



1455 NW LEARY WAY, SUITE 400
SEATTLE, WA 98107

(206) 489-5183

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October 13, 2016

Jeff Callison, Senior Account Manager
Patcraft
1805 136th Place SE
Bellevue, WA 98005

*RE: Apparent Impact Insulation Class (AIIIC) Testing Results
Western & University*

Dear Jeff

This letter presents the results of the Apparent Impact Insulation Class (AIIIC) testing conducted between two units in the Western & University Apartments located at 1307 Western Avenue in Seattle, Washington. The testing was completed between vertically adjacent living rooms and bedrooms of unit 1005 and 905 for several samples of flooring and underlayment. The measurements were conducted on Wednesday, September 28, 2016 by Mohamed Ait Allaoua and Matt Roe of A3 Acoustics. This report contains details about the measurement methodology and test results.

1) Apparent Impact Insulation Class (AIIIC) Testing

The testing process and procedures for structure-borne sound were done according to the ASTM E 1007-13 *Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures*. Previous versions of E 1007 standard designated impact insulation class measurements completed in the field by the FIIC rating. The Apparent Impact Insulation Class (AIIIC) differs from the FIIC in name only. The test uses a mechanical tapping machine that repeatedly lifts and drops five flat-faced hammers onto the floor. The noise created in the floor/ceiling assembly from these hammer drops is then measured in the unit below, and the single rating number is derived from the loudness of these hammer drops compared to a reference contour. IIC ratings are not directly equivalent to decibel values, but the IIC ratings are based on the exponential decibel scale.

The testing and analysis followed the guidelines and secondary standards outlined in the ASTM standards. This included the methods to accurately determine and correct for the receiving room sound absorption per the ASTM E 2235-04 *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*. The impact insulation performance was determined per the ASTM E 989-06 *Standard Classification for Determination of Impact Insulation Class (IIC)*.



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The equipment used for testing was a Look Line EM50 Electromagnetic High Precision Impact Tapping Machine and JBL Speaker EON 20 Self-Powered Speaker. Sound measurements were made using a Svantek 979 Sound Analyzer, within calibration during the time of testing.

2) Room & Assembly Description

Details about the exact construction of the floor-ceiling assembly are given for each sample tested in the table below. The base building structure consists of a 7" PT slab.

3) Testing Results

The results of the measurements are presented in Table 1 below. Test results as presented below are for a 5ft x 5ft sample of the material and underlayment combination noted.

Table 1

Source Room/ Floor Material	Receiving Room	AIRC
Unit 1005: Living Room Woodland View, color Flax. 12 mil, 2.5mm over Groundworks	Unit 905: Living Room	56
Unit 1005: Living Room Woodland View, color Flax. 12 mil, 2.5mm over Hush II	Unit 905: Living Room	53
Unit 1005: Living Room Woodland View, color Flax. 12 mil, 2.5mm over Silencer	Unit 905: Living Room	56
Unit 1005: Living Room Woodland View, color Flax. 12 mil, 2.5mm over Regupol LV270	Unit 905: Living Room	55
Unit 1005: Living Room Letterpress, 20mil,2.5mm over Groundworks	Unit 905: Living Room	56
Unit 1005: Living Room Letterpress, 20mil,2.5mm over Hush II	Unit 905: Living Room	53
Unit 1005: Living Room Letterpress, 20mil,2.5mm over Silencer	Unit 905: Living Room	56
Unit 1005: Living Room Letterpress, 20mil,2.5mm over Regupol LV270	Unit 905: Living Room	55
Unit 1005: Living Room North Ridge, color Relic Ash, 20mil, 3mm over Groundworks	Unit 905: Living Room	57
Unit 1005: Living Room North Ridge, color Relic Ash, 20mil, 3mm over Hush II	Unit 905: Living Room	54
Unit 1005: Living Room North Ridge, color Relic Ash, 20mil, 3mm over Silencer	Unit 905: Living Room	56
Unit 1005: Living Room North Ridge, color Relic Ash, 20mil, 3mm over Regupol LV270	Unit 905: Living Room	54



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Unit 1005: Living Room Metallix, 40mil, 5mm direct glue, no underlayment	Unit 905: Living Room	52
Unit 1005: Living Room TAS Tandem 20 mil	Unit 905: Living Room	56
Unit 1005: Bedroom Arbor Crest, color Nickel, 20mil, 4mm float over Groundworks	Unit 905: Bedroom	58
Unit 1005: Bedroom Arbor Crest, color Nickel, 20mil, 4mm float over Hush II	Unit 905: Bedroom	57
Unit 1005: Bedroom Arbor Crest, color Nickel, 20mil, 4mm float over Silencer	Unit 905: Bedroom	58
Unit 1005: Bedroom Arbor Crest, color Nickel, 20mil, 4mm float over Sonus Wave	Unit 905: Bedroom	63
Unit 1005: Bedroom Click Refresh, color Heron, 20mil, 5mm float over Groundworks	Unit 905: Bedroom	58
Unit 1005: Bedroom Click Refresh, color Heron, 20mil, 5mm float over Hush II	Unit 905: Bedroom	56
Unit 1005: Bedroom Click Refresh, color Heron, 20mil, 5mm float over Silencer	Unit 905: Bedroom	58
Unit 1005: Bedroom Click Refresh, color Heron, 20mil, 5mm float over Sonus Wave	Unit 905: Bedroom	67
Unit 1005: Bedroom Bare Concrete	Unit 905: Bedroom	28

Please contact us if you have questions about the results or if you need additional information.

Sincerely,
A3 Acoustics, LLP

Matt Roe, PE
PARTNER

Mohamed Ait Allaoua
MANAGING PARTNER
& SENIOR ACOUSTICAL CONSULTANT

A3 ACOUSTICS, LLP
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Apparent Impact Insulation Class (AIIC)

Western & University

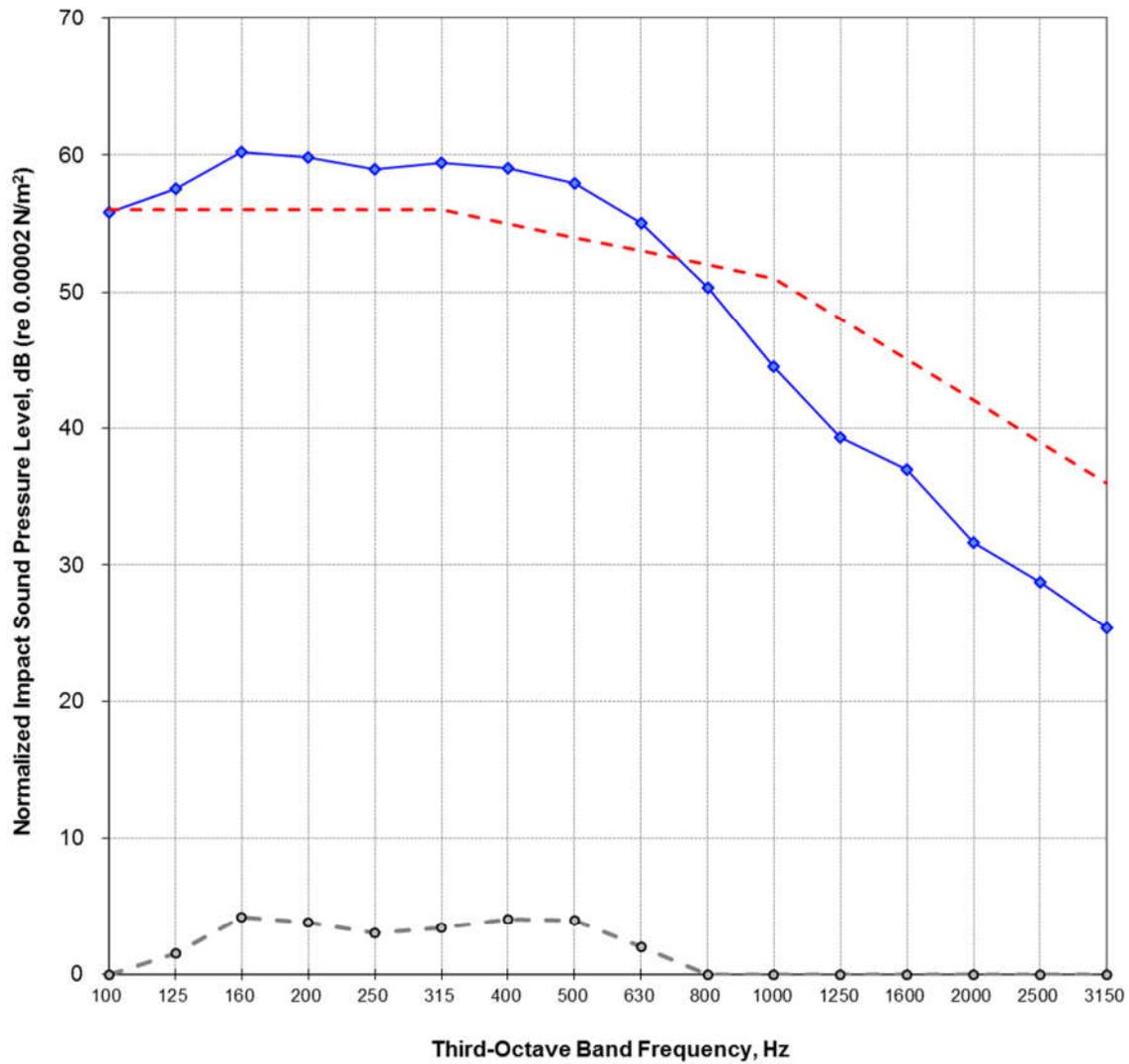
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Woodland View over Groundworks Underlayment



AIIC: 56



Any single field measurement only represents the performance of the actual assembly tested and cannot be used alone to accurately predict how an identical or similar assembly might perform.



