HWG | HARRIS, WILTSHIRE & GRANNIS LLP

July 27, 2022

MEMORANDUM OF EX PARTE COMMUNICATION

Docket: Energy Conservation Standards for Room Air Conditioners, Doc. No. EERE-2014-BT-STD-0059-0031, RIN 1904-AD97, 87 Fed. Reg. 20608 (proposed Apr. 7, 2022).

Meeting Date: July 20, 2022

Attendees: Scott Blake Harris, Stephanie Weiner, and Helen Marie Berg (Harris, Wiltshire & Grannis LLP), and Lionel Lopez and Geethu Vasudevan (Friedrich Air Conditioning Co.) on behalf of Friedrich Air Conditioning Co.; and Alexandra Klass (Deputy General Counsel for Energy Efficiency and Clean Energy Demonstrations), Ashley Armstrong (Senior Advisor for the Office of Energy Efficiency and Renewable Energy), and Sarah Butler (Deputy Assistant General Counsel for Energy Efficiency) on behalf of the Department of Energy.

Meeting Summary:

In proposing efficiency standards for room air conditioners (RACs), the Department must be mindful of unintended consequences and—of course—ensure those standards are economically justified and technologically feasible, as required by the statute. During the meeting, Friedrich raised four significant concerns with the proposed RAC standard.

First, Friedrich reiterated its concerns that the proposed standards will increase the cost of RACs in ways that will disproportionately impact low-income and Black and Latino consumers in direct contradiction to the Biden Administration's and the Department's commitment to energy justice and mitigating the disparate impact of climate change. The increase of 47% in the minimum efficiency levels would require an increase in heat exchanger size, variable speed compressor, and inverter controls—all of which would add significant cost to the existing product. Because lower income families rely on RACs at a higher rate than higher income families, an increase in the cost of RACs will have a greater effect on poor people. With the number of extreme heat events ever growing, being priced out of a previously affordable cooling solution can have devastating consequences. The Department cannot avoid this problem by assuming that landlords will provide air conditioners for low-income renters when no state (and only a few localities) require landlords to provide air conditioning at the outset of a tenancy. Indeed, the logical assumption is that if the machines are more expensive, even fewer landlords will provide RACs to new tenants.

Second, Friedrich raised concerns that the proposed 47% increase in energy efficiency will require significant increases in the size of RACs, which will be particularly problematic for purchasers of the largest RACs. All RACs, but especially large RACs, have unique space constraints; the size of the RAC's components is limited by the size of the chassis that must fit in a pre-set window or wall space. As the only manufacturer that makes RACs larger than 28,300 Btu/hr, Friedrich is a leader in the large RAC market and knows that many of these large RACs are sold to schools and similar institutions in old buildings that cannot install central air conditioning. We estimate there are over 100,000 large RACs installed in many large public

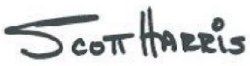
school systems such as New York City, Houston, and Miami. To meet the proposed efficiency standards, Friedrich will have to increase the chassis size or discontinue these models. Customers of large RACs will either be left without a product to meet their needs or knock out windows and walls to accommodate the larger units. Neither result is acceptable. Friedrich also noted that the Department did not consider this additional cost to consumers in its LCC analysis.

Third, Friedrich noted that the Department's suggestions of technological solutions to avoid the increase in size and weight resulting from the proposed standards will not work. Similarly, Friedrich raised concerns that it has been unable to achieve the compressor efficiency relied on by the Department for the proposed standard. Notably, Friedrich cannot find anywhere in the market the single speed compressor referred to in the Technical Support Document, the efficiency of which is used to justify the EL2 levels for products classes 1 and 2. The EL2 levels were justified based off using the most efficient Single Speed compressor (12.7 EER) purportedly available in the market. Friedrich was unable to find any single speed compressor rated at ASHRAE test conditions that had efficiencies of 12.7 EER. Appendix A lists snapshots of catalogue data (R32 Single speed and Variable speed compressor) from two major compressor suppliers. None are rated at levels that would justify the efficiency levels in DOE's proposal. Friedrich has also been unable to locate a variable speed compressor whose ratings meet the EL3 levels. Friedrich understands that some of the compressors the Department tested may have achieved a higher efficiency than reflected by their ratings. Friedrich, however, has not been able to replicate that performance in the testing it has carried out. And the Department cannot rely on nonpublic testing information to support a new energy efficiency standard.

Finally, Friedrich raised concerns that the LCC calculation in the proposed rule fails to take two major considerations into account. First, the Department's dependence on heat load modeling instead of actual consumer use modeling overstates consumer usage. Because RACs tend to be turned on when a room is occupied, actual consumer use modeling is key for LCC accuracy. Second, variable speed compressors are more complex than a single speed compressor and therefore more expensive to repair. The Department did not consider this increase in repair costs when generating the LCC calculation.

As discussed in its comments, Friedrich supports the standards proposed by AHAM in this proceeding, which would address its concerns with the Department's proposal.

Submitted By:



Scott Blake Harris

Appendix – A

Supplier A – EER of R32 Single Speed Compressors. Cells shaded “Yellow” indicate EER’s at ASHRAE/T Condition.

