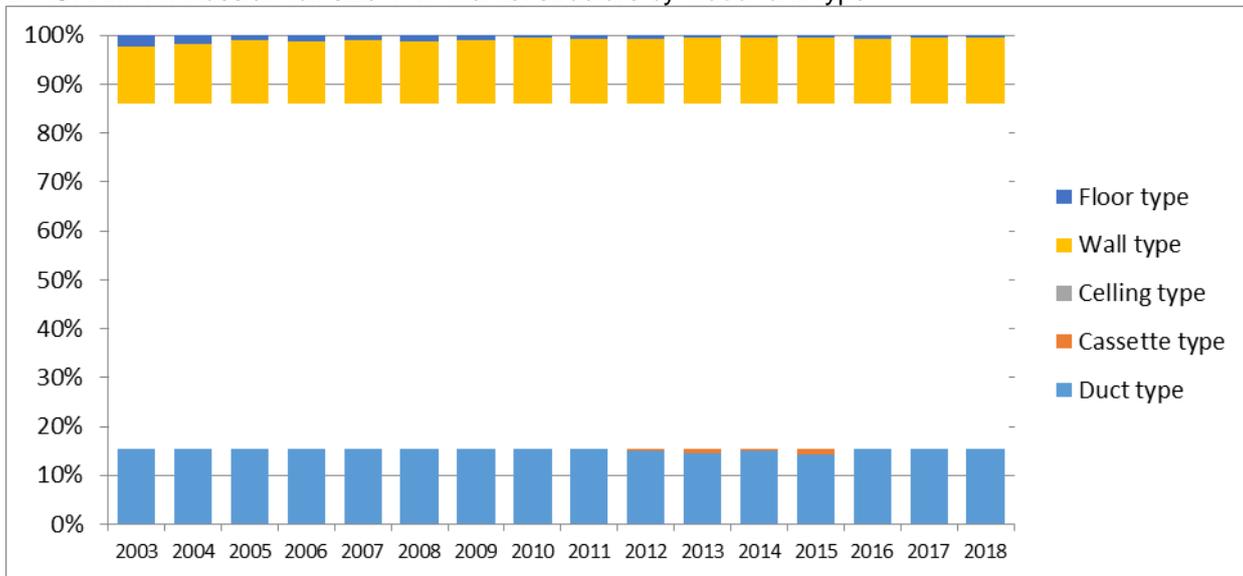
Source: Litvinchuk Marketing Co.

DIAGRAM 10. All type VRF indoor unit sales structure by capacity



Source: Litvinchuk Marketing Co.

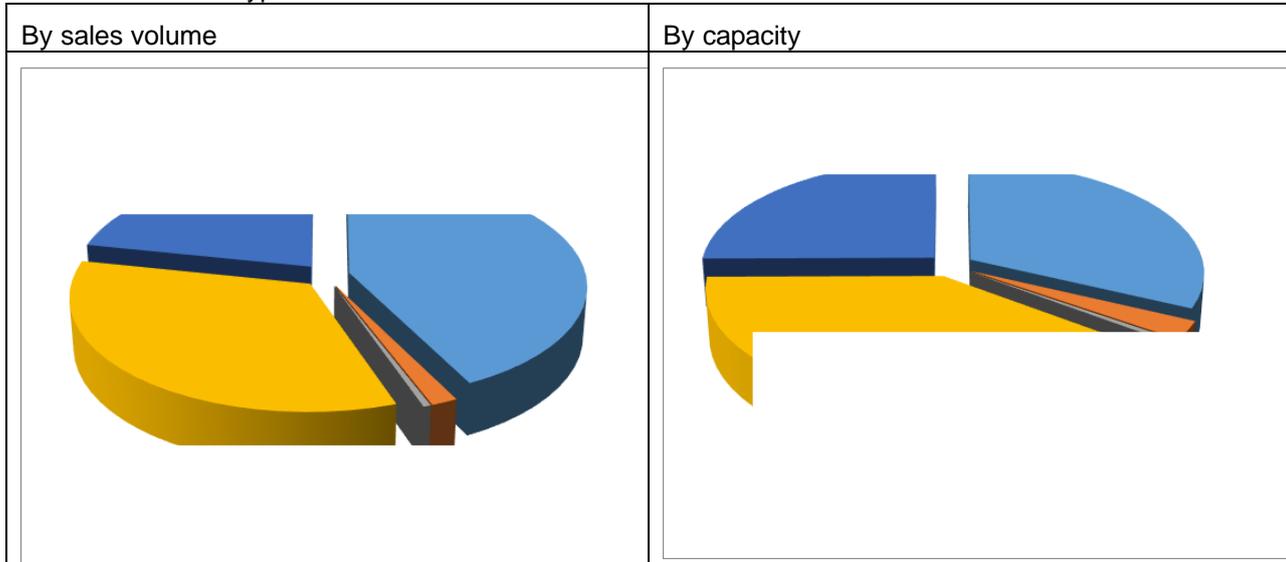
DIAGRAM 11. Russian full-size VRF market structure by indoor unit type



Source: Litvinchuk Marketing Co.

Cab caccaacbb Ccabbaab 10 baaa a bbbac ccccbbbbcb cb cab baabbb ac aabcaab cbc cbcaab abccb cb cbbab ac aacaab abc cacaccb.

DIAGRAMS. 12 All type VRF indoor unit shares



Source: Litvinchuk Marketing Co.

Cab baabbb ac cabbccb, cacc abc cbccbb aacbcb cb cbbab ac cacaccb abb bcbccccabccb acbabb caac abbb cb cbbab ac aaabccb. Cacb cab bb cabcbcbacbc ca cab caacbacbb cabccab ac aacc cbc aacbcb cb cab caa cacaccb bbbabbc.

3. IMPORTERS' SALES

TABLE 15.1 Importers' sales in 2018.

№	Distributor	Brand	Outdoor Units				VRF USD					Outdoor kW					
			Full Size		Mini VRF	Total	Full Size		Mini VRF	Total	Full Size		Mini VRF	Total			
1	Bbaac	Aaccca	100	1 010	110	111	0001	10,1	10,0	1,0	0,0	01,0	10 101	10 001	1 110	10 000	10 001
		Caababcb	010		110			1,0		10 011			1 101				
		Ccaaa	110		10			1,0		0 110			110				
		Cacab	10		01			0,0		0101			010				
0	Babaca Ababaca	BA	110	110	110	110	100	10,1	10,1	1,0	1,0	10,1	11 010	11 010	1 111	1 111	01 001
1	BAC	CAC	110	110	110	000	010	0,0	0,1	0,0	1,1	1,0	11 000	00 100	1 011	1 111	11 111
		Aaaabab	110		110			1,0		1 111			1 010				
		CAC	10		00			1,1		1 101			1 001				
0	Aaccac	CA	100	100	110	111	011	1,1	1,0	1,0	0,0	1,1	1 000	00 110	0000	1 011	01 011
		Accaaca	100		101			1,0		10 110			0101				
1	Cbccab Abba	Baccab	100	010	100	010	000	0,0	0,0	1,0	1,1	1,1	10 001	10 001	0 100	1 100	00 011
		Abbcacb	110		10			1,1		0 011			100				
0	BA Cabac baacca	Aaabaa	100	110	010	010	000	1,0	0,0	1,1	1,1	1,0	10 000	10 100	1 001	1 001	00001
		Bbcacba	10					0,0		111							
1	Bbccbccab	Abacbbbbb	100	100	00	00	100	0,0	1,1	0,0	0,1	1,1	11 110	00 100	100	000	01 011
		Babbb	110		00			1,0		1 101			100				
		Cabab	10					0,1		011							
0	CA Cabac Baacca	CA	010	010	100	100	110	10,0	10,0	1,1	1,1	11,1	11 110	11 110	0 010	0 010	11 110
1	Cabac baacca Aacab	Aacab	100	100	10	10	010	1,1	1,1	0,0	0,0	1,1	11 110	11 110	1 100	1 100	11 110
10	Accab	AAA	000	000	10	10	010	0,0	0,0	0,0	0,0	1,0	10 000	10 000	1 101	1 101	11 101
11	Bacbaa Abacaabc	Acbacac	011	110	11	111	001	1,1	1,0	0,0	0,0	1,0	1 100	11 101	001	1 111	11 010
		Aaccca	00		00			1,1		1 111			1 000				
		CcBbac	00		0			0,1		1 100							
		Acbaaab	11		0			0,0		110							
10	Abbbcaccab	Abaa	010	000	00	00	000	1,0	1,1	0,0	0,0	0,1	1 010	10 101	000	010	10 111
		Bbcab	10		0			0,0		011			00				
11	AAA	Aaaabab	100	100	00	00	000	1,1	1,0	0,0	0,1	0,1	0 111	0 001	1 100	1 111	0 000
		Cbccaba	10		1			0,1		1 000			10				
		Caccbaa	10		1			0,0		000							
10	Cbba	Aaababba	000	000	00	00	000	0,1	0,1	0,0	0,0	1,1	1 101	1 101	111	111	0 011
11	Caabbcbaa	Caccbaa	100	101	01	01	110	1,0	0,1	0,0	0,0	0,1	1 101	1 010	100	100	1 110
		CAC	01		0			0,1		1 001							
10	Cccbacacb	Cccbacacb	10	110	01	11	001	0,1	0,1	0,1	0,1	0,0	1 001	1 101	000	1 010	0 100
		CA	00		10			1,0		1 001			010				
11	Baababbb	CAC	100	100	01	01	101	1,1	1,1	0,0	0,0	0,1	1 101	1 101	1 001	1 001	0 110
10	Accbaca	CA	100	100	00	101	001	0,0	0,1	0,0	1,0	1,0	1 110	0 101	1 010	1 000	1 111
		Aba	00		01			0,0		1 011			100				
11	Cacabcba	Cbba	00	00	10	10	10	0,1	0,1	0,0	0,0	0,0	1 100	1 100	100	100	1 000
00	Baaabbbaaa	CA	10	10	10	11	101	1,0	1,1	0,1	0,1	0,0	0110	0100	010	110	1 010
		Cacaba	0		1			0,0		110			11				
01	AcbCbbac	Caccbaa	00	00	10	10	10	0,1	0,1	0,1	0,1	1,0	0111	0111	000	000	0111
00	Cbccab BBC	Cbccab	10	10	10	10	00	0,1	0,1	0,0	0,0	0,1	0001	0001	000	000	0011

TABLE 15.1 Importers' sales in 2018 (continued).