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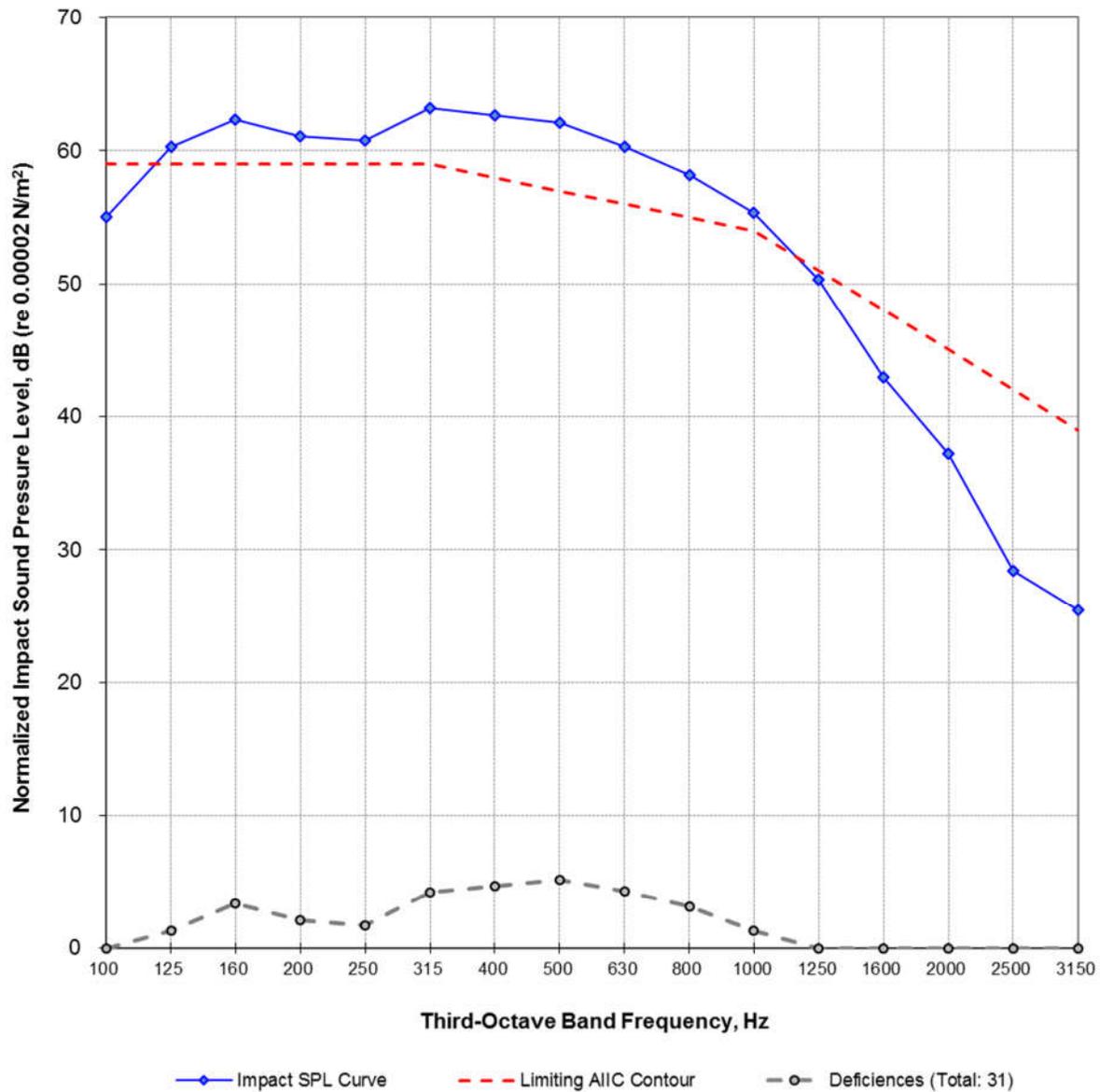
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Woodland View over Hush II Underlayment



AIIC: 53



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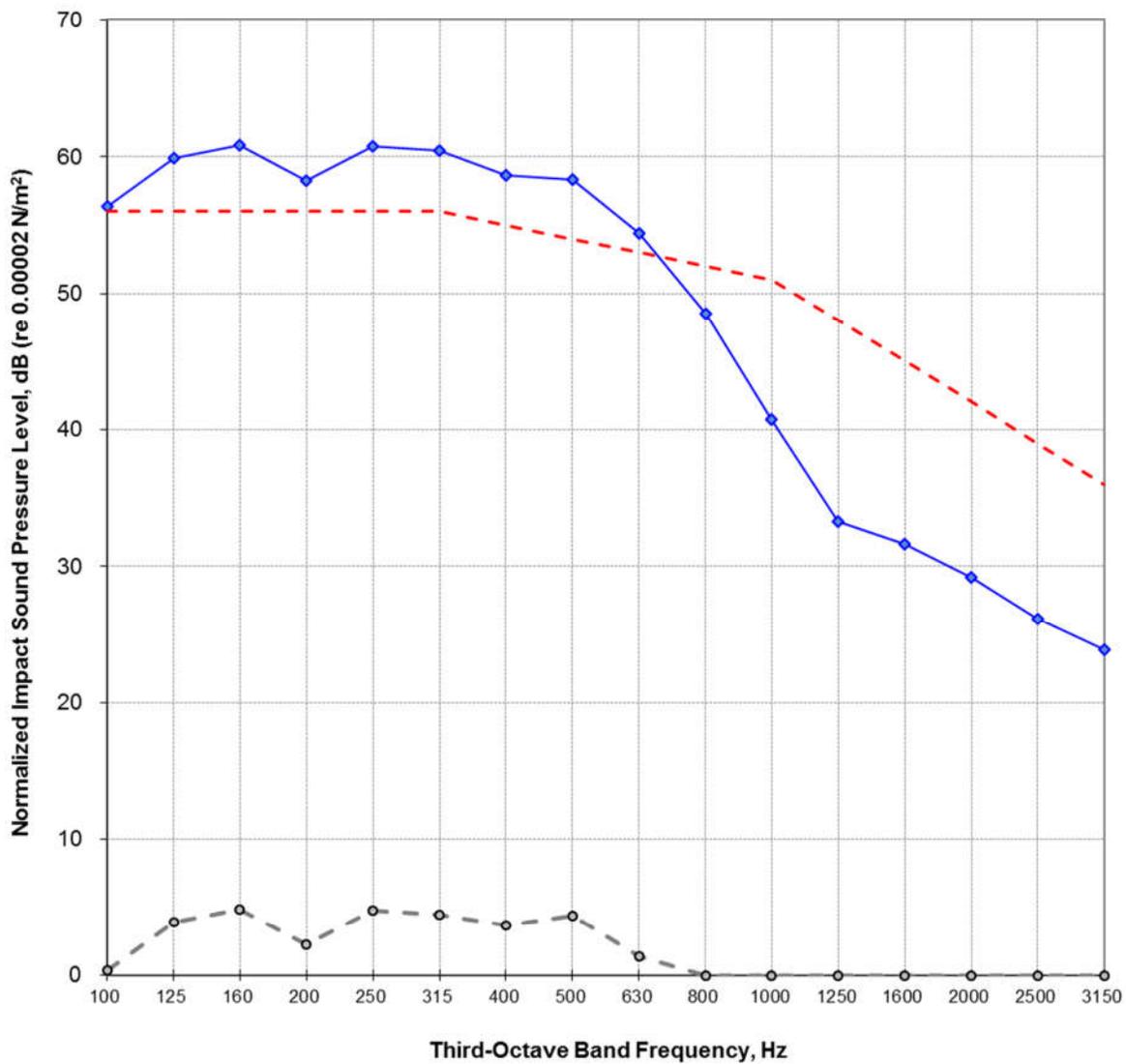
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Woodland View over Silencer Underlayment



AIIC: 56



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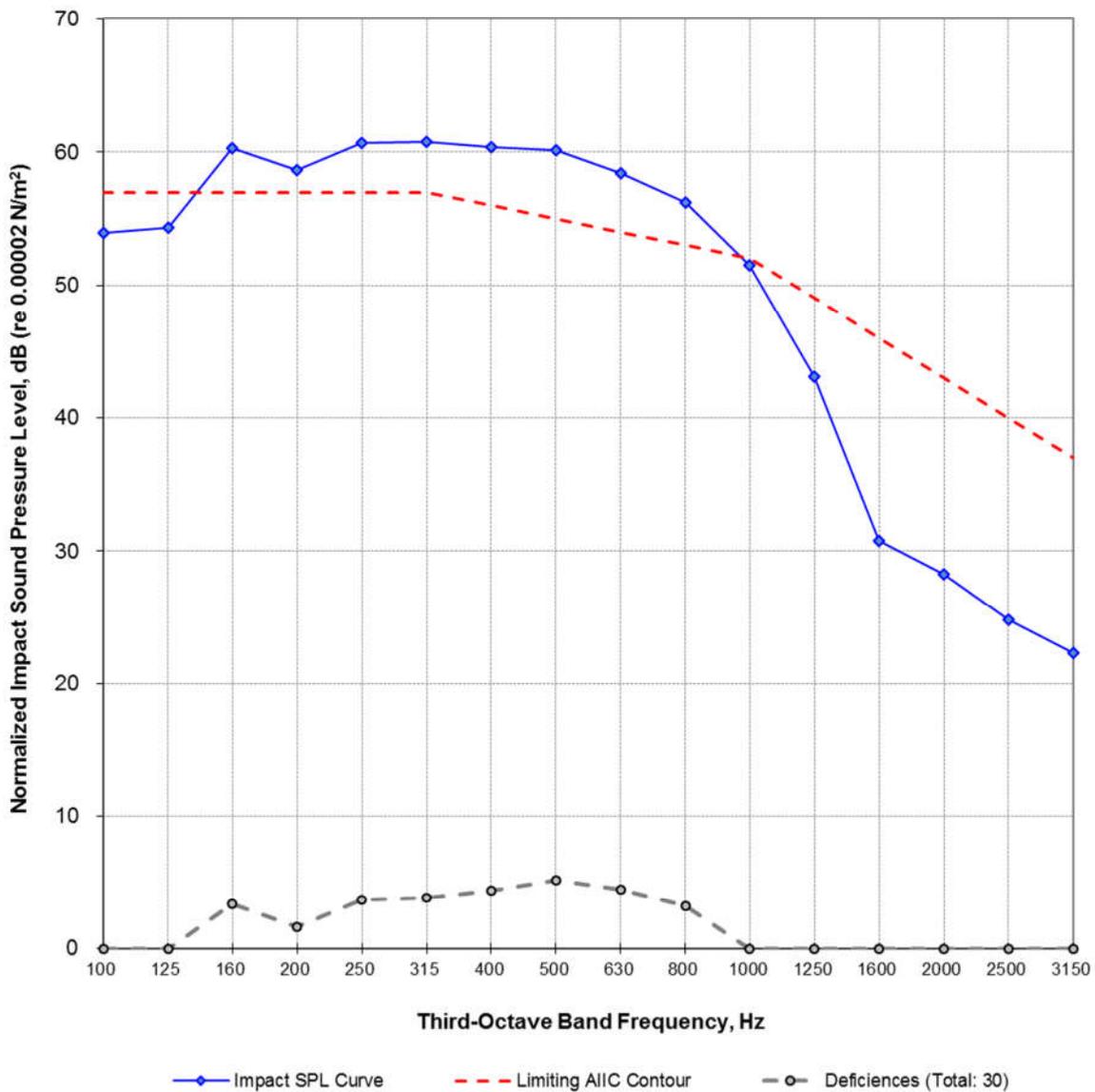
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Woodland View over Regupol LV270