R32 1φ 115V / 60Hz — **Testing Condition : ASHRAE/T MAT**

Series	Model	Disp.	Capacitor		Cooling Capacity		Input Power	EER	COP	Outline Drawing	Safety Approval					
		c.c.	μ F	VAC	Btu/h	W	W	Btu/h.W	W/W		C-UL	VPC	TUV	CCC	VDE	Others
39	39X111A	4.25	35	250	4425	1295	445	9.94	2.91	39-76						
					5755	1685	365	15.77	4.62							
	39X1B1G	4.4	35	250	4625	1355	460	10.05	2.95	39-76	◎					
					5990	1755	380	15.76	4.62							
	39X131A	5.0	35	250	5160	1510	520	9.92	2.90	39-76						
					6745	1975	425	15.87	4.65							
	39X141A	5.25	35	250	5355	1570	550	9.74	2.85	39-76						
					7025	2055	445	15.79	4.62							
	39X1F1A	6.25	55	250	6270	1835	635	9.87	2.89	39-06						
					8335	2440	525	15.88	4.65							
	39X161A	6.5	55	250	6310	1850	670	9.42	2.76	39-06						
					8530	2500	545	15.65	4.59							
	39X231G	9.0	60	250	9205	2695	960	9.59	2.81	39-06						
					12260	3590	780	15.72	4.60							
44	44X261A	9.9	55	250	10355	3035	1040	9.96	2.92	44-07						
					13330	3905	845	15.78	4.62							

Supplier A – EER of R32 Variable Speed Compressors (Inverter). Cells shaded “Yellow” Indicate COP/EER at ASHRAE/

R32 单缸直流变频 DC Inverter Single Cylinder — **Testing Condition : ASHRAE/T**

Series	Model	Disp.	Cooling Capacity		Input Power (Inverter Included)	Input Power (Inverter Excluded)	COP (Inverter Included)	COP (Inverter Excluded)	Outline Drawing	Safety Approval					
		c.c.	Btu/h	W	W	W	W/W	W/W		C-UL	VPC	TUV	CCC	VDE	Others
35	35W19MY (★)	7.25	7855	2300	780	720	2.95	3.19	35-N						
	35W2AMV (★)	7.75	8510	2490	845	780	2.95	3.19	35-N				◎		
	35W2AMY (★)	7.75	8510	2490	845	780	2.95	3.19	35-N						
	35W23MY (★)	8.6	9205	2695	915	845	2.95	3.19	35-N						
	35W24MY (★)	9.0	9640	2825	955	885	2.96	3.19	35-N						
39	39W19MY (★)	7.25	7855	2300	760	705	3.03	3.26	39-Q						
	39W23MV (★)	8.6	9205	2695	895	830	3.01	3.25	39-Q				◎		CB
	39W23MY (★)	8.6	9205	2695	895	830	3.01	3.25	39-Q			◎	◎		
	39W24LY (★)	9.0	9640	2825	925	855	3.05	3.30	39-Q						
	39W24MZ (★)	9.0	9800	2870	930	860	3.09	3.34	39-Q				◎		
	39W26MX (★)	9.75	10315	3020	1025	950	2.95	3.18	39-Q						
	39W27MX (★)	10.4	10990	3220	1090	1010	2.95	3.19	39-Q			◎	◎		
	39W27MZ (★)	10.4	11270	3300	1090	1010	3.03	3.27	39-Q						
43	43W26SH (★)	9.75	10910	3195	1005	930	3.18	3.44	44-03				◎		
	43W27SH (★)	10.4	11625	3405	1075	995	3.17	3.42	44-03						
	43W29SH (★)	11.4	12735	3730	1175	1085	3.17	3.44	44-03						
44	44W35LX (★)	13.2	14565	4265	1450	1340	2.94	3.18	44-06						
	44W37LX (★)	14.0	15435	4520	1535	1420	2.94	3.18	44-06						

(★) 机型为6极集中卷稀土磁石 6 Pole Concentrated winding with Rare Earth Magnet

Supplier B - EER of R32 Single Speed Compressors. Cells shaded “Yellow” indicate COP/EER’s at ARI Condition.

系列 Series	代表机型 Typical Model	排量 Displ. (cm³/rev)	制冷量 Cooling Capacity (W)	(Btu/h)	功率 Power (W)	能效比 COP (W/W)	电容 Capacitor (μF/V)	压缩机高度 Compressor Height (mm)	排气管内径 Discharge Pipe ID (mm)	回气管内径 Sucition Pipe ID (mm)	备注 Remark
1φ-60Hz-115V											测试条件：ARI Test Condition: ARI
SN	KSN68E11UZDX	6.8	2305	7865	755	2.70	45/250	235	6.53	9.8	
	KSN78E13UZDS1	7.8	2345	8001	855	2.74	50/250	250	6.53	9.8	
	KSN86E11UZD	8.6	2595	8854	960	2.70	50/250	250	8.1	9.8	
SM	KSM95E12UDZL	9.5	2910	9929	1005	2.90	70/250	290	8.1	9.8	
	KSM106E2UDZK	10.6	3290	11225	1115	2.95	70/250	270	8.1	9.8	