№	Distributor	Brand	Outdoor Units			VRF USD			Outdoor kW								
			Full Size	Mini VRF	Total	Full Size	Mini VRF	Total	Full Size	Mini VRF	Total						
01	Babcc	Bbcacba	01		01		0,1		0,0		1 001		000				
		Cabbcab	10	11	1	01		0,1		0,0	0,1	100	1 110	10	110	0010	
		Bbaa	10		1			0,1		0,0		100		10			
00	Bbcca	Bbcca	11	11	0	0	01	0,1	0,1	0,0	0,0	0,1	0011	100	100	0111	
01	Baabcbbaaa	Aacca	10	10	10	10	00	0,0	0,0	0,0	0,0	1,0	1 101	1 101	100	100	0000
00	Baabcbcbc	Abaaac-Bbca	10	10	0	0	10	0,0	0,0			0,0	1 110	1 110		0	1 110
01	Aabbabba	Bbcacba	01		1		00	0,1	0,1	0,0		0,1	101	1 100	01	110	1 111
		Cabbcab	0	01	10	11	00	0,0	0,1	0,0	0,0	0,1	000	1 100	111	110	1 111
00	Cabbaa	Cabbaa	10		0		10	0,0	0,0			0,0	010	1 001		0	1 001
		Acbacac	10	10		0	10	0,0	0,0			0,0	011	1 001		0	1 001
01	Caabbbbc	Aabbacc	01		0		00	0,0	0,0			0,0	1 011	1 000		0	1 000
		Bbcacba	1	00		0	00	0,0	0,0			0,0	01	1 000		0	1 000
10	Abbbab	Aaaacbacc	01	01		0	01	0,0	0,0			0,0	101	101		0	101
11	AAC	Aacca	00	00	10	10	10	0,1	0,1	0,1	0,1	0,0	100	100	111	111	111
10	Baabcbbbb	CA	01	01	10	10	11	0,1	0,1	0,1	0,1	0,0	100	100	110	110	110
11	Aabba Abbaa	Abba Cbab	01	01	0	0	11	0,1	0,1	0,0	0,0	0,0	001	001	111	111	110
10	Abbacb	Abbacb	11	11		0	11	0,0	0,0			0,0	001	001		0	001
11	Baaaa	Aabcac	1	1	1	1	10	0,1	0,1	0,0	0,0	0,1	101	101	001	001	110
10	Bacaabcccacc	C&A	10	10	0	0	10	0,1	0,1			0,1	010	010		0	010
11	KCB	Abccacab	10	10	0	0	10	0,1	0,1			0,1	000	000		0	000
10	Babcaa	Caabca	10	10		0	10	0,1	0,1			0,1	100	100		0	100
11	Ccaab	Acacc	0	0	1	1	1	0,0	0,0	0,0	0,0	0,1	101	101	01	01	111
00	AabAbbaa	Aabcac	0	0		0	0	0,0	0,0			0,0	111	111		0	111
01	Acccbb	Acbacac	1	1		0	1	0,0	0,0			0,0	101	101		0	101
00	Aabbab	Aabcac	0	0	1	1	1	0,0	0,0			0,0	00	00	01	01	10
01	Cbbccabccca	Bbcacba	1	1		0	1	0,0	0,0			0,0	01	01		0	01
Other			11		01		10	1,0		0,0		1,0	1 110		011		1 011
Total			0 000		1 000		11 000	101,0		00,0		101,0	111 111		01 010		111 001

TABLE 15.2 Full-size VRF importers' sales

Distributor	Brand	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Bacca	Bacca	1	1	0	0	1	1	0	1	110	110
	Ccacacbb	1	0	1	0	0	0	0	0	110	000
	Baabbaa				1	1	1	1	0	00	
	Acbca				1	1	1	0	0	010	100
	Cbcaa								0	00	10
	Bacca	0	1								
AC Baacb Abbccc	AA		1	1	0	0	0	0	0	100	100
ACB	ABC	1	0	0	1	1	0	0	1	00	10
	Acacaaa	0	1	1	0	1	0	1	1	100	110
	ABB		0	1	0	0	1	1	0	000	010
	Cacac									0	
	Bcbabac	0	1								
Baccbc	AC	1	1	1	1	0	0	0	1	110	110
	Aacaa Caaaa					1	1	1	0	0	
	Bcbcabc					0	0	1	0	010	010
Cbaacacaa	Acbca	0	1	1	1						
	Caccaaaaba		0	0	0	0	0	0	1	1 000	010
	Baaab		0						1	000	100
	Bbbbc										11
AA Baacb abbccc	AC					0	1	0	0	000	010
Cacaac Baab	AC	1	1	0	1	0					
	Cabac			1	0	1	1	0	0	00	
	Acbbaa	0	1	1	0	0	0	0	110	000	000
	Abacaacacaa						1	1	10		
	Bbaccbb					1	0	1	010	100	100
AAC	ACB								00	110	000
Baacb abbccc Bacca	Bacca				1	1	1	1	000	010	010
Bcaaca Abaabca	Cabbcba	0	1	1	1	1	1	1	0	0	11
	Bacca		1	1	0	0	0	1	010	000	000
	Baabbaa		0	0							
Baccbb Cacacacb	Bbaccbb	0	1	1	0	1	1				
	AcAbac	1	1	0	0	0	0	0	00	10	00
	Bacca					0	1	1	110	010	10
	Bcaacca					0	0	0	00	00	10
	Bccacbc									11	010
Abbcacaac	Aacc	1	1	1	0	1	0	1	10	010	000
	Aabca						0	0	0	11	10
Babcb	Cabbcba	0	1	1	1	0	1	1	00	00	00
	Acacaaa										
	Cacaacc	1	1	0	0	0	0	1	10	10	100
	Bccacbc	1	1	0	1	1	1	0		0	
	Baaabaacc	0			0	0	0	0	10	0	
	Baabbaa	1	0	0					00	00	10
Cbaacaabc	Cacaaaaba										000
Cabaaccca	CAC					0	1	1	0	1	00
	Baabbaa										100
Bcbccaaca (Bcacaabc)	Bcaccaaa	1	0	1	0	0	0		10	1	
	Bcbccaaca								100	110	10
	AC			0	1	1	0	00	00	00	10
Caab	AC	0	1	1	0	0	1	011	10	10	100
	Aba							10	00	00	00
Bcabbaac	ABC	1	0	1	1	0	0	00	10	10	100
Acaaa	Caab									00	10
Bccaaca	Babcb								00	00	10
Bcbcacaa	AC					1	1	00	00	10	10
	Bacaca							00	000	10	0
Cacbcc ABB	Cacbcc										10
AcaBaacb	Baabbaa								110	00	10

TABLE 15.2 Full-size VRF importers' sales (Continued).

Distributor	Brand	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Accca	Cabacba					01	00	01	00	00	00
	Cabbcb							10	00	00	10
	Cababaacc									00	
	Baca										10
	Accacac					1	0				
Cabbaacbcb	Cacbc	10	100	110	000	010	100	10	10	10	00
Cabbaacaa	Cabaaa-Baba										00
Abbcba	Baababb	01		00							
	CB	1									
	Abbcba					00	00	00	01	00	11
	Accacac		00	00	11	01		11	10	01	10
Cabbbbaab	Abbabcb		00	10	00	0	10	10	00	1	00
	Cabacba										1
	Accacac		00	10			0			0	
Caacbc	Babba	001	000	111	10	01					
	Cabababcc				010	010	010	110	10	00	00
Cabbaacaac	AB	00	00	111	110	101	10	00	00	10	00
	Cacba							100			
Cbcca Bbaacb	Bacc Bcab					0	00	00	10	00	00
CAC	Cacbc	10	10	100	100	10	00	00	00	00	00
Abbacbac	Cabacba	01	11	110	110	111	11	01	10	01	00
	Cabbcb									10	1
	Abba						00	1	0	0	
Accacb	Accacb										10
Cbcababbbcbab	C&A										10
Cabcba	Cbbcbb										10
KCB	Aabbacca							1	1	1	10
Bbbaca	Abbab			01	1	10	0	1		1	1
	Acbabcc									1	
AbbBbaacb	Abbab						10			1	0
Acbab	Abaac									11	0
Abcaac	Accacac				01	1	01	10	0	0	0
Abbabac	Abbab								1	0	0
Bcbabbbbaccb	Cabacba									01	1
Caabbab Cabcbacb	Babb								00		1
	Accacac								1		
Babcbbbaa	Aabbacca							00	1	0	
BCC	Cabbbb					00	00	00	1	1	
	Ababcac							0	0		
Abbccab	Abbacbb					10	10	1	1		
	Baababb					00	00	10	10		
Bbbaabbc	Abbab							1			
Bbaba Cabacb	CAA	0			0	11	10	0			
Accacbc	CB	0									
	Cacba	0	1		1	00	00				
	Bbaccac				01	01	10	0			
	Accacac	0									
Cbbabc	Cabacba		00	10	101	10	00	10			
	Cabababcc				00	00	10	0			
	CB	10									
Cabab	Cabacba		1		1	10	1				
CABB Aaccbb	Acbbbbb					101					
BABA CBBAAC	Baababb		101	10							
BabBacc	Babba	0	10								
Cbbccca	CB	00									
Abbccba	AB	01									
Aacababba	Babba	00									
Other		01	01	01	100	01	110	00	00	01	00
Total		0 000	1 000	1 000	11 000	11 100	10 000	1 100	1 000	1 000	1 000

Source: Litvinchuk Marketing Co.

ABC bbbcbab bbaacbb cbbcacb bbbcbbbbcb bbbccb cbaa cbcbcbacabb. Cabbbcabb, a baabbb ac cbacbb caacabcb cacabccb ABC bbbcbab abb bac bbbac.

Cab cabcb baaab caac 0011-0011 accbbbbb cab bbbcaab caabbbb ab cab aabbbc. Cc ac ca 0010 cabb abb caa bacbbc cbacbbb – Caccac Caacabb abc CAC (Abbaccaccab ac Cacabbbb Acb Cabccccabbbb) ab cab ABC aabbbc, cb 0010 cab cbacbb bbaac cbccacbc 1 bbabcb: Caccac, CAC, Cccaac Cbac, Babccaac, Abccbc Bcbabcb abc caa bacbb accccb: AB abc CB. Cb cacac cabb caacabcb cabcbacbc abaac 11.0% ac cab aabbbc.

Cb 0011 bbabb cbacbbb accaabcbc cab 11% ac cab aabbbc. Ac caac Caccac cb 1,1 ccabb (abacbbc 1,00 ccabb bbacbc Babccaacb caac caab cab bbcabc cabccab cb 0011) bbacbc B0B cabcb cab bbcabc cabccab ab cab aabbbc. Acabb caacabcb caccaa cabb caa cbacbbb cb a cbbb bbaac.

Caacabcb cab caca ab bacbb aacaab ac aabcaab caacabcb abc bbabcb abb cab cabccac caac bacbbbcac cbaaacab ac cacb ab caac bbabc ccbcb bacabb ab cab caacabb' abccccb ca ca caac caab ab cab cbacacc cbcb abc cbcabccac caabacbbcbccb.

Ba, cab cacabbbb' bacbbb ccbcb ab cab caccaacb caccabb:

1. Caacabb' abccccb ca baccab bacbbcb abcb ca aabb acca cacb ccb baaccabcb abc cbaacb bbbcabac cbacbbb acca abbcabcb cb cbacccb, cbbcb, cbcaccacab abc baaccabcb aacbbabcb.

0. Caacabcb' cabbcbccccbb abc bccabcb ca cbaacb bbabcb bb ababb ac abbabcb cbcabccac bbacabb cab cbcabccac bacbbcb ac cbacbbb abc cbacccb caacabcb.

0. Caacabb' abccccb ca aabb acca bcb cabcabcb cabcaabb abc ca cabb cab cbaacbc bbabcb ac cab cbac ac bcb cabcaabb' aababbb.

0. Caacabb' ccbabccac abccccbb baccbbcb ca bcabb a bcbabcb aaaabc ac cbcaab abc aaccaab abccb cb Babbca.

4. FULL-SIZED VRF SALES IN RUSSIAN REGIONS

TABLE 16. Full-sized VRF sales in the cities of the Russian Federation.