AIIC: 55



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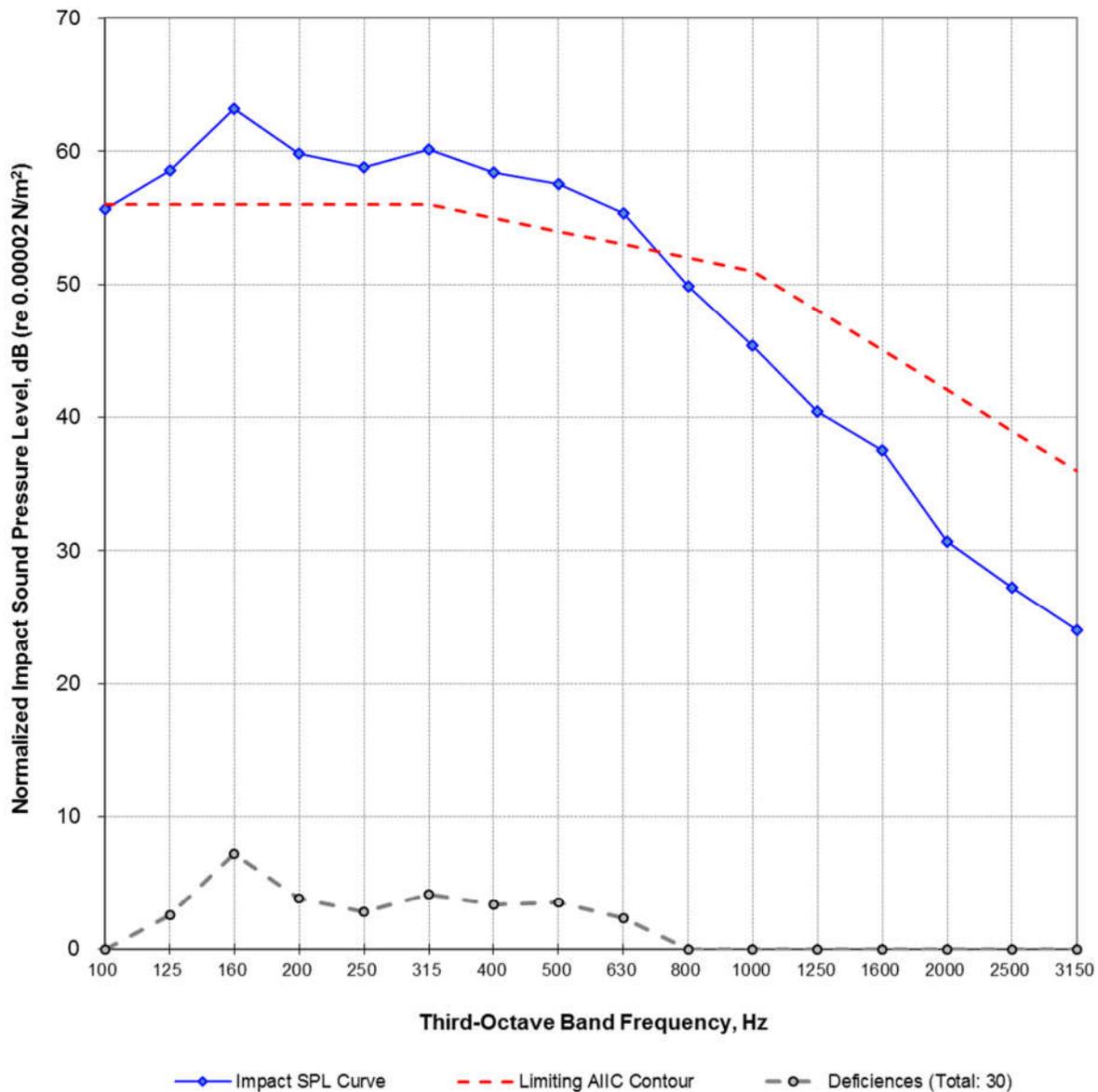
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Letterpress over Groundworks Underlayment



AIIC: 56



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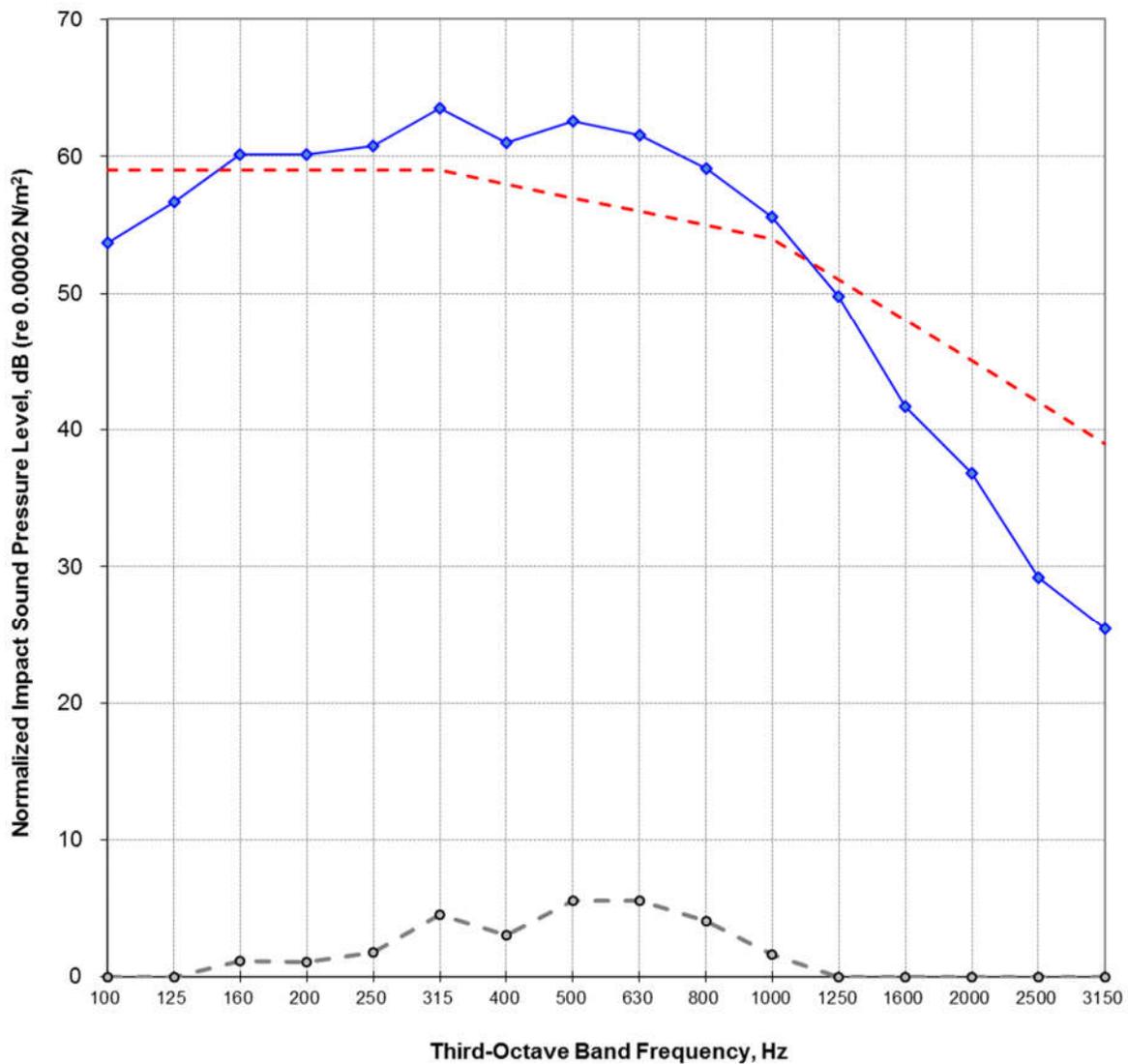
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Letterpress over Hush II Underlayment



AIIC: 53



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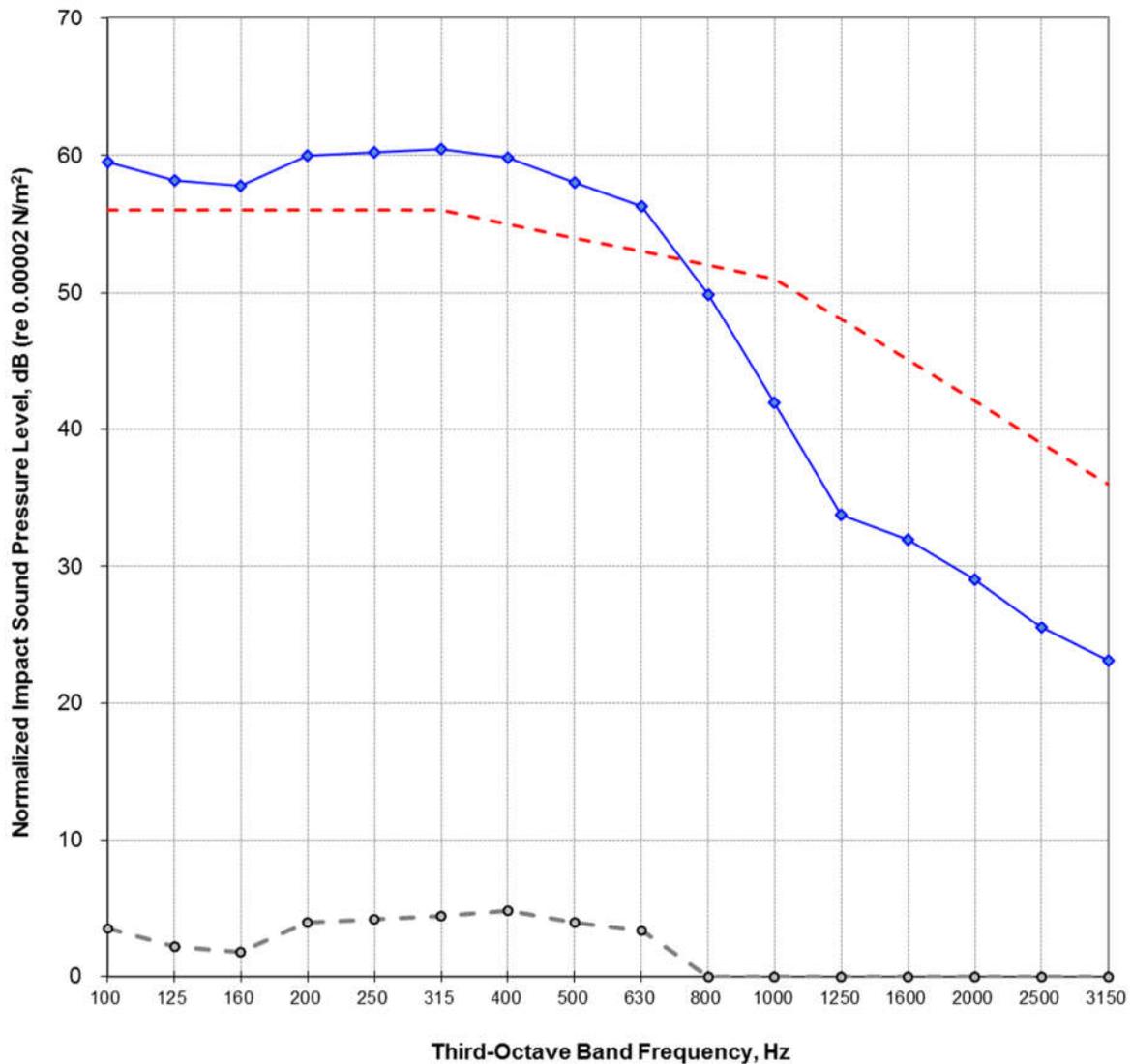
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Letterpress over Silencer Underlayment



