

In this section, as shown in Table, we present all the abstract symbols used during the experiment. For the specific meanings of the symbols, please refer to Table I in the text.

Table 1: Abstract alphabet used in experiment

Vendors	Devices	Input Symbols	Output Symbols
Vendor A	Lamp	o AD	o AD_CLS_-1
		o IaAC	o IaAC_CLS_2
			o IaAC_CLS_3
		o RFH	o RFH_CLS_1
		o RD	o RD_CLS_0
		o DC	o DC_CLS_0
		o r DC	o r DC_CLS_0
		g DC	g DC_CLS_0
			g DC_CLS_3
			g DC_CLS_NoResp
		g r DC	g r DC_CLS_0
			g r DC_CLS_4
			g r DC_CLS_5
	Plug	o AD	o AD_CLS_-1
		o ITH	o ITH_CLS_0
			o ITH_CLS_1
		o RFH	o RFH_CLS_0
		o RD	o RD_CLS_0
		o DC	o DC_CLS_0
		o r DC	o r DC_CLS_3
		g DC	g DC_CLS_0
		g r DC	g r DC_CLS_0
			g r DC_CLS_1
			g r DC_CLS_4
		g r DI	g r DI_CLS_0
		g r AC	g r AC_CLS_0
			g r AC_CLS_3
BULL	Plug	o AD	o AD_CLS_-1
		o RD	o RD_CLS_0
		o DC	o DC_CLS_0
		o SP	o SP_CLS_0
			o SP_CLS_1
		o UnP	o UnP_CLS_0
		g r DC	g r DC_CLS_0
			g r DC_CLS_1
		g r ADS	g r ADS_CLS_1
			g r ADS_CLS_2
			g r ADS_CLS_3
Xiaomi	Camera	o AD	o AD_CLS_-1
		o RD	o RD_CLS_0
		o r DC	o r DC_CLS_0
		o SC	o SC_CLS_0
			o SC_CLS_1
			o SC_CLS_2
		o UnC	o UnC_CLS_0
		g r DC	g r DC_CLS_0
			g r DC_CLS_1
			g r DC_CLS_4

			g r DC_CLS_NoResp
		g r ADS	g r ADS_CLS_0
			g r ADS_CLS_1
			g r ADS_CLS_2
Broadlink	Plug	o AD	o AD_CLS_0
		o ITH	o ITH_CLS_0
			o ITH_CLS_1
		o RFH	o RFH_CLS_0
		o RD	o RD_CLS_-1
		o DC	o DC_CLS_0
		o r DC	o r DC_CLS_-1
		g DC	g DC_CLS_0
			g DC_CLS_5
			g DC_CLS_NoResp
		g r DC	g r DC_CLS_1
			g r DC_CLS_3
			g r DC_CLS_NoResp
		g r SQR	g r SQR_CLS_0
			g r SQR_CLS_1
			g r SQR_CLS_2
		g r QH	g r QH_CLS_0
			g r QH_CLS_1
			g r QH_CLS_5
		g r AC	g r AC_CLS_0
			g r AC_CLS_-1
Tuya Smart	Plug	o AD	o AD_CLS_-1
		o SP	o SP_CLS_0
			o SP_CLS_1
		o UnP	o UnP_CLS_0
		o RD	o RD_CLS_0
		o DC	o DC_CLS_0
		o r DC	o r DC_CLS_0
		g DC	g DC_CLS_0
			g DC_CLS_1
			g DC_CLS_NoResp
		g r DC	g r DC_CLS_0
			g r DC_CLS_1
		N/A	