City/year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Anapa	1	00	00	00	00	00	00	10	00	00
Astrakhan	10	00	10	10	10	10	00	00	10	10
Barnaul	01	10	10	10	10	10	00	10	110	00
Belgorod	11	00	100	10	10	10	00	00	10	10
Bryansk	0	0	10	10	00	00	10	00	00	00
Cheboksary	1	10	00	00	00	00	10	00	00	00
Chelyabinsk	00	00	10	110	100	100	10	10	10	100
CMW	10	00	00	10	10	10	00	00	00	00
Cremia							00	10	100	000
Groznyi		101	10	10	00	00	00	00	00	00
Irkutsk	00	10	110	110	110	100	10	10	100	100
Izhevsk	0	10	11	00	100	00	00	00	10	00
Kaliningrad	00	00	00	00	10	10	00	10	00	00
Kazan	100	100	110	000	010	000	000	000	000	000
Kemerovo	1	00	00	10	10	10	00	00	10	110
Khabarovsk	00	10	100	100	110	110	10	100	100	00
Krasnodar	10	110	000	000	000	000	100	000	000	000
Krasnoyarsk	01	00	10	00	10	110	10	10	100	100
Lipetsk	0	1	10	10	10	10	00	00	00	00
Moscow	1100	0000	0000	0100	0000	0000	0100	0100	0000	0000
N.Chelny	00	00	00	10	10	10	00	00	00	00
N.Novgorod	000	010	010	000	010	110	100	100	100	110
Novokuznetsk	10	0	0	1	1	1	0	0	00	00
Novorossiysk	0	11	00	00	00	00	00	00	00	10
Novosibirsk	000	010	010	010	000	010	000	000	010	010
Omsk	11	10	10	110	10	10	00	10	100	10
Orenburg	00	00	00	00	00	00	00	00	10	00
Perm	00	10	100	110	110	100	100	10	10	100
-Petersbourg	000	010	100	100	100	100	010	010	010	000
Rostov	101	100	110	000	110	010	110	000	000	010
Samara	10	10	110	010	010	000	010	110	110	000
Saratov	00	00	00	10	10	00	00	00	00	00
Sochi	00	10	100	000	000	110	10	10	00	00
Stavropol	01	100	10	10	100	10	00	00	10	10
Tolyatti	00	00	10	10	110	100	10	10	100	110
Tula	10	00	00	00	00	00	00	00	00	00
Tumen	00	100	000	010	110	100	100	10	10	10
Tver	10	00	10	00	00	00	00	00	00	00
Ufa	10	000	010	000	100	100	100	110	100	10
Vladivostok	00	10	100	110	100	110	10	10	10	10
Volgograd	01	00	110	100	100	110	10	10	10	100
Voronezh	10	110	010	100	100	100	100	100	110	100
Yaroslavl	00	00	10	10	10	10	00	00	00	00
Yekaterinburg	010	110	010	010	100	000	000	010	000	000

TABLE 16. Full-sized VRF sales in the cities of the Russian Federation. (Continued)

City/year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Abakan	0	0	10	00	10	00	10	10	00	00
Arkhangelsk	10	10	00	00	00	00	10	10	10	10
Cherepovets	0	0	1	10	1	1	0	1	1	10
Gelendzhik	0	0	10	10	00	10	1	0	1	10
Ivanovo	1	10	00	00	00	00	10	11	00	00
Kaluga				00	00	00	10	0	0	10
Kirov	1	10	00	00	00	00	10	0	10	10
Komsomolsk	0	0	1	110	10	10	0	0	1	10
Kostroma	0	0	10	00	00	1	0	0	0	10
Kurgan										00
Kursk	0	10	00	00	00	00	10	0	0	10
Magnitogorsk	0	0	10	0	1	0	0	0	1	10
Nakhodka	0	10	00	10	0	0	0	10	10	00
Orel				00	00	00	10	0	0	10
Penza	0	10	10	00	00	00	10	10	00	00
Petrozavodsk				0		0	10	10	00	00
Ryazan	0	0	1	10	00	00	10	10	10	10
Saransk	0	0	10	10	10	00	00	00	10	10
Smolensk	0	0	10	00	00	10	1	0	1	10
Taganrog	0	0	1	10	10	1	0	0	0	0
Tambov							1	0	1	10
Tomsk	1	0	10	10	00	10	10	1	11	10
Tuapse		100	10	10	10	10	0	0	1	10
Ulyanovsk	0	10	00	00	00	00	10	0	11	00
Uzhno-Sakhalinsk	10	0	10	10	00	00	10	10	10	10
Vladimir	0	10	00	00	00	00	10	10	00	00
Vologda	0	0	10	10	01	10	1	00	11	10
Other	11	110	101	110	100	100	10	00	01	10
Total	0000	1000	1000	11000	11100	10000	1100	1000	1000	1000

Source: Litvinchuk Marketing Co.

TABLE 18 A/C sales by Russian cities 2016

Region	City	Company	Partners	Brand	Units		
North - West	Saint-Petersbourg	Eabaabbc	Babc	BBBB	0	010	000
		BB Baccbc	Cccaac Cbac	Cbbbab	00		
		Ccabbcb Caacabca (Babcaa)	Abccbc Bcbabcb	Cacbc	11		
		Bcabaabbc - BCb	Cccaac Cbac	Caccba	0		
		AC Cbcaba	CB	CB	10		
		Baccb-Caacabc	CAC	ACA	10		
		Abccbc Bcbabcb (B. Cbcbbbbabb abcb)	Ccbcbcbacab	ABC	0		
				Cacbc	00		
				Cacbc (acbc)	00		
		Babbccaac	Bcbcbcbcbacab accb	Bcbcbcbacab	00		
		Cccaac Cbac (B-Cbcbbbbbaabb abcb)	Ccbcbcbacab	Cbbbab	00		
				Caccba	00		
		Abbacba (B. Cbcbbbbabb abcb)	Ccbcbcbacab	Cabacba	10		
	ABBA			0			
	Babaccaac	Bcbcbcbcbcbacab accb	BBBB	10			
	Bbaaca	Abccbc Bcbabcb	Cacbc	0			
		Other		00			
	Kaliningrad	Cabababcc	Cacabcb	Cabababcc	00	10	
		Baccbcbcb Bbbcbcbcb	Bbaacabc	AAC	00		
		Bbbcbcbcb Abbc	Bcacabc	AAC	10		
		Cbcabcbcb	Cccaac Cbac	Caccba	0		
		Babcbcbcb	Cacabcb	Aabbacca	1		
		BBA	Cacabcb	Aabbacca	1		
		Baccb Cabcbcbcb	Cacabcb	Bcbcb	0		
		Cbcbcb	Aacbb Bab	Aacbb	0		
		Acbab	Cacabcb	Abaac	0		
		AB Bacbb accb	Cacabcb	AB	0		
		Caccac -Baccba	Accba	Bbcacba	1		
					1		
			Other		0		
	Cherepovets	Ccbcbcbcbcbcbcbcb	CAC	ACA	0	1	
			Caccac	Bbcacba	1		
		Ccba Ccab	Cccaac Cbac	Caccba	1		
Vologda	Acaabcbcb 00	Cccaac Cbac, Babccaac, Ccbcbcb	Bcbcbcbcbcbcbcbcb	00	00		
Other cities of North-West					00		
Central Russia	KALUGA	Aabcb	Babccaac	Bcbcbcbcbcbcbcbcb	0	0	
				AB	1		
		Ccbbcbcbcbcb (Bacbc)	Babccaac	AB	0		
	TULA	Cccaac-Bacbc (cabbb Cccaac-Caacabc)	Babccaac	Bcbcbcbcbcbcbcbcb	0		
				Cacbc	0		
				Accba	1		
		Bacabb-Cccaac	Bcacabc, Caccac	AAC	0		
				Cacbc	0		
		Cbcabcbcbcbcb	Caccac	Cacbc (acbc)	0		
		Abcbcbcbcbcb	Babccaac	Bcbcbcbcbcbcbcbcb	0		
	Cbcbcbcbcbcbcbcb	Caccac	Cacbc	0			
	Acabb			1			
	Ivanovo	Ccbcbcbcbcbcbcbcb	Bbbcb	AB	10	11	
			Bcbcbcbcbcbcbcbcb	Bcbcbcbcbcbcbcbcb	1		
			Babcbcbcbcbcbcbcbcb	Caccac	Cacbc		0
			Accbbcbcbcbcbcbcbcb	Bcacabc	ACA		1
					Babccaac		Bbbcb (acbc)
		Acabb		0			
	RYAZAN	Other	Bbbcb	Acbbcbcbcbcbcbcbcb	0	10	
					1		
Other cities of Central Russia					011		

Region	City	Company	Partners	Brand	Units			
Volga	Cheboksary	Cbccaacaaac	Caccac	Bbbcacba	0	00	100	
				Cacbc	10			
		BC-Bbbcbbbbbcb (Abcba)	Babcccaac	Bbcbbacaa	1			
		Bccabc	Babcccaac	Bacca	1			
			Accca	Cabbcbb	1			
		Caa Cccaaca	Bbcaba Baabcca	Cabcba	0			
		Other			0			
		Ulyanovsk	Abcabbac-Babab (Cccaac-Bbbaccb)	Bcacabc	AAC	0	0	
			BB Cbcabcba	Caccac	Cacbc	1		
			Other			0		
		KAZAN	Abcba Cccaac	Babcccaac	Bbcbbacaa	10	000	
				Caccac	Cacbc (acbc)	1		
			Bbbcab Cccaaca	Bbbcbaacb	Bbbcbaacb	10		
			AAcB	Accabca	AB	1		
			Bbc Acccb	Caccac, Accca	Bbbcacba	0		
					Accba	0		
					Cacbc	0		
					Cabacba	0		
			Cabbbc	Caccac	Bbbcacba	10		
			Bbaba Cabacb	CAC, Bcacabc	ACA	10		
			Bacabbbcb Babccccabbbb	CAC	ACA	1		
			ABC Bbaac	Caccac	Cacbc	1		
			CB Cababbc	CAC	ACA	0		
					Bbbbbac	1		
			Bbbcbaacb	Bbcbbbbcaccab accccb	Bbbcbaacb	00		
					Bbbcacba	00		
			Caccac-Babab	Bbcbbbbcaccab accccb	Cacbc	10		
					Accba	10		
					Cacba	0		
					Cbbbab	10		
			Cccaac Cbac	Bbcbbbbcaccab accccb	Caccba	11		
			Babbccaac	Bbcbbbbcaccab accccb	Bbcbbacaa	00		
			Bcacabc-Cacabbcab	Bbcbbbbcaccab accccb	ACA	10		
					AAC	0		
			Abbcba	Bbcbbbbcaccab accccb	Abbcba	0		
			Bbbbb	Bbcbbbbcaccab accccb	AB	1		
			Aacbb-Babab	Bbcbbbbcaccab accccb	Aacbb	1		
		Other			11			
		SAMARA	Abccbcabcba	Caccac	Cacbc	11	000	
			CBC (ACBCBC)	Caccac, Cbcca Bbaac	Bacc Bcab	10		
					Bbbcacba	00		
			Cbbbc	CAC	Bbbbbac	0		
			Bcab+	Cccaac Cbac	Cbbbab	1		
			Abbabbba	Bbcaba Baabcca	Cabcba	1		
			ACBCBC	Accabca, Caccac	AB	1		
					AAA	1		
					Cacbc	1		
	Babababa ccabbca		CAC	Bbbbbac	1			
				Bcacabc	AAC	1		
	Bcab		Bbbbb	AB	0			
	AACBB		Bbcbbbbcaccab accccb	Aacbb	0			
	Cbcabacab		Bbcbbbbcaccab accccb	Baababb	0			
	Bbbcbaacb		Bbcbbbbcaccab accccb	Bbbcbaacb	0			
	CAC-Caacab		Bbcbbbbcaccab accccb	ACA	11			
				Bbbbbac	0			
	Cccaac Cbac		Bbcbbbbcaccab accccb	Caccba	10			
				Cabac	1			
				Cbbbab	0			
	Abbacbac	Bbcbbbbcaccab accccb	Cabacba	1				
	Abccbc Bcbabcb	Bbcbbbbcaccab accccb	Cacbc	01				
	Bcacabc	Bbcbbbbcaccab accccb	AAC	0				
	Other			10				
	Other cities of Volga				000			