AIIC: 56



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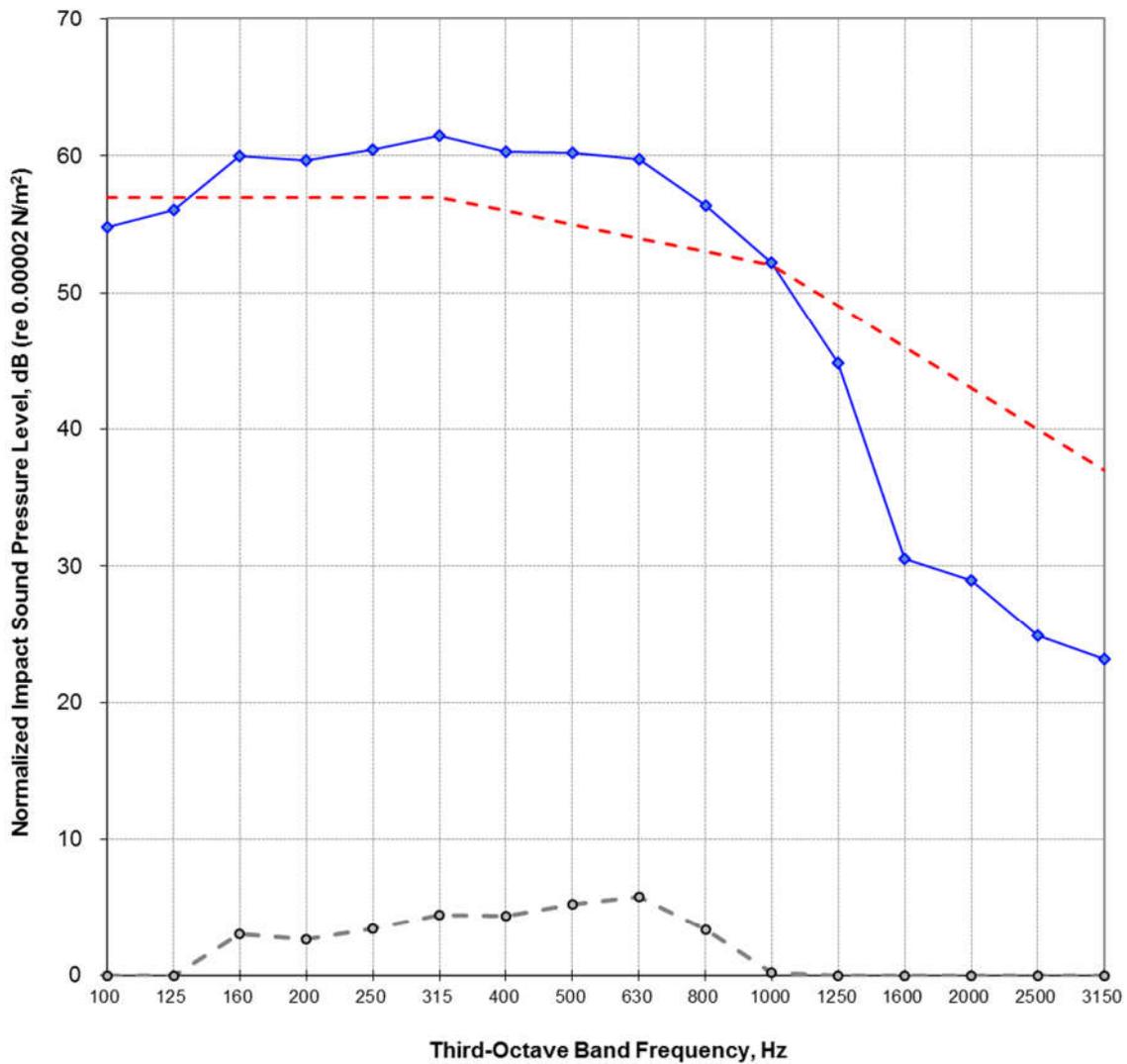
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 2.5mm Letterpress over Regupol LV270



AIIC: 55



◆ Impact SPL Curve
 - - - Limiting AIIC Contour
 - ○ - Deficiencies (Total: 32)

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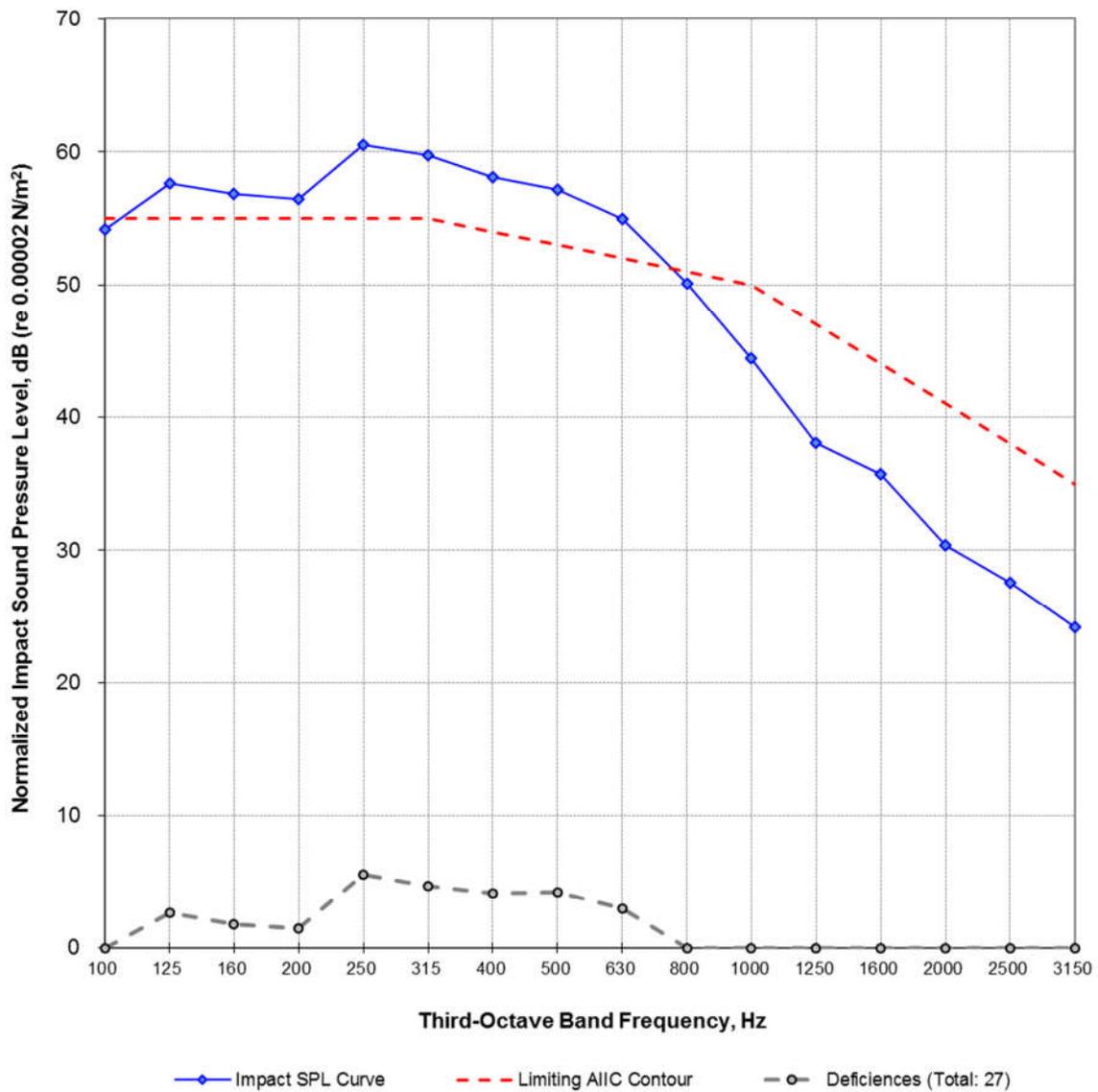
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 3mm North Ridge over Groundworks Underlayment



AIIC: 57



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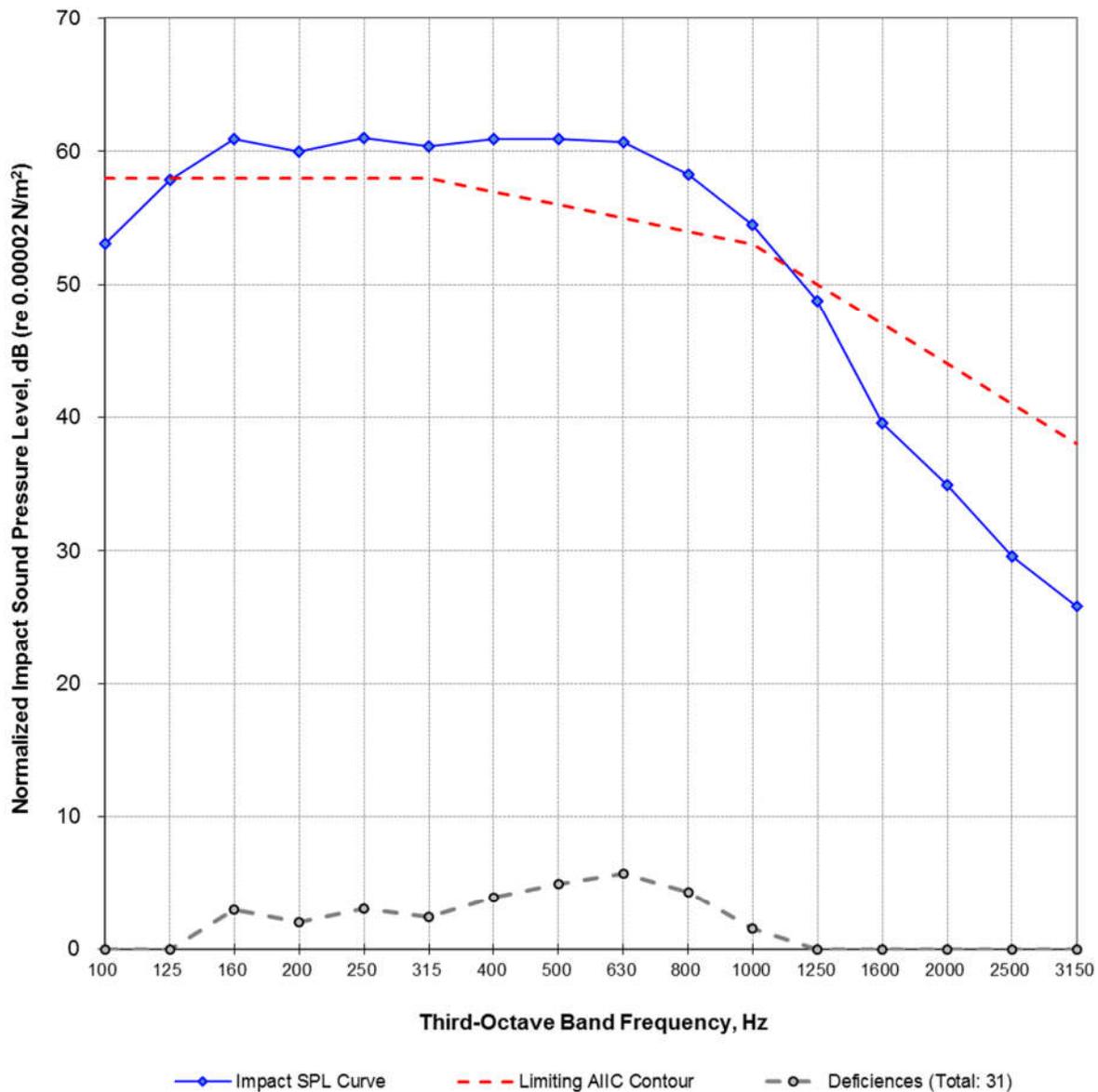
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 3mm North Ridge over Hush II Underlayment



