Education and Business Style Innovation by Apps Created with the COMSOL Multiphysics® Software Masanori Hashiguchi¹ and Dahai Mi¹

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Abstract

This paper investigates how to construct Apps via COMSOL Application Builder with simplest way. We show some Apps constructed based on the procedure proposed here. It was shown that the present procedure can make effective Apps very easily and innovate lecture style and relating business style.

Proposed procedure for designing Apps

Procedure A:

Use Forms with Tabs in order to construct the simplest Apps easily.

Applications and discussions

Education for classroom of University



Activity in-company (KESCO) to innovate business style by referring pressure acoustics **Education for V&V activity** How to verify computation What if -analysis





How to validate computation

0.914[m]

0.914[m]

減衰させたい周波数f0(Hz

音響管高さb(m) 0.914~0.914*5の範囲

トンネル内発破と超低周波音対象

音源位置までの距離(m) 波長lambda0を使って入力のこ

ジオメトリ 消音器反射壁なし

1)トンネル工事の発破振測順時の坑口から発聴音が放射される。 2)可聴域2014以下の超低周波音が窓ガラスや建具のガタッキを生む 3)防音扉を坑口に設置するが超低周波音の遮音量が不十分である。

直管ダクト(一方が開口、もう一方は閉口)での消音が試みられている。

半径7mのトンネル内に直管ダクトを設置する。 このとき、 1)2Hz~8Hzの範囲の超低周波音を一つを遅んで消してみよう。 2)音源との距離にここでは負値との関係を調べてみよう。 音を消したい周波数の波長をlambda0として、それを基準に調べること。

消音器の効果





Resonance tube activated at 3 Hz

Resonance tube activated at 5 Hz











Education for sales persons with Apps and Server in KESCO seminar room.

(0,0,0) 直管ダクト

断面a×b



Procedure B:

Construct Apps with input fields and boundary selections for What If-analysis.



137.5	四法								
136.5 -	一 開管	3	Hz	5H	z			_	-
130 [1								ī
1	2	3	4	5	6	7	8	9	10
fsource (Hz)									

Concluding remarks

In this paper, we proposed the simplest procedure for making Apps and exemplified some Apps based on the procedure proposed here.

It was found that the Apps developed here proved the effectiveness of our procedure when making Apps and we can innovate the style in both education and relating business when copupling Apps and Server, in particular, R&D could be assisted, accelerated and solidified based on feedback from various people who use Apps, including sales people as well as engineers.

References

Procedure C:

Construct Apps with images for explanation how to use Apps or study on Apps.



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