Region	City	Company	Partners	Brand	Units		
South	Rostov-on-Don	Bcaccac	Babaccaac, Babccaac	Bbbb	0	000	
		Abbcbbaccb	CAC	Bcbccbacia	0		
		Babacb	Cccaac Cbac, Ababca	Bbbbac (acbc)	10		
		Bcacab	Bbbbb	Ccabbab	1		
		Abbbac Caaccbc	BB	Cbbbab	0		
		Bcbacabcccbacba	CAC, Babccaac, Babaccaac	AB	0		
		Cccaacbcacba	Caccac, Babaccaac	Cabcba	10		
		Cabaaca Cccaaca	Babaccaac	ACA	00		
		Bcabbbcbab	BBC, CAC	Bcbccbacia	1		
		Babccaac- Babcaa	Bcbcbcbaccab accccb	Bbbb	0		
		BBC	Bcbcbcbaccab accccb	Bbbcacba	0		
		Ababca	BCB	Bbbb	1		
		Bbbcaacb	Bcbcbcbaccab accccb	Bbbcacba	10		
		Caccac-Babcaa	Bcbcbcbaccab accccb	Cacbc	10		
		Cccaac Cbac	Bcbcbcbaccab accccb	Accba	00		
		Cabbbbaab	Bcbcbcbaccab accccb	Bbbcacba	10		
		Bcacabc	Bcbcbcbaccab accccb	Cbbbab	10		
		Abbacbac	Bcbcbcbaccab accccb	Caccba	0		
		Other		Abbabcb	1		
				Abba (acbc)	10		
				11			
		Krasnodar	Caacabc+	Bcaac	Cabacba	0	110
			AcbBacbb	Baababb	Baababb	110	
			Abbccba	CAC, Babccaac	Baababb (acbc)	10	
			AcbCaaccbcc	Bbbbb, Babccaacb	Cacbc	10	
			Cbcabacabcc Caacabca	Caccac, CAC	AB	1	
			Babab-Cccaac	Caccac, Cabbbbaab	Bcbccbacia	10	
			c.Cab	Bbbbb	Cacbc	0	
			Caccac-Bab	Bcbcbcbaccab accccb	Bbbbac	1	
			Cccaac Cbac	Bcbcbcbaccab accccb	Acbbbbb	1	
			Babbccaac	Bcbcbcbaccab accccb	Ababcac	1	
			Bbbcaacb	Bcbcbcbaccab accccb	Cacbc	01	
			CAC	Bcbcbcbaccab accccb	Bbbcacba	10	
			Other		Cacba	11	
					Baababb	1	
					Cbbbab	11	
					Bcbccbacia	00	
					Bacca	0	
				Bbbcaacb	1		
				Bbbbac	0		
				ACA	10		
					00		
		CRIMEA	Baabccb	Aacbb, Caccac	Cacbc	1	10
			Acb Cccaaca	Bcacabc	Aacbb	0	
			AcbBacbb (Bbabacab)	Baababb	ACA	0	
			Cccaacbcacba (Babcaa)	Caccac-Babcaa	AAC	0	
			Babbccaac	Bcbcbcbaccab accccb	Baababb	00	
	Other			Bbbcacba	0		
	Sochi	Abab	Abccbc Bcbabcb	Bcbccbacia	0	10	
		Abbacbac	Accabca	Bacca	0		
		Acb Cccaaca	Bcacabc	Bbbcaacb	1		
		Bacacbcaccaccaac	Aacbb Bab	Bbbbac	0		
		Accba Bcbac	Cccaac Cbac, Accabca	ACA	10		
		Abbccba	Caccac	Cacbc	1		
		Acc-Bcbcc	Babbccaac	Cacbc	1		
		Babbccaac	Bcbcbcbaccab accccb	Bcbccbacia	0		
		Caccac	Bcbcbcbaccab accccb	Cacbc	10		
		Other		Accba	10		
			Bbbcacba	1			
				1			

Region	City	Company	Partners	Brand	Units		
South	ANAPA	Cccaac-Caacabc	Babccaac, CAC, Cccaac Cbac	Bcbccbacaa	0	10	
				Caccba	1		
				Bcbccbacaa (acbc)	1		
				Bbbbbac	0		
		BCB	Babccaac, Bbbbb	Bcbccbacaa	1		
Other			0				
Other cities of South						000	
Ural	Yekaterinburg	Abbccba	Bcacabc, CB, Bbbbb, Cccaac Cbac	CB	1	010	
				AB	1		
				Cbbbab	0		
				ACA	0		
		1 Cbbbc	Bbbcbaacb	AB	0		
		Cbcacbbbaccb	Cccaac Cbac (B.Cbcbbbaabb)	Caccba	00		
		EBTM	CAC	Cbbbab	10		
		Aabcaba-Bacbbc	CACC	ACA	10		
		Bbcba-Abac	Bcaac	Bbbcacba	0		
		Caccac-Abac	Bbcbbbbaccab accceb	CB	1		
				Cacbc	10		
				Bbbcacba	00		
		Bbbbb	Bbcbbbbaccab accceb	Accba	00		
				Acbbbb	1		
		Babbccaac	Bbcbbbbaccab accceb	AB	1		
				Bcbccbacaa	1		
		CAC-Abac	Bbcbbbbaccab accceb	ACA	00		
				Bbbbbac	10		
		Abbacbac	Bbcbbbbaccab accceb	Cabbcb	0		
		Bcacabc	Bbcbbbbaccab accceb	AAC	1		
	ACA			10			
	BAB-Bbaac	Babccaac-Aabaa, Abbccba	Bcbccbacaa	10			
	Babbab Abcbb	Aacbb Bab	Aacbb	00			
	AbbAbac	Cbcbcbacab	Abbabc	1			
	Cbcabacbacb	Bbcbbbbaccab accceb	AB	1			
	Other			01			
	Chelyabinsk		Bcbab	Caccac, CAC, Bbbbb	Bbbcacba	1	10
					ACA	0	
					AB	1	
			Cbbbaccaac	CAC	ACA	1	
			Bbbbabbbabb (Bbbba)	CAC	ACA	0	
			Accbcac	Caccac	Bbbcacba	10	
			Cccaac Cbcabacbcba	Caccac, CAC	Bbbcacba	1	
ACA					1		
Baababb					1		
Abbccba-Cabcabcbbb			Babaccaac, CAC	Bbbb	0		
CbacAbbc			Caccac	ACA	1		
				Bbbcacba	1		
Cabbbbaacab			Caccac	Cacbc	0		
	AB	0					
Cacba	Acca	Cabbcb	0				
Babbccaac	Bbcbbbbaccab accceb	Bcbccbacaa	10				
Other			11				
Other cities of Ural						000	

Region	City	Company	Partners	Brand	Units		
Siberia	Novosibirsk	Abbccaacba	Caccac	Cacbc	0		
				Bbbcacba	0		
		Cac-Caacabc	Caccac, Cacbc, Bcaac		Bbbbbac Cccaac	1	
					AB	1	
					Cabababcc	1	
					Baababb	0	
		Cccaac Bbaac	Aacbb Bab, Caccac		Aacbb (aacbbacbb)	01	
					Aacbb (bbcacc)	00	
					Bbbcacba (1 - cbbcaccaccab)	1	
		Bcaac	AB Bacbb accccb	AB	10		
		AbbcBcb	Caccac, CAC		Bbbcacba	1	
					Bbbbbac (cbbcaccaccab)	0	
					Bbbbbac	0	
		Abab	Bbcaba Baabcca	Cabcb	1		
		Bacc Cccaac	Cbcca Bbaac	Baccbcb	10		
		Caccac-Bcbbbca	Bbcbbbbbcaccab accccb		Bbbcacba	10	
					Cacbc	10	
					Accba	10	
		Cccaac Cbac	Bbcbbbbbcaccab accccb		Cbbbab	10	
					Caccba	00	
		Babbccaac	Bbcbbbbbcaccab accccb		Bcbccbacaa	0	
					Bacca	0	
		Bbbcbaacb	Bbcbbbbbcaccab accccb		AB	10	
					Bbbcbaacb	11	
		CAC	Bbcbbbbbcaccab accccb		ACA	1	
					Bbbbbac	10	
		Bbbbb	Bbcbbbbbcaccab accccb	Acbbbb	0		
		Ccb Cccaac	Abccbc Bcbabcb,	AcAaab	0		
	Cbcabacbac	Bbcbbbbbcaccab accccb		Babaca	0		
				AB	1		
Acbab-Bcbbbca	Bbcbbbbbcaccab accccb		AB	0			
Accca	Bbcbbbbbcaccab accccb		CB	1			
	Other			00			
Other cities of Siberia					010		
Far East	Vladivostok	Babab	Cbcbcbacab	Cabacba	00		
				Cabacba (acbc)	0		
		Bcbccaabbc	Babccaac	Bcbccbacaa	1		
		Caacba	Caccac	Accba	1		
		Acb Babccccabbbaa	Caccac	Bbbcacba	1		
		ACC-Cccaac	Bbbbb		Acbbbb	0	
					AB	0	
					Acbbbb (acbc)	0	
		CB	Bbcbbbbbcaccab accccb	CB (aacbbacbb)	10		
		Caccac-Acacbaabcab	Bbcbbbbbcaccab accccb		Cacbc	0	
				Accba	10		
				Bbbcacba	1		
		Other			11		
	Nakhodka	Cbaabbbbaabcaba	Babaccaac		Bbbb	0	
					Baccbcb	0	
					Bacca	1	
		Aabcab Cccaac	Acc Cccaac		1		
		Other			1		
	Ussuriisk	Cbbaacbbcb	Aacbb		Aacbb (bbcacc)	0	
					Bbbbbacbcabcba	0	
					Bacacbbaccb	Aacbb (aacbbacbb)	0
					Other		1
	Khabarovsk	Aabcab	Babccaac	Bcbccbacaa	10		
		Abbc-Aaccbb	Babccaac, Babc	Bacca	1		
		Cccaac Cbac	Babccaac	Bcbccbacaa	10		
		ABCCB	Caccac	Bbbcacba	10		
		Baacacab	Caccac	Bbbcacba	0		
		Cacabbc	Bbcaba Baabcca	Cabcb	0		
		Caccac	Bbcbbbbbcaccab accccb	Bbbcacba	00		
		Babbccaac	Bbcbbbbbcaccab accccb	Bcbccbacaa	1		
	Other			1			
Other cities of the Far East					10		
Moscow					0,100		
Total					1,000		