AIIC: 54



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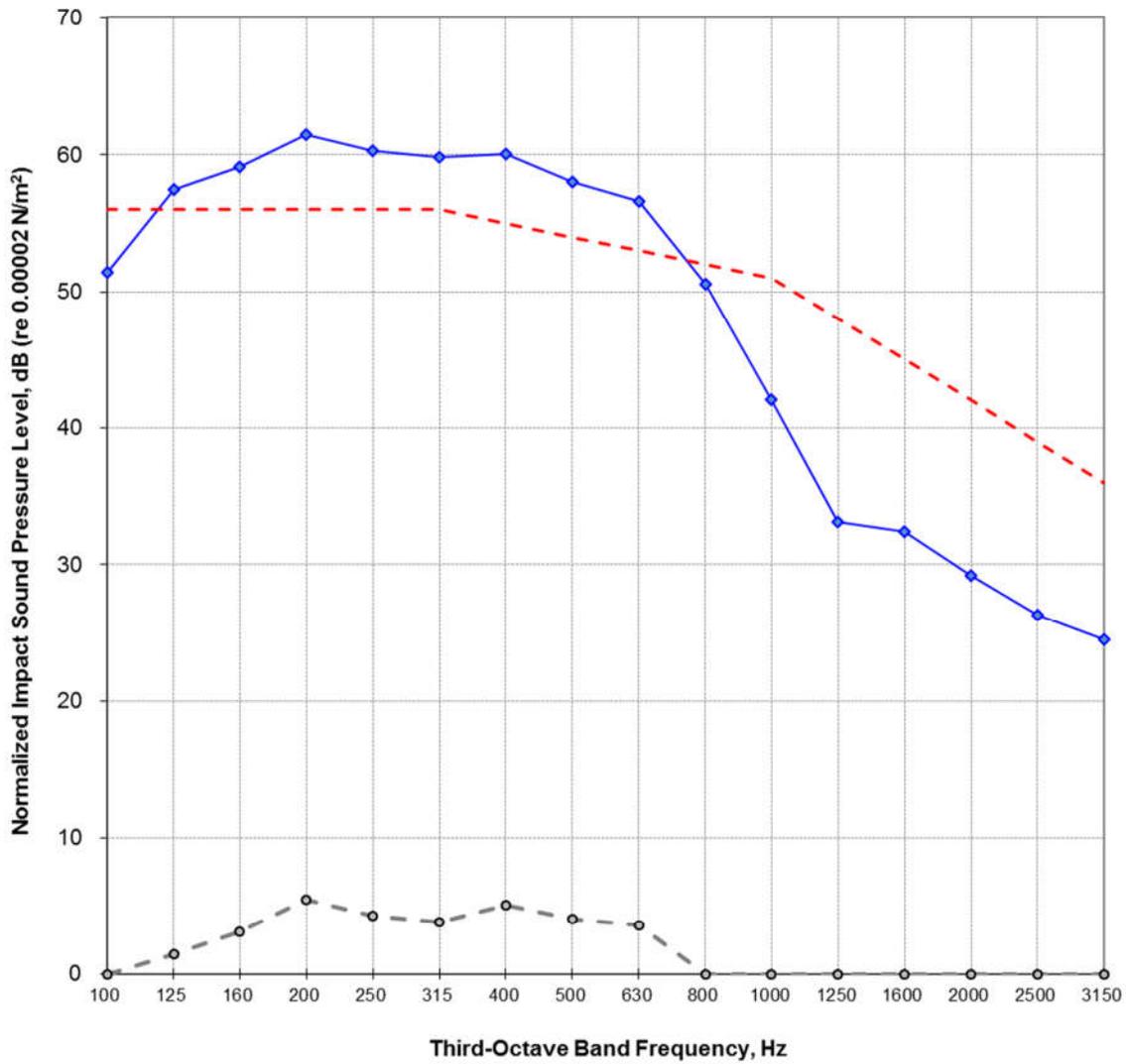
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 3mm North Ridge over Silencer Underlayment



AIIC: 56



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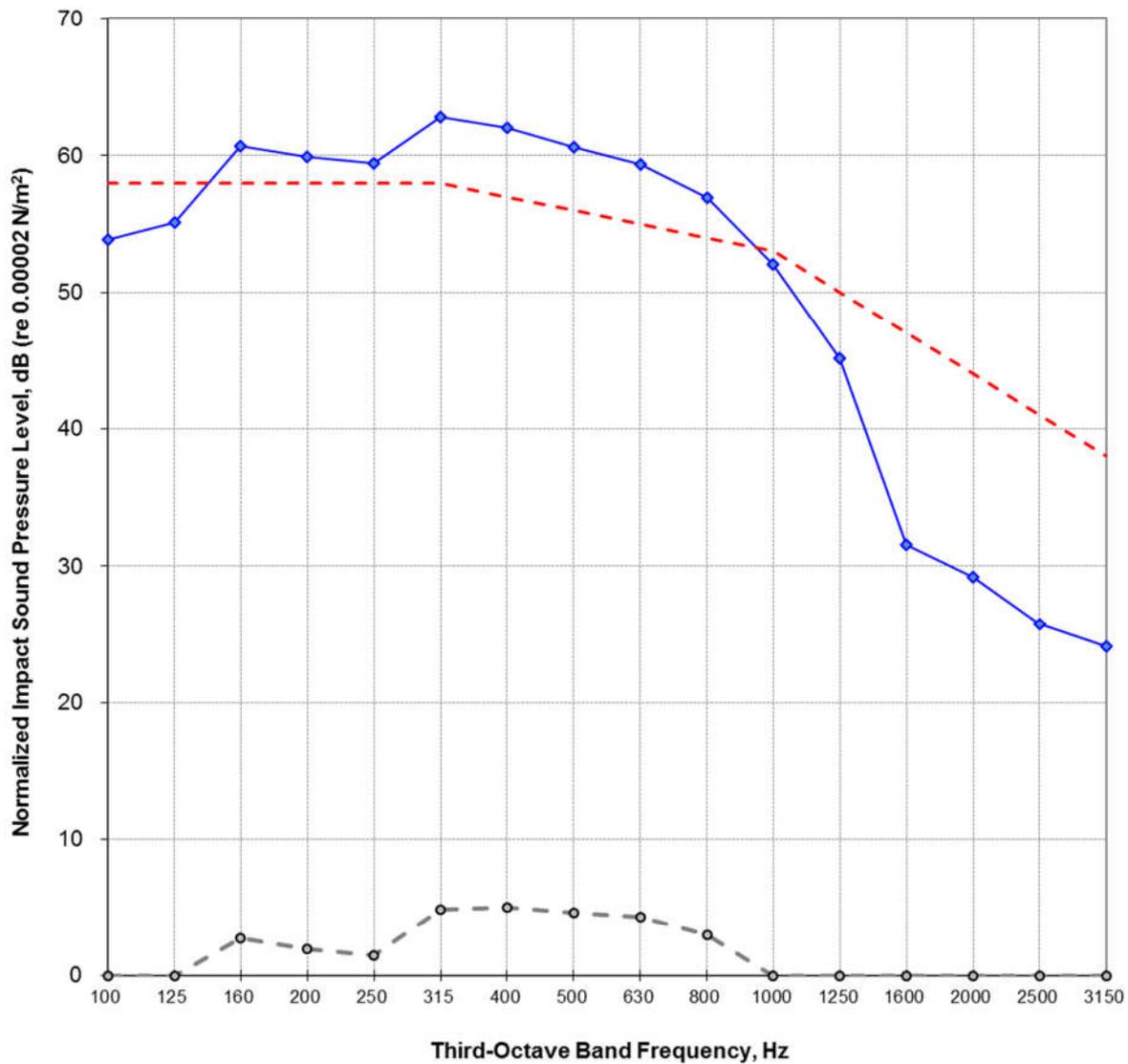
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 3mm North Ridge over Regupol LV270 Underlayment



AIIC: 54



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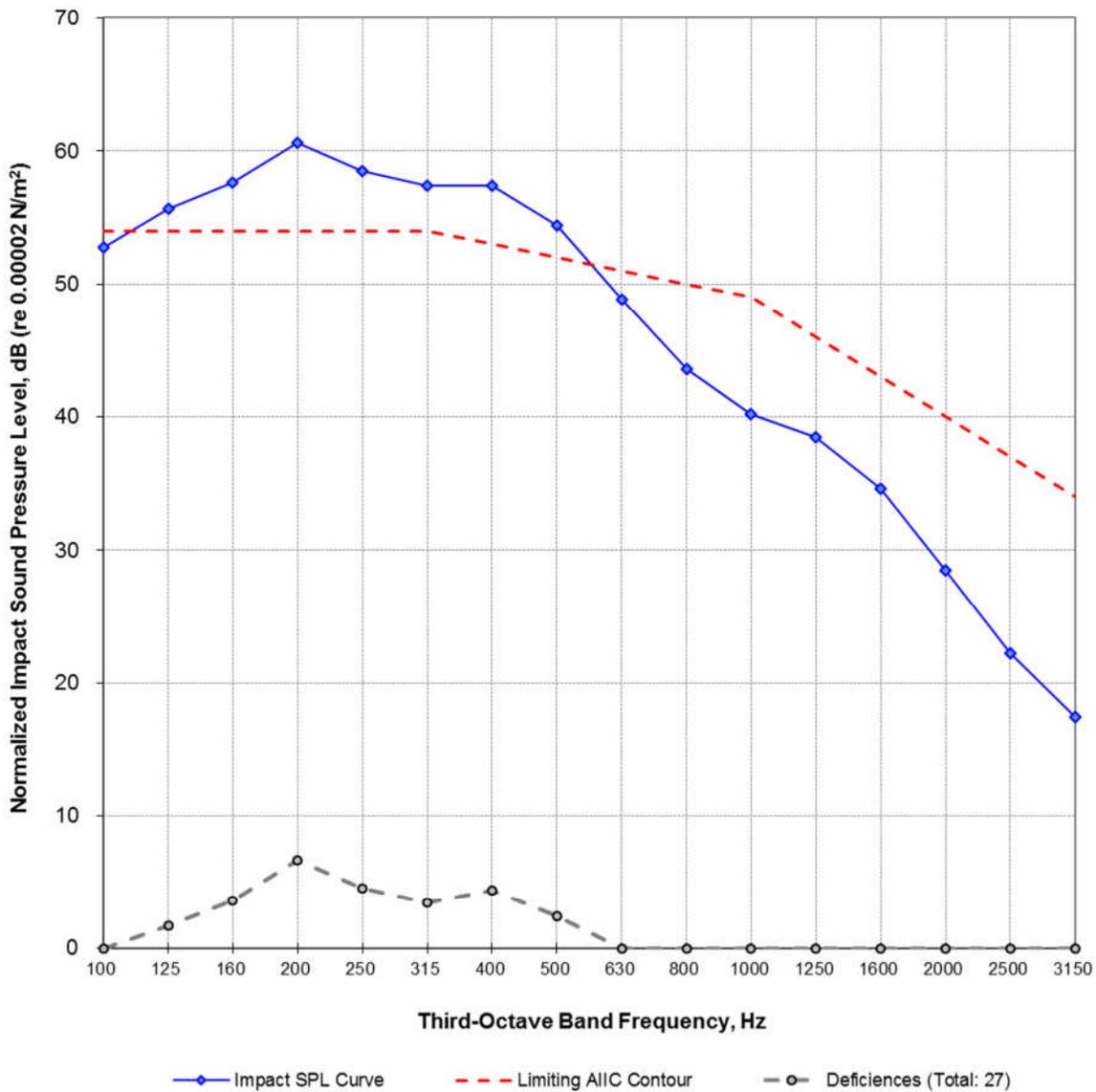
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 4mm Arbor Crest over Groundworks Underlayment



