





From table3, we can conclude that preference score of samples and running speed of trains are closely linked. 250 railway passenger trains (sample 4, 3, 2, and 1); preference score is lower along with speed increase. The preference score of 380 railway passenger trains senior pack were all higher than general pack, senior pack rooms has good sound absorption and noise reduction measures; preference score is also lower along with speed increase.

#### IV. RELATIONSHIP BETWEEN PREFERENCE SCORE AND OBJECTIVE PARAMETERS

Through analysis relationship between subjective evaluation and objective parameters, to obtain subjective evaluation relations relying on objective parameters, so we can seek measures to improve objective parameters to improve subjective perception quantity. The paper discussed relationship between preference score and objective parameters using type 380 railway passenger trains.

TABEL4 EVERY SOUND SAMPLES OBJECTIVE PARAMETER AND PREFERENCE VALUE

Samples	speed (km/h)	Linear pressure levelB	A pressure levelB(A)	soundness sone	preference
3	G- 330	101.6	70.1	28.4	5.4
5	G-300	98.1	68.4	25.0	4.5
7	G- 350	100.0	68.5	25.9	3.9
8	G- 360	100.5	69.7	27.7	2.6
9	G-385	103.5	73.8	35.2	0.2
10	S-350	101.2	64.5	19.9	6.9
11	S-360	101.9	65.0	20.3	5.8
12	S-385	102.6	66.0	21.7	5.5

Note: G-general, S-Seniors.

In order to data analysis between preference and objective parameters, sample 7's value as benchmark normalization to all samples data in table 4, then all new data to create chart as shown in figure 2.

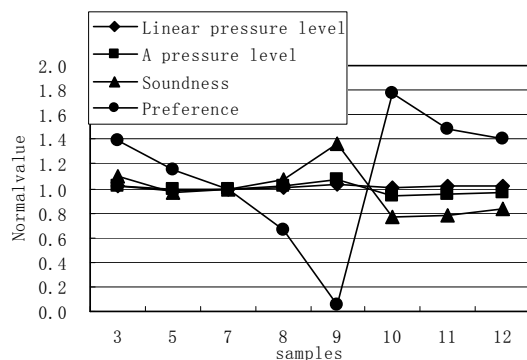


Figure 2 Relationship graph between preference and objective parameter after normalized

Sample's preference from part Comparison experiments explain that how degree evaluator were fond of each sample. Every objective parameter decrypts size of sound physical quantities.

Through normalized process that can be more clear the relationship between preference and objective parameters. From We can distinctly see that preference and objective parameter are inverse correlation from figure 2, preference and loudness basically is nearly symmetry at the axis of crossroads position, inverse relationship is the strongest; preference and A written right pressure level show weaker inverse relationship; preference and linear pressure level don't present inverse relationship, which explain that the link between them is not close. From figure 2 we can be concluded that the size of sound sample loudness basically decided preference choice of evaluators, a written right pressure level and linear pressure level have little influence to preference choice.

#### V. CONCLUSION

Through sound quality subjective evaluation experiments verify that:

- Sound quality subjective evaluation is a kind of effective method to assess railway passenger trains interior sound quality.
- Preference value of sound samples between each evaluator must have strong correlativity relationship.
- Preference value of sound samples about high speed passenger trains interior and objective parameters is an approximate inverse correlation. Loudness is decisive factor for preference value.

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