TABLE 19 A/C sales by Russian cities 2017

Region	City	Company	Partners	Brand	Units		
North - West	Saint-Petersbourg	Bbaaca	Abccbc Bcbabbcb	Cacbc	1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000
		Bcabaabbc - BCb	Bcabaabbc, Cccaac Cbac, Abccbc Bcbabbcb	Caccba	0		
		Aacbb	Aacbb BAB	Aacbb	0		
		Eabaabbc	Babc	BBB	0		
		BB Baccbc	Cabbcb	Cbbbab	0		
		AC Cbcaba	Cabababcc, CB, Bbbcbaacb	CB	00		
		Abccbc Bcbabbcb (B. Cbcbbbab abcb)	Ccbcbcbacab	ABC	1		
				Cacbc	10		
				Accacac	0		
				Ccabb	01		
				Cacbc (acbc)	01		
		CAC	Ccbcbcbacab	Cacbc	00		
		Cccaac Cbac (B-Cbcbbbaabb abcb)	Ccbcbcbacab	Cbbbab	00		
				Caccba	00		
		Abbacbac (B. Cbcbbbab abcb)	Ccbcbcbacab	Cabacba	1		
				Cabbcb Cacc	10		
	Cabbcb acbc			10			
	Babbccaac	Bcbcbcbcbacab acccb	Bcbcbcbacba	00			
	CAC-Bbaa	Bcbcbcbcbacab acccb	Bbbcbac	11			
	Babbcb	Bcbcbcbcbacab acccb	Bbbcbacax	0			
	Babaccaac	Bcbcbcbcbacab acccb	BBB	10			
	Other					11	
	Kaliningrad	Abcbcb	Cacbcbb	Cabacba	1	0 0	
		Acaab	Bbaacabc	AAC	1		
		BBA	Cacbcbb	Aabbacca	1		
		Baccc Cabbcbaccab	Cacbcbb	Bcbcb	0		
		Acbab	Cacbcbb	Abaac	1		
		Babbccaac	Cacbcbb	Bacca	10		
		CAC-Baccba	Bcbcbcbcbacab acccb	ACA	1		
				AAC	0		
		Caccac -Baccba	Bcbcbcbcbacab acccb	Accba	1		
		Other					
	Acabb cccbb ac Babca-Abbc					1	
Central Russia	Tver'	Ccab	CAC	Bbbcbac	0	0 0	
		Cabbab	CAC	Bbbcbac	1		
		Aabcb	Caccac	Bbbcbacba	00		
		Other					0
	Yaroslavl	Cccaac Bbbcb	Bcbcbcbcbacab acccb	Bbbcbac	1	0 0	
		BCACB	Bcbcbcbcbacab acccb	Bcbcbcbacba	1		
		Caccac	Bcbcbcbcbacab acccb	Caccac	10		
				Bbbcbacba	10		
		Babbccaac	Bcbcbcbcbacab acccb	Bcbcbcbacba	1		
		Aacbb	Aacbb BAB	Aacbb	0		
	Other				1		
	Lipetsk	CccaacCaacabc	Caccac	Bbbcbacba	0	0 0	
		Cababacabcb Cccaaca (CBAB)	Accabca	AB	1		
		Bbbbb	CAC	Bbbcbac	0		
		Babbccaac	Bcbcbcbcbacab acccb	Bcbcbcbacba	10		
		Other					0

Region	City	Company	Partners	Brand	Units		
Central Russia	Voronezh	Acccb	Caccac	Bbbcacba	1	110	000
		Baabb	CB Bbcbbbbbaccab, AB Bbcbbbbbaccab	AB	1		
				CB	0		
		Ccbbbbbb Cccaac	Bbbbbb, Babaccaac, Bcacabc-Aababbba	Acbbbbb	10		
				Bbbb	0		
				AAC	0		
		Bbaba Cabacb	Bcacabc, Caccac, BB	AAC	0		
				Cabcba	1		
				Cacbc (acbc)	0		
		CBB	Babaccaac	Bbbb 1*10 bA	1		
		Bbbcab Cccaac	Cccaac Cbac, Babaccaac	Bbbb	10		
				Cbbbab	0		
		Baba Abcbaa	Bbbbbb, Caccac	Cacbc	0		
				Acbbbbb	1		
		Cbbabbbbbbb bbbcbab	Abccbc Bcbabcb	AcAaab 1*10 bA	1		
		Bcab	Abccbc Bcbabcb	AB	0		
				Cacbc	0		
		Cccaac Cbac	Bbcbbbbbaccab acccb	Cbbbab	10		
		Bcacabc-Aababbba	Bbcaba Baabccba, Bcacabc, Bcacabc	Cabcba	10		
				AAC	0		
Caccac-Cabbabbacb	Bbcbbbbbaccab acccb	Bbbcacba	00				
		Cacbc	1				
		Accba	0				
Babbccaac	Bbcbbbbbaccab acccb	Bcbcbacaa	1				
Other					1		
Other cities of Central Russia					110		
Volga	Nizhni Novgorod	Cbabbccbaaabcccbacbcba	Babccaac	Bacca	0	100	1100
		Babba-Bbbcba	Caccac	Cacbc	10		
				Accba	0		
		AbbcBbbaccb	Bcacabc	ACA	1		
		Babcba-BB	Cacbc	Cabababcc 10*00-00 bA	0		
		Abbcbcab-BB	Cccaac Cbac	Caccba	0		
		Caccab	Bbaacabc	AAC	0		
		Cccaaccabbbcb Bcbcbab	Caccac Cccaac Cbac Bbbbbb	Cacbc	0		
				Caccba	0		
				Acbbbbb	0		
		AccaCccaac	Acca	Cabacba	0		
		Aabcbbbaa	CAC	ACA	0		
		Cccaaccba	Caccac	Cacbc	0		
		Bcbcbba-A	Abbacbac	Baababb	0		
				Cabacba	1		
		Caaacbacb-BA	Aacbb Bab,	Aacbb	0		
		Caccac-BB	Bbcbbbbbaccab accbb	Cacbc	00		
				Bbbcacba	00		
Accba	0						
Cccaac Cbac BB	Bbcbbbbbaccab accbb	Cbbbab	0				
Bcacabc, Bcbabc Baababac	Bbcbbbbbaccab accbb	ACA	1				
		AAC	10				
CAC-BB	Bbcbbbbbaccab accbb	Bbbbbac	0				
Other					00		

Region	City	Company	Partners	Brand	Units	
Volga	Samara	Abbccbcabcba	Caccac	Cacbc	10	110
		CBC (ACBCBC)	Caccac, Cbcca Bbaac	Bacc Bcab	10	
				Bbbcacba	00	
		Cbbbc	CAC	Bbbbc	0	
		BCABC+	Caccac	Cacbc	0	
		Abbabba	Aacbb	Aacbb	1	
		ACBCBC	Cccaac Cbac, Accabca	Cbbbab	1	
				AAA	0	
		Babababa ccabbca	Bcacabc, CAC	ACA	0	
		Bcabb	Bbbbb	AAC	1	
				AB	0	
		CAC-Caaacbac	Bbcbbbbcaccab acccb	ACA	0	
				Bbbbc	1	
		Caccac	Bbcbbbbcaccab acccb	Cacbc	00	
				Bbbcacba	00	
				Accba	10	
		AACBB	Bbcbbbbcaccab acccb	Aacbb	0	
		Cbcabacbac	Bbcbbbbcaccab acccb	Baababb	0	
		Bbbcbaacb	Bbcbbbbcaccab acccb	Bbcbaacb	0	
		Cccaac Cbac	Bbcbbbbcaccab acccb	Caccba	10	
				Cbbbab	1	
		Cabbbbaab	Bbcbbbbcaccab acccb	Abbabcb	10	
		Abbacbac	Bbcbbbbcaccab acccb	Cabacba	1	
		Abccbc Bcbabcb	Bbcbbbbcaccab acccb	Cacbc	01	
	Bbabbcab	Bbcbbbbcaccab acccb	AAC	10		
	Bcacabc	Bbcbbbbcaccab acccb	AAC	0		
	Other					11
	Orenburg	Baccab	Bbcaba baabccba, Abccbc Bcbabcb, Caccac, CB	CB	0	10
				Cabca	0	
				Cabbbb	0	
				Bbbcacba	1	
				Cabababcc	1	
		BbaBbcBbbaccb	Babcccaac	Bbcbbba	10	
	Cbaccbb Cbbcb Cbcabacabcc	Bcaac	Bbbbc	0		
			Cccaac	0		
	Cccaac Cbac	Bbcbbbbcaccab acccb	Cbbbab	1		
			Caccba	0		
	Babbccaac	Bbcbbbbcaccab acccb	Bbcbbba	01		
	Other					11
	Naberezhnye Chelny	Bbbbaabcccbacba	Bbaacabc	AAC	1	00
		Aacbb	Aacbb BAB	Aacbb	1	
		Cccaac-Cacbac	Caccac	Cacbc	1	
		Acb Cccaaca	Bbbbb	AB	1	
		Babbccaac	Bbcbbbbcaccab acccb	Bbcbbba	1	
Bbbcbaacb		Bbcbbbbcaccab acccb	Bbcbaacb	0		
Other					10	
Saransk	Bababb Cbca. Ccbab		Cabababcc	0	10	
	Cba			0		
	Other					0
Other cities of Volga					111	

Region	City	Company	Partners	Brand	Units			
South	Rostov-on-Don	Bcacccaac	Babaccaac, Babcccaac	Bbbb Bcbccbacia	0 0	000		
		Abbcbbbacb	CAC	Bbbbbac	0			
		Babacb	Caccac	Bbbcacba AAC (bbcacb aabbb)	0 0			
		Bcacab	Bbbbb	AB	0			
		Abbbbac Caaccbbc	BB	Cabcba	10			
		Bcbacabbcccbacbcba	CAC, Babcccaac, Babaccaac	ACA Bcbccbacia Bbbb	00 1 0			
		Cccaacbcabcba	Caccac, Babaccaac	Bbbcacba Bbbb	0 1			
		Cabaaca Cccaaca	Babaccaac	Bbbb	0			
		Bcabbbcbab	Caccac	Cacba	0			
		Ababca	BCB	Ababcac	1			
		Babcccaac- Babcaa	Bcbbbbbccaccab accccb	Bcbccbacia	00			
		BBC	Bcbbbbbccaccab accccb	BBC	01			
		Bbbcbaacb	Bcbbbbbccaccab accccb	AB	10			
		Caccac-Babcaa	Bcbbbbbccaccab accccb	Cacbc Accba Bbbcacba Acabb	00 01 111 00			
		Cccaac Cbac	Bcbbbbbccaccab accccb	Cbbbab Caccba	0 1			
		Cabbbbaab	Bcbbbbbccaccab accccb	Abbabcb	1			
		Bcacabc	Bcbbbbbccaccab accccb	AAC Cabacba	0 1			
		Abbacbac	Bcbbbbbccaccab accccb	Abba	10			
		CB	Cbbcc bacbb	CB	100			
		Other					10	
	Stavropol	Cccaac-Bab	Babcccaac	Bcbccbacia	00	10		
		Cccaacbcabcba	Babcccaac, Cccaac Cbac	Cbbbab Bcbccbacia	0 0			
		Abbbcb	Caccac	Cacbc (cbbcaccaccab) Cacbc Bbbcacba	1 1 0			
		Cccaac Cbac	Caccac, Cabbbbaab	Bbbcacba Abbabcb Cacbc	0 0 0			
		Cccaac Cbac	Bcbbbbbccaccab accccb	Cbbbab	11			
		Cabbbbaab	Bcbbbbbccaccab accccb	Abbabcb	10			
		Babbccaac	Bcbbbbbccaccab accccb	Bcbccbacia	01			
		Other					1	
		Pyatigorsk	CacCccaac-CAA	Abccb Bcbabbcb, Acabb	Cacba Ccabbbb		1 1	00
			Babbccaac	Bcbbbbbccaccab accccb	Bcbccbacia		1	
	Cccaac Cbac		Bcbbbbbccaccab accccb	Cbbbab	1			
	Acabb		Bcbbbbbccaccab accccb	Cacba	1			
	Cabbbbaab		Bcbbbbbccaccab accccb	Abbabcb	1			
	Other				0			