AIIC: 58



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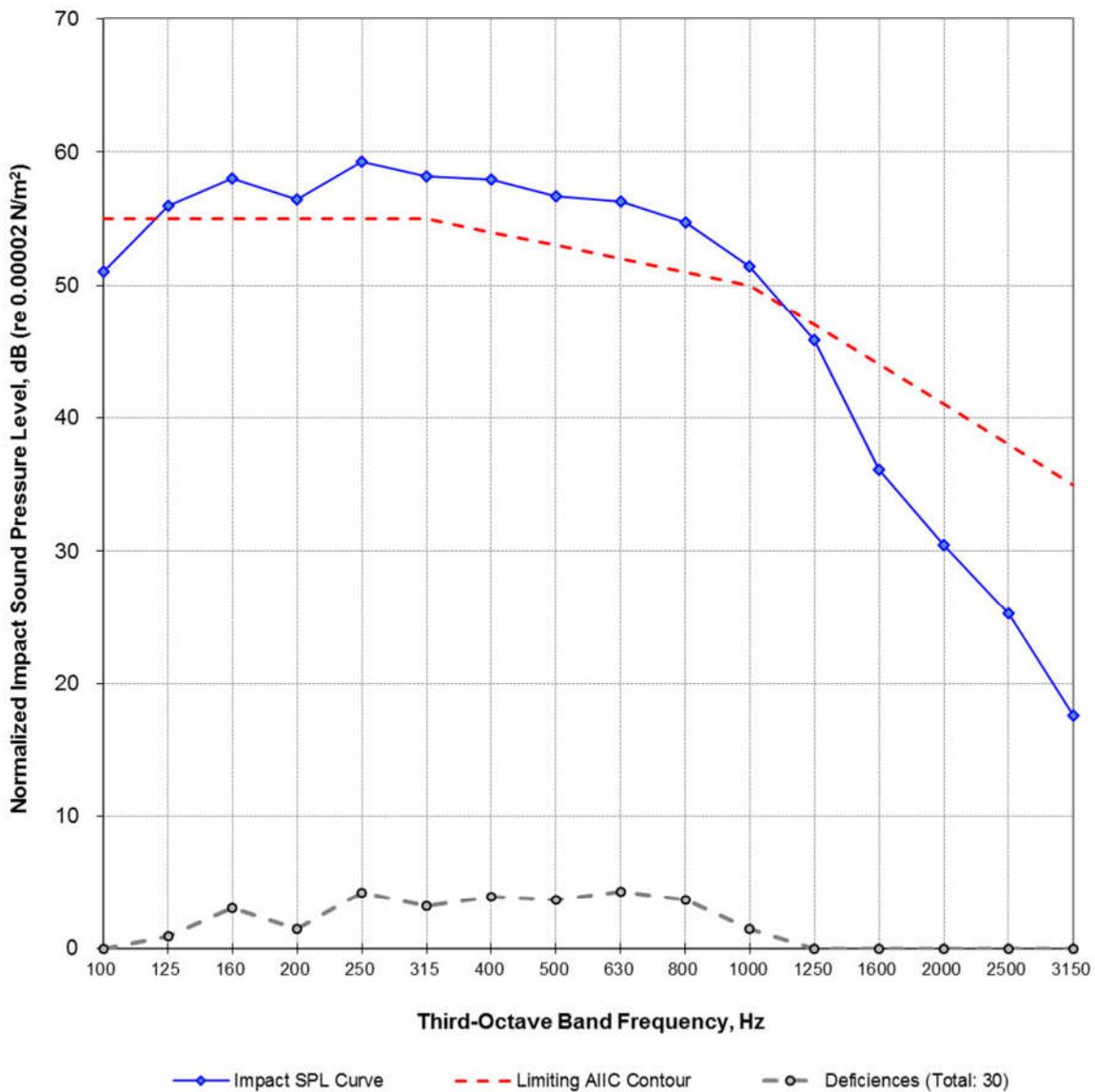
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 4mm Arbor Crest over Hush II Underlayment



AIIC: 57



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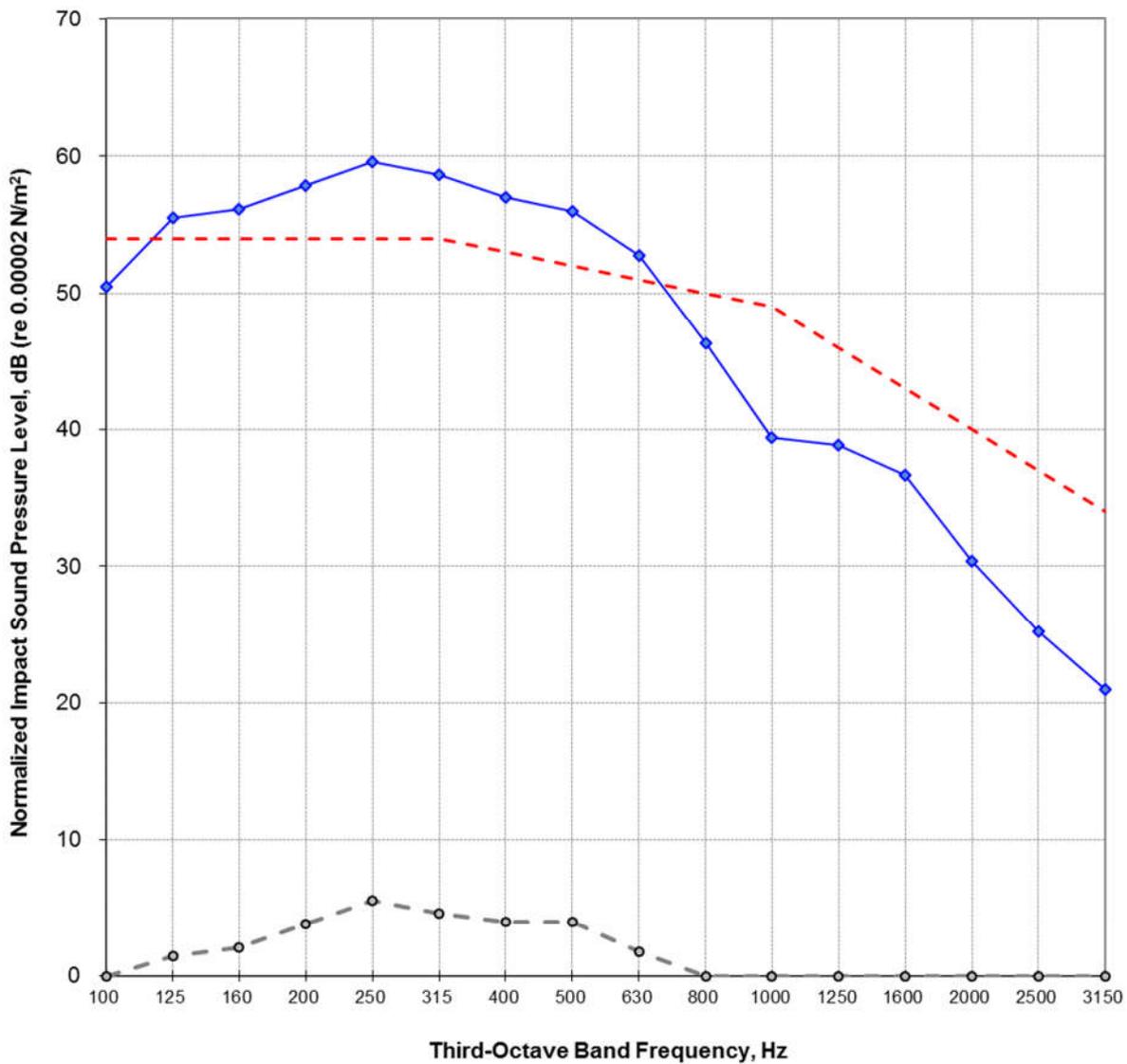
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 4mm Arbor Crest over Silencer Underlayment



AIIC: 58



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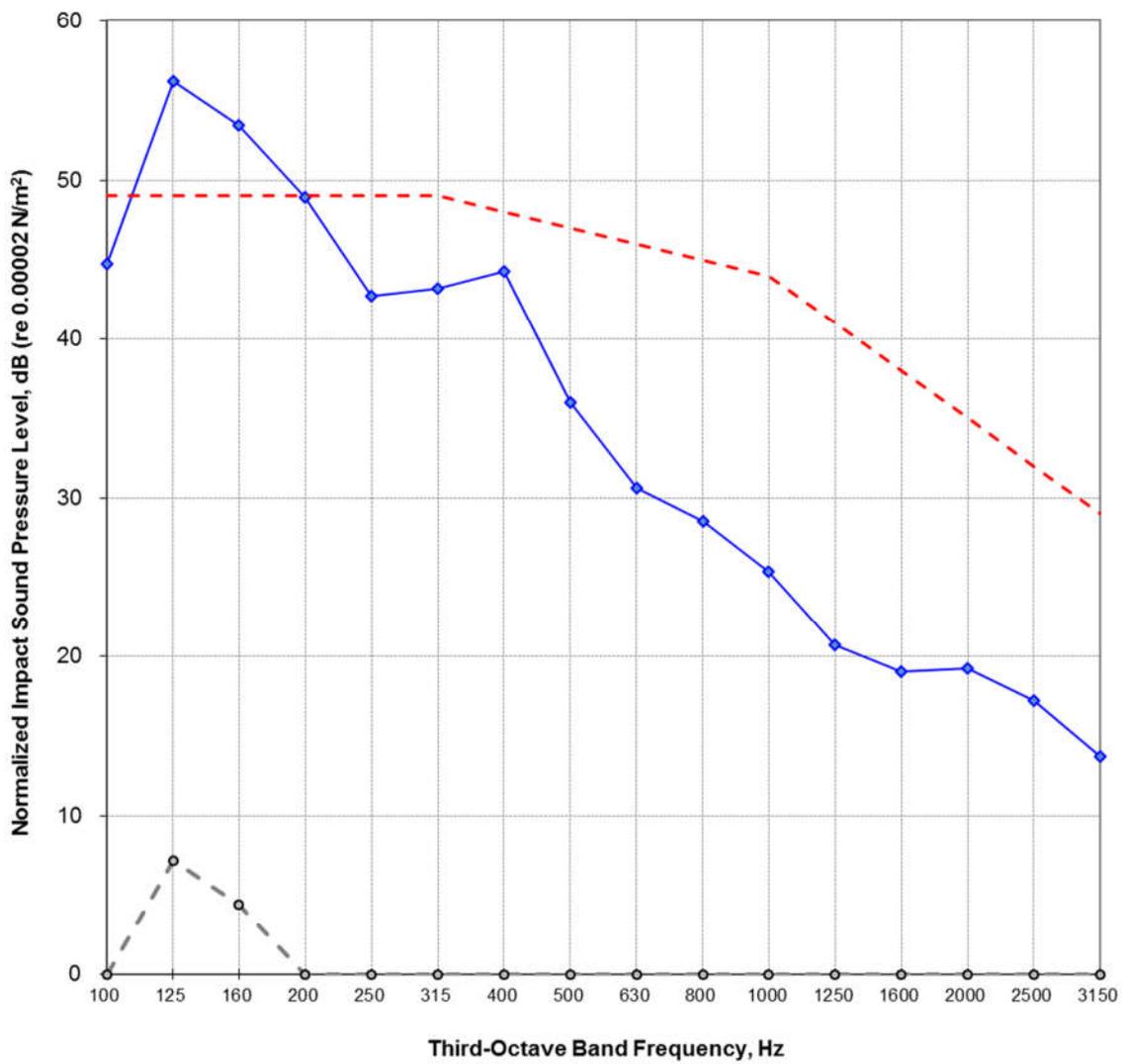
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 4mm Arbor Crest over Sonus Wave Underlayment



AIIIC: 63



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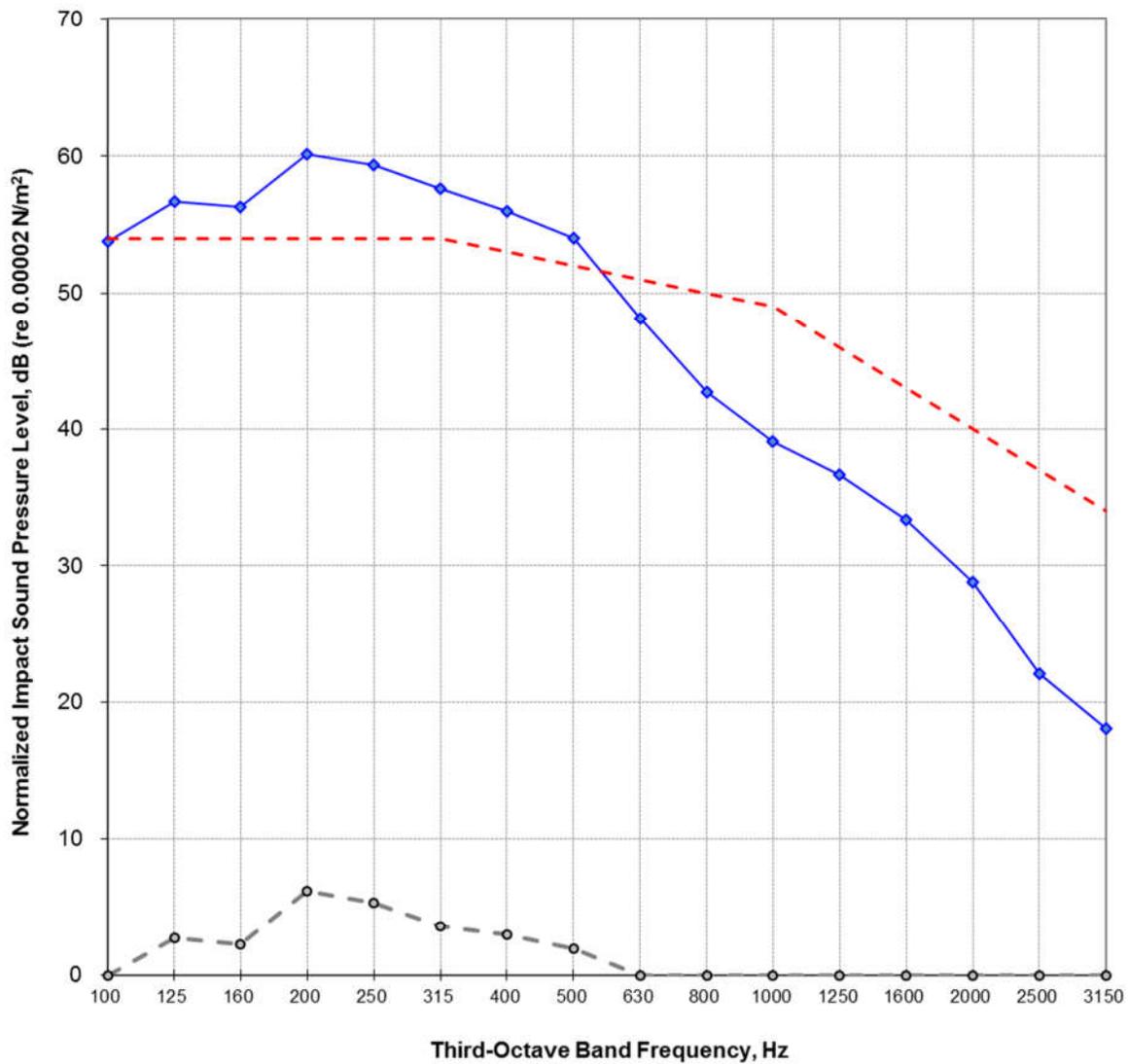
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 5mm Click Refresh over Groundworks



AIIC: 58



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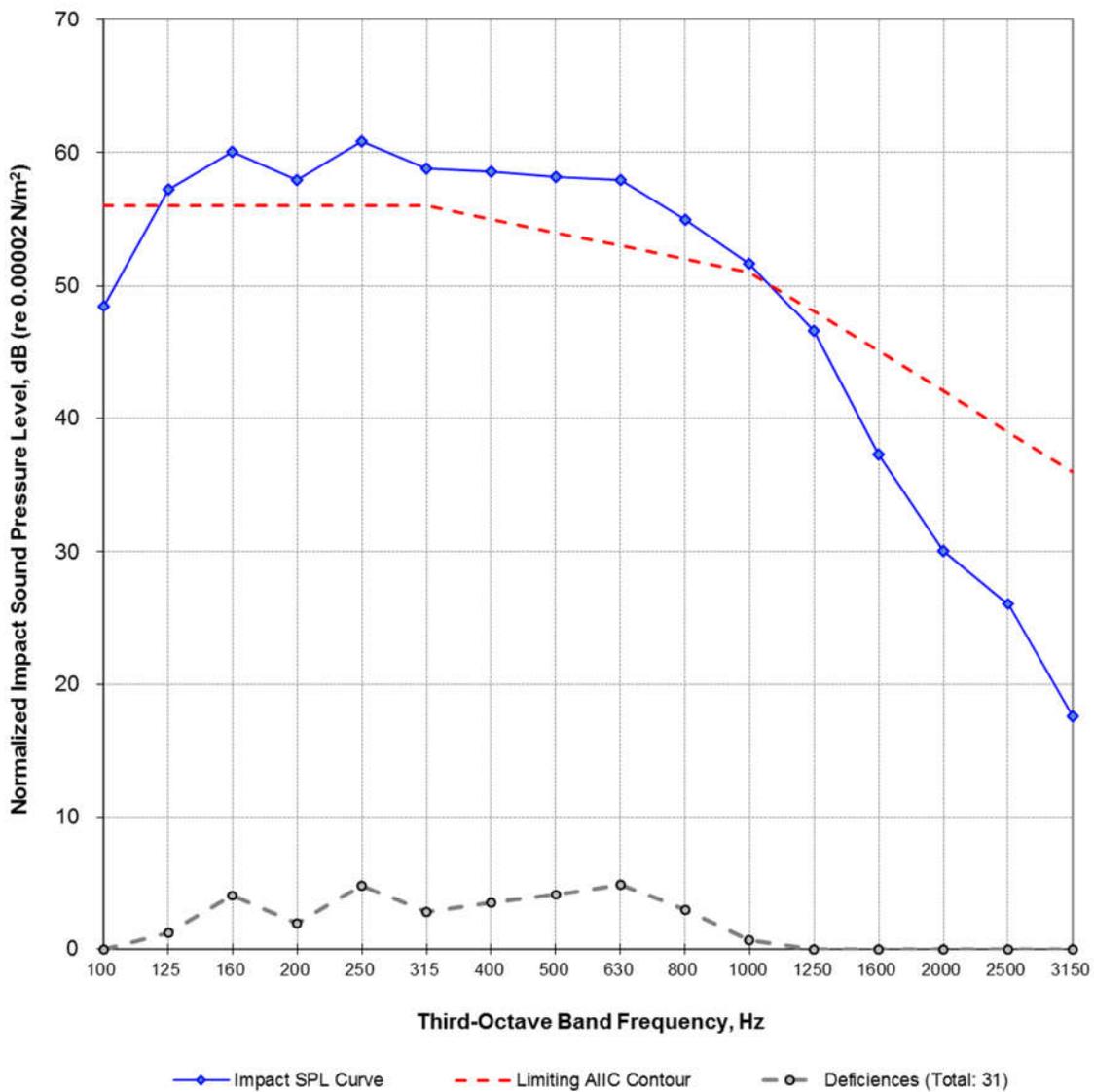
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 5mm Click Refresh over Hush II