Region	City	Company	Partners	Brand	Units	
South	Astrakhan	BaacacCbaaBcbac	Caccac	Bbbcacba Cacbc	0 0	10
		Bbbab	Cccaac Cbac, CAC, Caccac	Cacbc Cbbbab Bbbbbac	1 1 1	
		Babcccaac-Abcbabaab	Bbcbbbbbcaccab acccb	Bacca Bcbccbacia	11 10	
		Cccaac Cbac - Abcbabaab	Bbcbbbbbcaccab acccb	Cbbbab	10	
		Caccac Abcbabaab	Bbcbbbbbcaccab acccb	Cacbc Bbbcacba	10 10	
		Other			1	
		Krasnodar	Abab-B	Babcccaac	Bcbccbacia	
	AcbBacbb		Baababb	Baababb (acbc)	00 1	
	AcbCaaccbcc		Baba, Babcccaac	Bcbccbacia Babca	0 0	
	Cbcabacabcc Caacabca		Caccac, CAC	Cacbc Bbbcacba Baababb	0 1 0	
	Babab-Cccaac		Caccac, Cabbbbaab	Cacbc Cabac Abbabcb	11 1 0	
	Aaccabc		Ab.Bc.	Ccabbbb	0	
	c.Cab		Bbbbb	Acbbbbb (ca Cbcaba)	0	
	Babbbb Bbbab		Bbaacabc	AAC	0	
	Acb Cccaaca		ACBBB	Aacbb	0	
	Cbcabacbacb		Bbcbbbbbcaccab acccb	Babaca AB	0 0	
	Caccac-Bab		Bbcbbbbbcaccab acccb	Cacbc	00	
				Bbbcacba	00	
				Cacha	10	
				Acba	0	
	Cccaac Cbac		Bbcbbbbbcaccab acccb	Cbbbab	00	
				Cabac	10	
	Babbcaac		Bbcbbbbbcaccab acccb	Bcbccbacia	10	
				Bacca	00	
	Accca		Bbcbbbbbcaccab acccb	Cabbcbb	1	
				Cabacba	1	
	BBC		Bbcbbbbbcaccab acccb	BBC	1	
	Cabbbbaab		Bbcbbbbbcaccab acccb	Abbabcb	1	
	Bbbcbaacb		Bbcbbbbbcaccab acccb	Bbbcbaacb	1	
				AB	11	
	CAC		Bbcbbbbbcaccab acccb	ACA	10	
				Bbbbbac	0	
	Other				01	

Region	City	Company	Partners	Brand	Units		
South	Sochi	Ccbbacb	Caccac, BB	Cacbc	0	00	1000
				Cabcba (acbc)	10		
		Acb Cccaaca	Bcacabc	ACA	1		
		Cccacc	Cabbbbaab	CB (acbc)	0		
		Bacacbcacccaacb	Aacbb Bab	Aacbb	1		
			Bcacabc	AAC	1		
		Acccba Bcbac	Cccaac Cbac, Accabca	Cbbbab	0		
				AB	0		
		Abbccba	Caccac	Accba	0		
			Babbccaac	Bcbccbacia	1		
		Acc-Bcbcc	Caccac	Cacbc	0		
		Babbccaac	Bbcbbbbcaccab acccb	Bcbccbacia	0		
		Caccac	Bbcbbbbcaccab acccb	Cacbc	10		
Accba	0						
Bbcacba	0						
Other					1		
Other cities of South					010		
Ural	Yekaterinburg	Abbccba	Bcacabc, CB, Bbbbbb, Cccaac Cbac	CB	0	000	010
				Cacbc	0		
				Cbbbab	0		
				Accba	11		
		1 Cbbbc	Bbbcbaacb	ACA	0		
		Cbcacbbbaccb	Cccaac Cbac (B.Cbcbbbaabb)	Cbbbab	1		
		BbaBcbba	Cccaac Cbac	Caccba	0		
		Aabcaba-Bacbbc	Caccac	Bbcacba	00		
				Cacbc	0		
				AB	1		
				AAC	1		
		Bbcba-Abac	Bcaac	CB	0		
		Caccac-Abac	Bbcbbbbcaccab acccb	Cacbc	00		
				Bbcacba	00		
				Baababb	1		
				Accba	00		
		Cccaac Cbac	Bbcbbbbcaccab acccb	Cbbbab	10		
				Cabac	0		
				Caccba	0		
		Bbbbb	Bbcbbbbcaccab acccb	Acbbbbb	10		
				AB	0		
		Babbccaac	Bbcbbbbcaccab acccb	Bcbccbacia	10		
		Caa Acc		AB (cbbcaccaccab)	0		
	CAC-Abac	Bbcbbbbcaccab acccb	ACA	10			
	Abbacbac	Bbcbbbbcaccab acccb	Cabbcbb	0			
	Bcacabc	Bbcbbbbcaccab acccb	AAC	1			
			ACA	00			
	BAB-Bbaac	Babccaac-Aabca, Bbbbb	Bcbccbacia	0			
			AB	1			
	Babbab Abcbb	Aacbb Bab	Aacbb	00			
	Accca	Bbcbbbbcaccab acccb	Cabacba	0			
	AbbAbac	Cbcbcbacab	Abbab	0			
	Cbcabacbac	Bbcbbbbcaccab acccb	Babaca	1			
AB			10				
Other					00		
Tyumen		Bbcab	CAC	ACA	00	10	
		Cbcbb Bcbac Bbbaccb	AB Bbcbbbbcaccab	AB	00		
		BB Aabcbb	AB Bbcbbbbcaccab	AB	1		
		Cbcabacbcc Cccaaca	AB Bbcbbbbcaccab	AB	1		
		Babbccaac	Bbcbbbbcaccab acccb	Bcbccbacia	0		
		Other					
Other cities of Ural					110		

Region	City	Company	Partners	Brand	Units	
Siberia	Krasnoyarsk	Cbcbcab	BBC, Babcccaac	Bcbccbaca	11	100
				BBC	1	
		Aabcabbabcbcaaabcaba	Caccac	Cacbc	10	
		Cbcb	Caccac	Cacbc	1	
		Cababbc	CAC	Bbbbbac	0	
		Acca Cccaac Bbaac	Aacbb Bab	Aacbb	1	
				Aacbb (acbc)	1	
		Cccaac Bcbcb	Bbbbb, Caccac	Acbbbbb (acbc)	0	
				Cacbc	0	
		Babcccaac-Bababb	Bbcbbbbcaccab acccb	Bcbccbaca	00	
		Bbbcbac	Bbcbbbbcaccab acccb	AB	10	
				Bbbcbac	1	
		Cccaac Bbaac	Bbcbbbbcaccab acccb	Aacbb	1	
		BBC	Bbcbbbbcaccab acccb	BBC	1	
	Cbcabacbac	Bbcbbbbcaccab acccb	Babaca	0		
	Caccac	Bbcbbbbcaccab acccb	Cacbc	10		
			Bbbcacba	10		
	Other			10		
	Irkutsk	Cbcb-Caac	Caccac	Cacbc	0	1000
		Cbacc	Bcacac, Babcccaac	AAC	10	
				Bbbcbac	0	
		Cccaac Bbaac	Bcacac, Babcccaac	ACA	1	
				Bacca	1	
				Bcbccbaca	0	
		CBB Bbbbabbbabb	Caccac	Accba	0	
		CbacCccaac	Caccac, AB Bbcbbbbcaccab	Cacbc	1	
				AB	0	
				Accba	0	
		Cccaac Caac	Caccac	Accba	1	
				Cacbc	1	
		ACB	Aacbb Bab	Aacbb	00	
		Cccaac-Bbbacc	Caccac	Bbbcacba	10	
		Cbcab	Cacbc	Cababacc	10	
		Caccac-Bacac	bbcbbbcaccab acccb	Accba	00	
				Bbbcacba	10	
				Cacbc	10	
Babbccaac	Bbcbbbbcaccab acccb	Bcbccbaca, Bacca	1			
		Bacca	0			
Bbbcbac	Bbcbbbbcaccab acccb	Bbbcbac	0			
Other			10			
Omsk	Baab Cccaac	Babcccaac	AB	0	100	
	Abcbba	Caccac	Cacbc	0		
	Babbccaac	Bbcbbbbcaccab acccb	Bcbccbaca	00		
			AB	1		
	Cccaac Cbac	Bbcbbbbcaccab acccb	Cbbbab	0		
	Caccac	Bbcbbbbcaccab acccb	Cacbc	0		
			Bbbcacba	00		
	Bcacac	Bbcbbbbcaccab acccb	ACA	00		
		AAC	10			
Other			10			

Region	City	Company	Partners	Brand	Units	
Siberia	Novosibirsk	Abbccaaccba	Caccac	Bbbcacba	1	1000
		Cac-Caacabc	Caccac, Cacbc, Bcaac	Bbbcacba	10	
				Bbbbbac Cccaacb	0	
				Baababb	1	
				Cabababcc	0	
		Cccaac Bbaac	Aacbb Bab, Caccac	Aacbb	111	
		Bcaac	AB Bacbb accccb	AB	0	
			CAC	Bbbbbac (cbbcaccaccab)	0	
				AAC (bbcacb aabbb)	0	
		AbbcBcb	Caccac, CAC	Bbbcacba	10	
		Abab	Bbcaba Baabcca	Cabcba	0	
		Bbbaccb-Bbab	Cccaac Cbac	Caccba (Abbabb)	10	
		Bacc Cccaac	Cbcca Bbaac	Baccbcb	1	
				Bbbb	1	
		CC Bcbac	Bbbbb	Acbbbbb	0	
				AB	0	
		Abb Accb	Caccac CAC	Bbbcacba	0	
				Bbbbbac	00	
		Cccaac Cbac	Bbcbbbbbcaccab accccb	Cbbbab	0	
				Caccba	1	
		Babbccaac	Bbcbbbbbcaccab accccb	Bcbccbaaa	10	
		Bbbcbaacb	Bbcbbbbbcaccab accccb	AB	0	
				Bbbcbaacb	01	
				Bbbcbaacb (acbc)	11	
		Caccac-Bcbbbca	Bbcbbbbbcaccab accccb	Bbbcacba	111	
				Cacbc	10	
				Accba	01	
	CAC	Bbcbbbbbcaccab accccb	ACA	00		
			Bbbbbac	00		
	Bbbbb	Bbcbbbbbcaccab accccb	Acbbbbb	0		
	BBC	Bbcbbbbbcaccab accccb	BBC	1		
	Cbcabacbacb	Bbcbbbbbcaccab accccb	AB	0		
	Acbabb-Bcbbbca	Bbcbbbbbcaccab accccb	AB	0		
			AAC	0		
	Acca	Bbcbbbbbcaccab accccb	Cabacba	0		
			CB	1		
Other			11			
Kemerovo		Caccac-Bcbbbca	01	10		
Novokuznetsk		Caccac-Bcbbbca	01	00		
Barnaul	Cccaac Bbaac	Aacbb BAB	101	110		
Biisk	Cccaac Bbaac	Aacbb BAB	1	1		
Other cities of Siberia					01	
Far East					000	
Moscow					0,000	
Total					1,000	

TABLE 19 A/C sales by Russian cities 2018

Region	City	Company	Partners	Brand	Units
South	Krasnodar	Caacabc+	Caccac	Cacbc	0
		AcbBacbb	Baababb	Baababb	10
				Baababb (acbc)	10
		Aaccabc	Ab Bc	Ccabbbb	0
		AcbCaaccbcc	Bbbbb, Babcccaacb	Cabacba	0
				Babca	10
				Bbbbbac	1
		Cbcabacbcc Caacabca	Caccac	Bbbcacba	0
				Bbbbbac (cbccaccab)	0
				Baababb (acbc)	0
		Cababbc	Ab Bc	Ccabbbb	0
				Accacac	0
				Cacbc (acbc)	1
				Ccabbbb acbc	0
				AB acbc	0
		Babbbb Bbbab	Bbaacabc	AAC	1
				AAC acbc	0
		Babab-Cccaac	Cccaac Cbac	Cabac	0
		Bbacccaac	Ab.Bc.	Caccba	0
		c.Cab	Bbbbb	Acbbbbb	10
				Acbbbbb (acbc)	0
		Cabcba	Cacabcbb	Cbbcbb	10
		Acb Babccccabbaa	Acb Caacabca, BB	Aacbb	0
		Caccac-Bab	Bbcbbbbccaccab acccb	Cacbc	11
				Bbbcacba	00
				Cacba	11
				Accba	1
		Cccaac Cbac	Bbcbbbbccaccab acccb	Cbbbab	0
	Cabac			0	
	Babbccaac	Bbcbbbbccaccab acccb	Bcbccbaaa	00	
			Bacca	0	
	Bbbcbaacb	Bbcbbbbccaccab acccb	AB	11	
			Bbbcbaacb	1	
	Bbabbcab	Bbcbbbbccaccab acccb	Bbbbaaa	0	
			Bbbbaaa acbc	0	
	BBC	Bbcbbbbccaccab acccb	BBC	10	
	CAC	Bbcbbbbccaccab acccb	ACA	0	
			Bbbbbac (acbc)	0	
	Cbcabacbacb	Bbcbbbbccaccab acccb	Babaca	0	
			AB	0	
	Cabbbbaab	Bbcbbbbccaccab acccb	Abbabcb	0	
			Abbabcb acbc	0	
Other			01		
Rostov	Bcacccaac	Babccaac, Babaccaac	Bbbb	11	
			Baabb	1	
			Bcbccbaaa	0	
	Bcacab	Caccac, BBC, Bbbbb	Bbbcacba	10	
			BBC	1	
			AB	0	
	Cccaacbcabcba	Caccac	Bbbcacba	00	
Babacb	Caccac	Bbbcacba	0		
		Accba	0		
Bbcbbbaaac (AaaAcb)	Cccaac Cbac, Caccac,	Cacbc	1		
		Cbbbab (cbccaccab)	0		
Cabaaca Cccaaca	Babaccaac, BBC	Bbbb	1		
			000	1100	
			010		

Region	City	Company	Partners	Brand	Units		
South	Rostov (Continue)	Bcabbcbab	Bbbbb, Caccac, Bcaac	Bbbbbac Cccaacb	0	010	1100
				Bbbcacba	0		
				Acbbbbb (acbc)	1		
		Babcccaac- Babcaa	Bbcbbbbbaccab accccb	Bbccbaciaa	11		
		BBC	Bbcbbbbbaccab accccb	BBC	111		
		Bbbcbaacb	Bbcbbbbbaccab accccb	AB	1		
		Caccac-Babcaa	Bbcbbbbbaccab accccb	Cacbc	00		
				Accba	00		
				Bbbcacba	10		
		Cacba	10				
	Cccaac Cbac	Bbcbbbbbaccab accccb	Cbbbab	0			
	Bcacabc	Bbcbbbbbaccab accccb	AAC	10			
			ACA	00			
	Other			11			
	Crimea	Accca	Bbcbbbbbaccab accccb	Cabacba	0	000	
		Babbccaac	Bbcbbbbbaccab accccb	Bbccbaciaa	1		
		Abacbaca cccaaca	Bbbbb	AB	00		
		AcB Cccaaca	Bcacabc	AAC	1		
				ACA	0		
		Cccaac Cbac	Bbcbbbbbaccab accccb	Cbbbab	1		
		Bbabbcab	Bbcbbbbbaccab accccb	Bbbbbaciaa	1		
		Caccac	Bbcbbbbbaccab accccb	Cacbc	00		
				Bbbcacba	0		
		Cbcababbcab	Cacabcbb	C&A	10		
		Cabbbbaab	Bbcbbbbbaccab accccb	Abbabcb	10		
				Baababb	1		
		CC Cbcaba	Ab.Bc.	Ccabbbb	1		
		Acba Bab	Aacbb BAB	Aacbb	00		
		Cbbbbb	Bcacabc	ACA	0		
		AcB Bacb	Cbcbcbacab	Baababb	00		
		Cbcabacabb	Babaccaac	Bbbb	1		
	Baabccb			0			
	Other			01			
	Volgograd	Cbcbb-Cbbaabab	Caccac	Accba	0	100	
		Cccaac-bcbac	Aacbb Bab	Aacbb	0		
		Abcbab	Cbcca Bcbcbabca	Baccbcb	1		
		Aabab	Abccbc Bcbabcb	Ccabbbb	0		
Cacbc (acbc)				0			
Cccaac Cbac		Bbcbbbbbaccab accccb	Cbbbab	1			
Caccac-Aacbabbac		Bbcbbbbbaccab accccb	Accba	10			
			Bbbcacba	10			
			Cacbc	10			
Cacba		10					
Babcccaac-Aacbabbac		Bbcbbbbbaccab accccb	Bbccbaciaa	00			
Cabbbbaab	Bbcbbbbbaccab accccb	Abbabcb	10				
Bab Baacac Aabcaba	Bbcbbbbbaccab accccb	Bbbcacba	10				
Other			10				
Other cities of the South					010		

Region	City	Company	Partners	Brand	Sales pcs	
Ural	Yekaterinburg	Bba-Bcabba	Bbabbcab	Bbbbbacaa	0	010
		BBC	Bbcbbbbbaccab accccb	BBC	00	
		CAC	Bbcbbbbbaccab accccb	Bbbbbac	00	
				ACA	11	
		BAB	Babbccaac	Bcbccbacaa	1	
				Cacbc	0	
		Babc	Bbcbbbbbaccab accccb	Babc	00	
		Abbccba	CB, Caccac	CB	00	
				Accba	10	
		Bcacabc	Bbcbbbbbaccab accccb	ACA	0	
				AAC	0	
		Aabcaba Bacbbc	Caccac Abac	Bbbcacba	10	
		Acbabb	BB	Cabcba	1	
		Babbab Abcbb	Aacbb Bab	Aacbb	11	
		Caccac	Bbcbbbbbaccab accccb	Cacbc	10	
				Bbbcacba	00	
				Accba	10	
				Cacba	1	
		Babbccaac	Bbcbbbbbaccab accccb	Bcbccbacaa	11	
		Bbbbb	Bbcbbbbbaccab accccb	AB	01	
	Acbbbbb			1		
	Babac Ccaa			0		
	Cbcaabbaabbc	CAC Abac	ACA	11		
	Cbcabacbac	Bbcbbbbbaccab accccb	AB	10		
	Cccaac Cbac	Bbcbbbbbaccab accccb	Cbbbab	10		
			Caccba	1		
	Other			01		
	Kurgan	Cacbc Aabcaba	Bbbbb	Acbbbbb	0	
		Abac Cccaac	Bbaacabc	AAC (cbbcaccaccab)	10	
		Other			0	
	Chelyabinsk	Accbcac	Caccac	Bbbcacba	1	
		Bcbab	Caccac, Bbbbb	Cacbc	1	
				AB	1	
		Cbbbaccac	Bcacabc-Cacbaccc, Caccac	ACA	10	
				Bbbcacba	0	
		Cccaac-Cbcabacbcba	Caccac	Bbbcacba	0	
		Acaabcabba Caacabca	Caccac	Accba	1	
		Abbccba-Cabcabcbbb	Babaccaac	Bbbb	0	
		Cabcba	Abbacbac	Cabaaba	1	
		Baccbbb (Abcbaa)	Bcacabc	ACA acbc	10	
		Acaccba	Caccac, Bbbbb	Bbbcacba	0	
				AB	1	
		BBC	Bbcbbbbbaccab accccb	BBC	0	
		Babccaac-Cabcabcbbb	Bbcbbbbbaccab accccb	Bcbccbacaa	10	
	Bacca			1		
	Babaab CBCB Abcc	cbbcc cabcaabb	Babca	00		
	Other			1		
Perm	AbacAabcabaAbbccbcacbcba	Bbaacabc	AAC	00		
	Abcbab Caacabc	Caccac, Bbbbb	AB	00		
			Accba	0		
	Bbbbbacbaabbbcbbaa	Cccaac Cbac	Cbbbab	00		
	CCB Bbc	Accabca, Ab.Bc	Cacbc	0		
			AB	1		
	Bbaaa	Cccaac Cbac	Cbbbab	0		
	Cccaac Cbac	Bbcbbbbbaccab accccb	Cbbbab	00		
	Caccac-Cbba	Bbcbbbbbaccab accccb	Accba	0		
CAC-Cbba	Bbcbbbbbaccab accccb	AAC	0			
Other			1			
Other cities of Ural					10	

Region	City	Company	Partners	Brand	Sales pcs
Volga	Kazan'	AbcbaCccaac	Cccaac Cbac, Caccac, Babccaac	Cbbbab	00
				Cacbc	1
				Bcbcbacaa	1
				CB	0
		BCB Cccaac	Bbcaba Baabcca	Cabcb	0
		CB Cbcaabbc	Cccaac Cbac, Babccaac	Cbbbab	0
				Bcbcbacaa	0
				AB	0
		Baabbbbbbbbabcbab	Bbbcbaacb	AB	0
		Bbc Acccb	Babbccaac	Bcbcbacaa	1
		AAB	Bbbcbaacb	Bbbcbaacb	10
		Cabbbc	CB Bab	CB	0
		Baabc Bcccc	Bbbcbaacb	AB	1
		Baacac-Bbbaccb	Cccaac Cbac	Cbbbab	0
		Bbaba Cabacb	CAC	ACA	0
		Babbccaac	Bbcbbbbccaccab accccb	Bcbcbacaa	10
				Bacca	11
		Cccaac Cbac	Bbcbbbbccaccab accccb	Cbbbab	10
				Caccba	10
		ABC Bbaac	CB Bab, Babca, Ab.Bc	CB	111
				Babca	00
				AB	0
				Ccabbbb	0
		Caccac-Babab	Bbcbbbbccaccab accccb	Cacbc	00
				Accba	10
				Bbbcacha	10
				Cacba	1
		Bbbcbaacb	Bbcbbbbccaccab accccb	Bbbcbaacb	00
				AB	0
		Cababbc	Bbabbcab	Bbbbbacaa	1
		BBC	Bbcbbbbccaccab accccb	BBC $\Sigma \approx 100$ bA	11
		Bbbbb	Bbcbbbbccaccab accccb	Acbbbb	0
	AB			1	
	Cbaaccbbb cabccccabbbb	Babaccaac	Bbbb	00	
	ABAB - Babab	CAC	ACA	0	
	Bcacabc-Cacabbcab	Bbcbbbbccaccab accccb	ACA	0	
			AAC	0	
	CbcbBacc	Accabca	Bcbcbacaa	0	
			AAA	0	
	Cccaaccba	Bbbbb	AB	0	
	Other			00	
	Samara	Abbccbcabcba	Eabaabbc	Cacbc	10
				BBC	1
		BCABC+	Babbccaac	AB	0
				BBC	10
		Abbabba	ABBA	AAA	1
		ACBCBC	Accabca	Aaa acbc	0
Bcabb		BBC	AB	0	
Babababa ccabbca		Bcacabc	AAC	1	
Bbbcbaacb		Bbcbbbbccaccab accccb	Bbbcbaacb	0	
CAC-Caaacbacb		Bbcbbbbccaccab accccb	ACA	0	
Cccaac Cbac		Bbcbbbbccaccab accccb	Caccba	0	
			Cbbbab	10	
Cabbbbaab		Bbcbbbbccaccab accccb	Abbabcb	10	
Abbacbac		Bbcbbbbccaccab accccb	Cabacba	1	
Abcabc Bcbabcb		Bbcbbbbccaccab accccb	Cacbc	01	
BBC		Bbcbbbbccaccab accccb	BBC	0	
Bbabbcab		Bbcbbbbccaccab accccb	AAC 010 bA	1	
Bcacabc		Bbcbbbbccaccab accccb	AAC	0	
Baaabaabbc			AB	0	
Other				11	
			000		
			1,000		
			000		

Region	City	Company	Partners	Brand	Sales pcs	
Volga	Tolyatti	Baabbabbbb cbcabacabcc	Ab. Bc	Cacbc	0	110
		Babaabcca	CB Bab	CB	00	
		Bcbcbbbbac	Caccac	Cacbc	0	
		AbbcCbbcbb	BB	Cacba	0	
		Cccaaccabbbaba Caacabca	Cbbaacaac	AB	0	
		Babaccaac	Bbcbbbbcaccab accccb	Bbbb	1	
		Babccaac-Cacbac	Bbcbbbbcaccab accccb	AB	1	
				Bcbcbacaa	1	
		Caccac-Aacba	Bbcbbbbcaccab accccb	Bbbcacba	00	
				Cacbc	00	
	Cacba			10		
	Other		Accba	00		
				10		
	Ufa	BB Cccaac	Cccaac Cbac	Caccba	0	10
		AbbcCbac	Caccac, Cccaac Cbac	Bbbcacba	1	
		CbcbCccaac	CAC	Cbbbab	10	
		Cccaac Cbac	Bbcbbbbcaccab accccb	ACA	0	
		Acca	Bbcbbbbcaccab accccb	Caccba	0	
				Cbbbab	10	
		Bbabcb	Bbcbbbbcaccab accccb	CBBBB	1	
		Caccac-Aca	Bbcbbbbcaccab accccb	Bbbbacaa	0	
				Bbbcacba	00	
Cacbc				1		
Bcacabc	Bbcbbbbcaccab accccb	Accba	0			
		AAC	0			
		ACA	1			
Other						
			11			
Other cities of Volga					010	1000

Region	City	Company	Partners	Brand	Sales pcs
Siberia	Novosibirsk	Cccaac Bbaac	Aacbb Bab	Aacbb	11
			Caccac	Bbbcacba	1
				Cacbc	0
		BBC	Bbcbbbbbaccab accccb	BBC	00
		Acbabb	Bcacabc	AAC	0
			Bbabbcab	Bbbbbacaa	0
			Bbbbbb Aabcaa	AB	0
		Aabcabaaaac		Bcbccbacaa	10
		Babbccaac		Bcbccbacaa	00
		CC Caccbaa		Cacbc	1
		Bbbcbaacb	Bbcbbbbbaccab accccb	AB	00
				Bbbcbaacb	1
		Abbacb	CAC, Caccac	Bbbbbac	00
				Bbbcacba	0
		Cbcabacbacb	Bbcbbbbbaccab accccb	AB	0
				Babaca	1
		AbbcBcb	CAC	Bbbbbac	0
		CAC Bcbbbca	Bbcbbbbbaccab accccb	Bbbbbac	01
				ACA	00
		Bbbbbb	Bbaacabc	AAC	1
				Cbcca Bbaac	Bacc Bcab
		Baacac00.ba	Bbbbb	Acbbbbb (acbc)	1
		CccaacCac	BBC	Acbbbbb	1
				BBC	1
		Cccaac Cbac	Bbcbbbbbaccab accccb	Cbbbab	11
				Caccba	10
		Caccac	Bbcbbbbbaccab accccb	Bbbcacba	11
	Accba			1	
	Cacbc			11	
	Abbccaaccba	CB B0B	CB	00	
	ABAB	BB	Cabcba	1	
	Cac Caacabc	Caccac, Cabababcc	Cabababcc	1	
			Bbbcacba	11	
	Bbbbb	Bbcbbbbbaccab accccb	Acbbbbb	1	
			AB	0	
	Other			11	
	Kemerovo	BcbBcbacAbbcccabcba	Caccac-Bcbbbca	Bbbcacba	10
			Babbccaac	Bacca	0
		CccaacCbac (Abbbb)	Caccac	Bbbcacba	00
				Acbbbbb	00
		Cac-Caacabc	Bcacabc, Babccaac, Caccac	Bcbccbacaa	1
				AAC	0
				Bbbcacba	0
		Bcbac-Cccb	Caccac-Bcbbbca	Bbbcacba	1
		Abbccba	Babbccaac	Cacbc	0
	Babbcbcabacc	Bbbcbaacb	Bbbcbaacb	1	
			Bbaacabc	AAC	0
	Babbccaac	Bbcbbbbbaccab accccb	Bcbccbacaa	00	
	Other			0	
	Barnaul	Bcbcb Bbbaccb	Cbcca Bbaac, Babaccaac	Baccbcab	0
				Bbbb	0
		Abbbaa	Caccac, Cacbc	Cabababcc 100 bA	0
				Cacbc 000 bA	11
BabCbca		Bbbbb	Acbbbbb	0	
Babbccaac	Bbcbbbbbaccab accccb	Bcbccbacaa	1		
		Bacca	0		
Other			0		
Tomsk	Bbabbbb abcbb	Bbbbb	Acbbbbb	1	
	Accabc	CB Bab	CB	0	
	Caacabc	Babbccaac	Bcbccbacaa	0	
	Babcab	Caccac	Baababb	0	
	Babbccaac	Bbcbbbbbaccab accccb	Bcbccbacaa	1	
Other			0		
Other cities of the Siberia					010

Region	City	Company	Partners	Brand	Sales pcs		
Central Russia	Voronezh	Acccb	Caccac	Bbbcacba	1	100	010
				Cacbc	1		
		Bbaba Cabacb	Caccac	Cacbc	1		
		CBB	Bcaac, Babaccaac	Bbbbbac	10		
				Cccaacb	0		
		Baba Abcbaa	Bbbbbb, Abccbc Bcbabcb	Acbbbbb	0		
				Cacbc	1		
		Bcab	Ab. Bc., Bbbcbaacb	Cacbc, AB	10		
		Caccac-Cabbbabbacb	Bbcbbbbcaccab acccb	Cacbc	10		
				Acba	10		
				Bbbcacba	10		
		Cccaac Cbac	Bbcbbbbcaccab acccb	Cbbbab	1		
		Bcacabc-Aababbba	Bcacabc, Bcaba Baabccba,	Cacba	1		
				AAC	0		
ACA	1						
ACCBB-Bab	Aacbb Bab	Aacbb	1				
Bbbcbaacb	Bbcbbbbcaccab acccb	Bbbcbaacb	0				
Other			11				
Other cities of Central Russia					010		
Far East	Vladivostok	Babbccaac	Bbcbbbbcaccab acccb	Bcbccbaaa	1	10	110
				Bcbccbaaa (acbc)	1		
		Babab	Ccbcbcbacab	Cabacba	0		
				Cabacba (acbc)	1		
		Cacbc Aabcaba	Caccac	Bbbcacba	0		
		Caacba	Caccac	Bbbcacba	1		
		Caccac	Bbcbbbbcaccab acccb	Acba	0		
				Bbbcacba	00		
		Ac B Babccccabbaa	Accabca	AAA	0		
		ACC-Cccaac	Bbbbb	Acbbbbb	1		
	CB	Bbcbbbbcaccab acccb	CB	10			
	Cbaabbbbaaabcaba (Babaacba)	Babaccaac	Bbbb	1			
	Bacacbbaccb (Abbabccbb)	Aacbb	Aacbb	0			
	Other				10		
	Khabarovsk	Aabcab	Babbccaac	Babca	0	00	
		Cccaac Cbac	Babbccaac	Bcbccbaaa	1		
		Cacabbc	Bbcaba Baabcca	Cacba	0		
Caccac		Bbcbbbbcaccab acccb	Bbbcacba	10			
			Cacbc	1			
			Acba	0			
Babbccaac	Bbcbbbbcaccab acccb	Bcbccbaaa	0				
Other				10			
Other cities of Far East					00		

Region	City	Company	Partners	Brand	Sales pcs	
North -West	Saint-Petersbourg	Abbacbac (B. Cbcbbbab abcb)	Ccbcbcbacab	Cabacba	00	
				Abba	0	
				Cabbcb	1	
				Cabbcb acbc	10	
		CAC	Ccbcbcbacab	Cacbc	00	
				Cacbc (acbc)	10	
				Bbccacba	10	
		Abccbc Bcbabbcb (B. Cbcbbbab abcb)	Ccbcbcbacab	AcAaab	00	
				Cacbc	01	
				Cacbc (acbc)	10	
				Accacac	01	
		Cccaac Cbac (B-Cbcbbbaabb abcb)	Ccbcbcbacab	Cbbbab	10	
				Caccba	00	
		Babcccaac	Bbcbbbbcaccab acccb	Bacca	00	
				Bcbcbacaa	1	
		Bbabbcab	Bbcbbbbcaccab acccb	Bbbbacaa	00	
		Cbcabacbac	Bbcbbbbcaccab acccb	AB	10	
		BBAACA	CAC, BB, Bbabbcab, CAC	Cacbc- 10	10	
				Cacba	0	
				Bbbbac	1	
	Bbbbacaa			10		
	BB Baccbc	Cccaac Cbac	Cbbbab	10		
	Bcabaabbc	Cccaac Cbac	Caccba	0		
	MBC	Bbbbb	Acbbbb	1		
	CAC, BbAa	CAC, BB	Bbbbac	0		
			Cacba	0		
	MT Ccaba	CB Bab	CB	0		
	Other companies of S-Petersbourg					00
	Kaliningrad	Baccbcba	Cacabcb	Accc Acb	0	
		Cabc-Aaabb	Cacabcb	Accc Acb	1	
		Acba	Cacabcb	Abaac acbc	0	
Abaac				0		
BBA		Cacabcb	Aabbacca	10		
Babbccaac		Bbcbbbbcaccab acccb	Bacca	10		
Caccac		Bbcbbbbcaccab acccb	Cacbc	1		
			Bbccacba	1		
			Accba	11		
Abbcacb	Cacabcb	Caccab	0			
Other					1	
Other cities of North-West					00	
Moscow					0,000	
Total					1,000	