AIIC: 56



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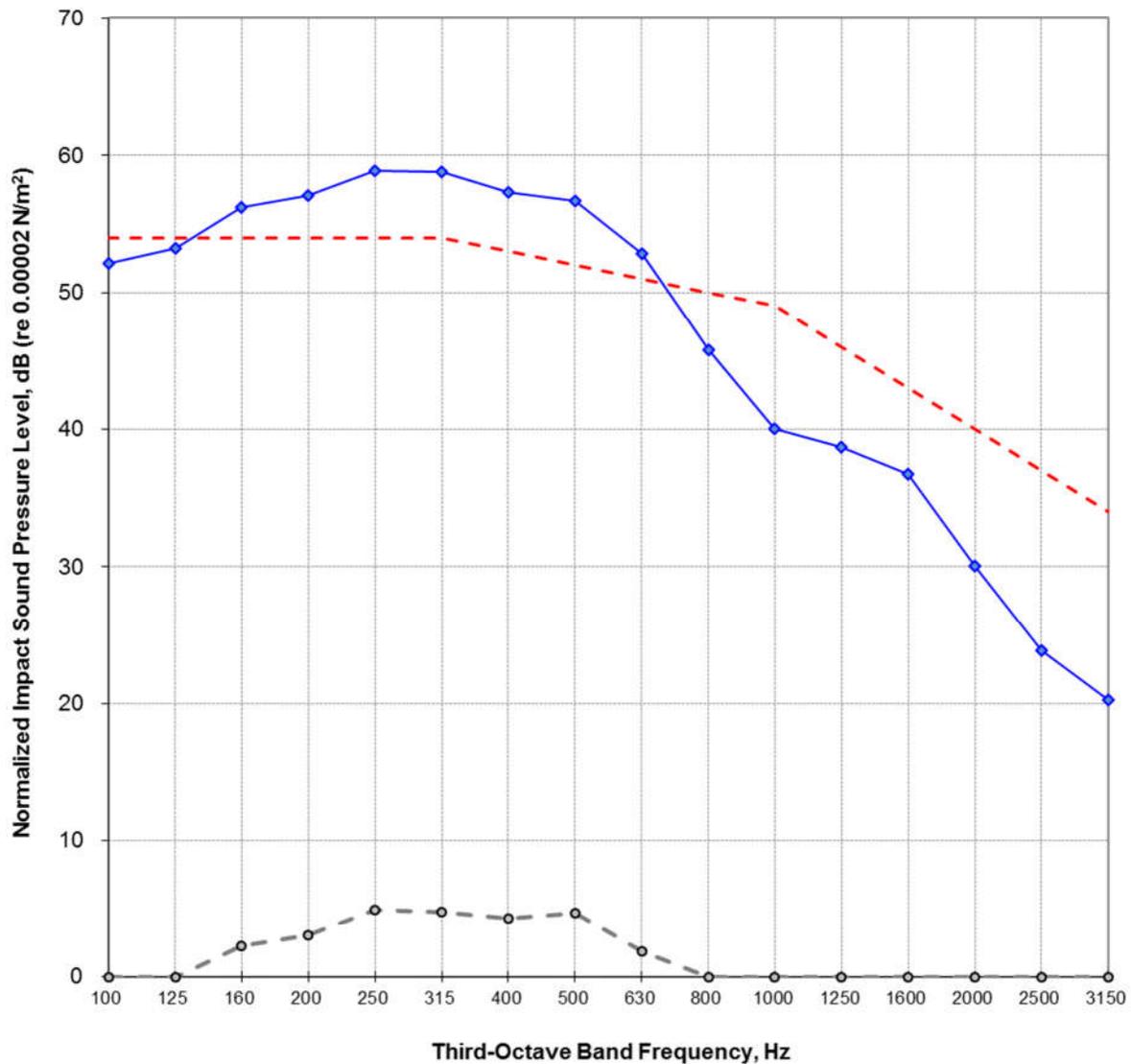
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 5mm Click Refresh over Silencer



AIIC: 58



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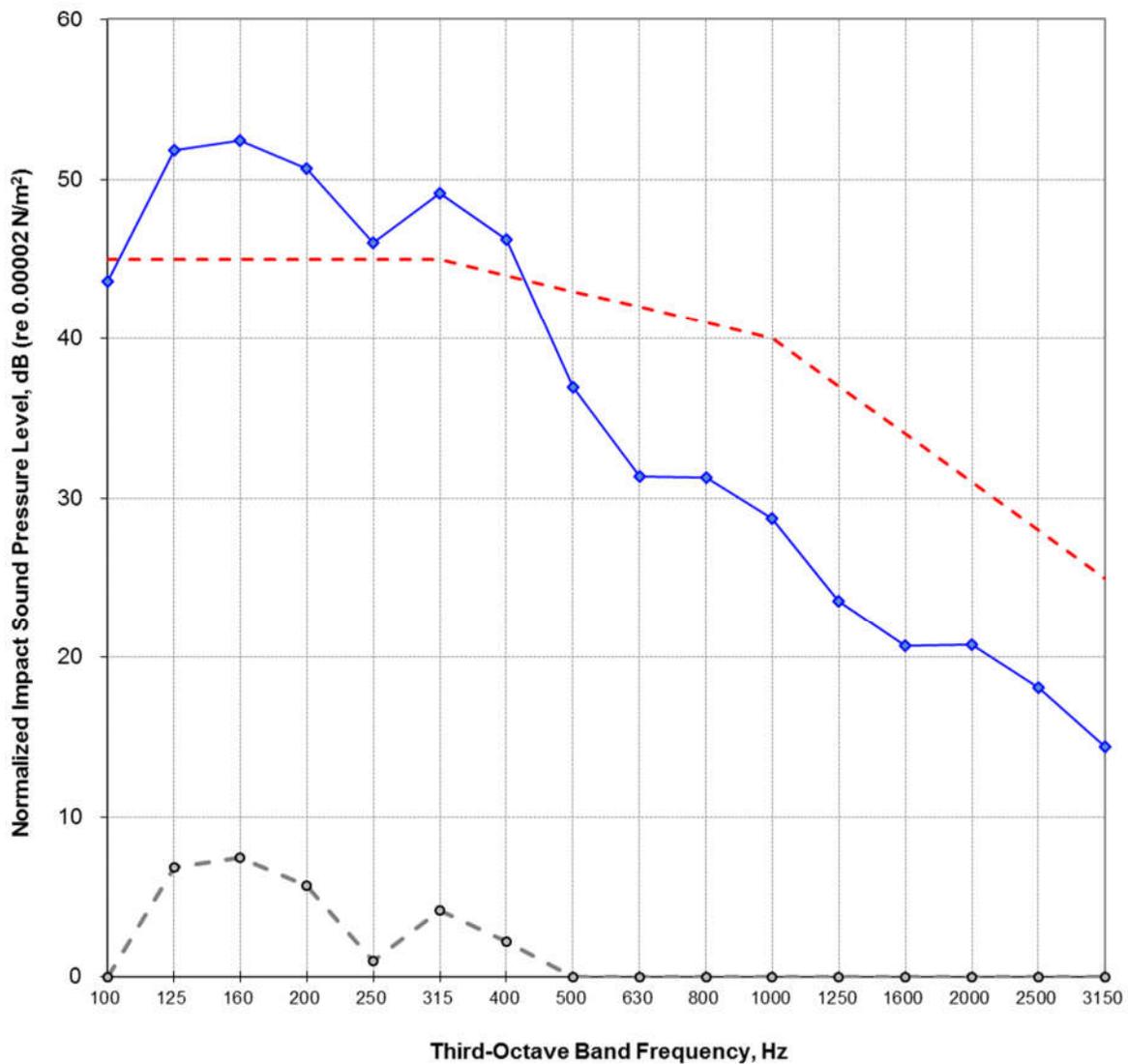
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: 5mm Click Refresh over Sonus Wave Underlayment



AIIC: 67



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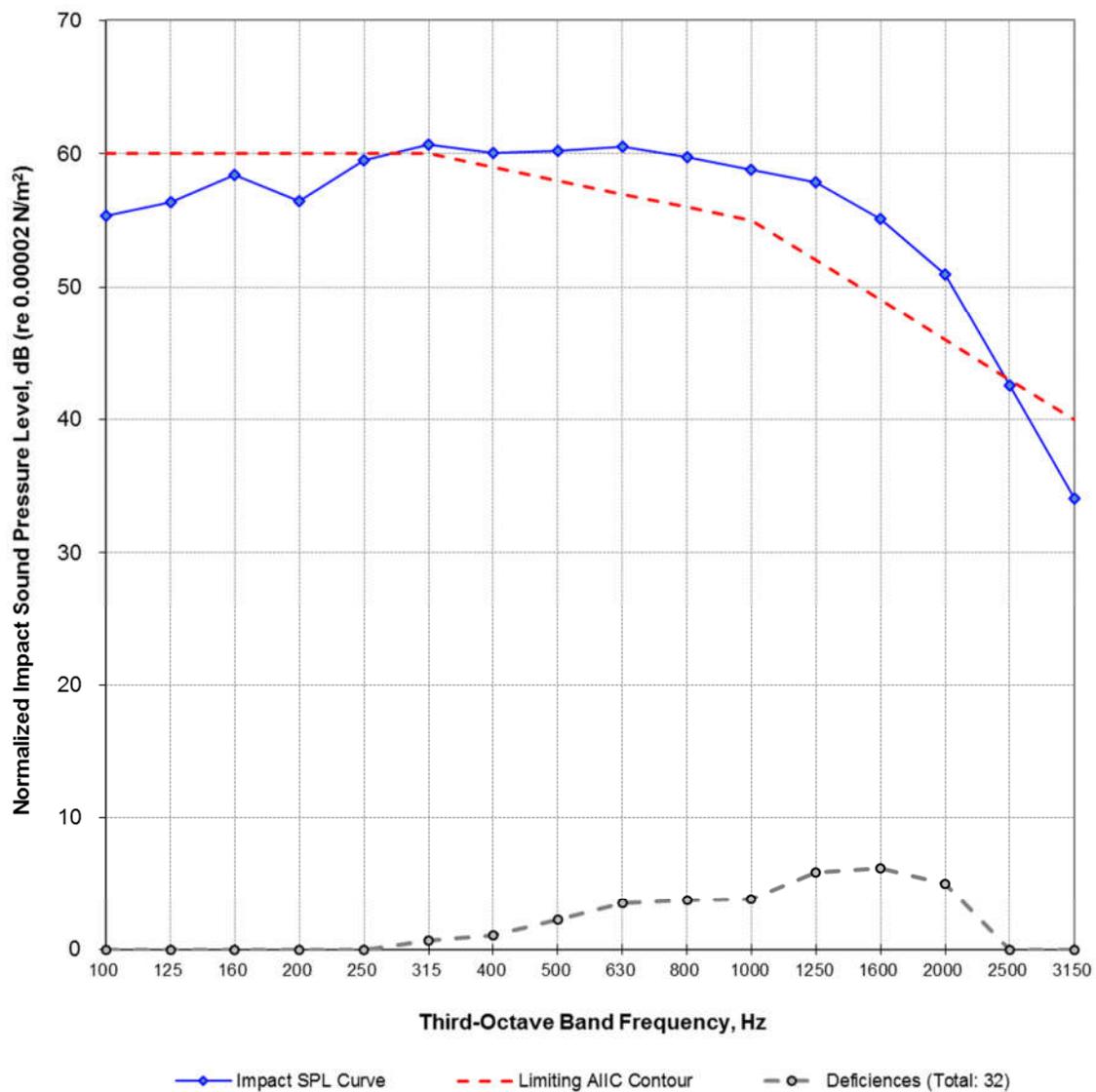
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: 5mm Metallix, direct glue, no underlayment



AIIC: 52



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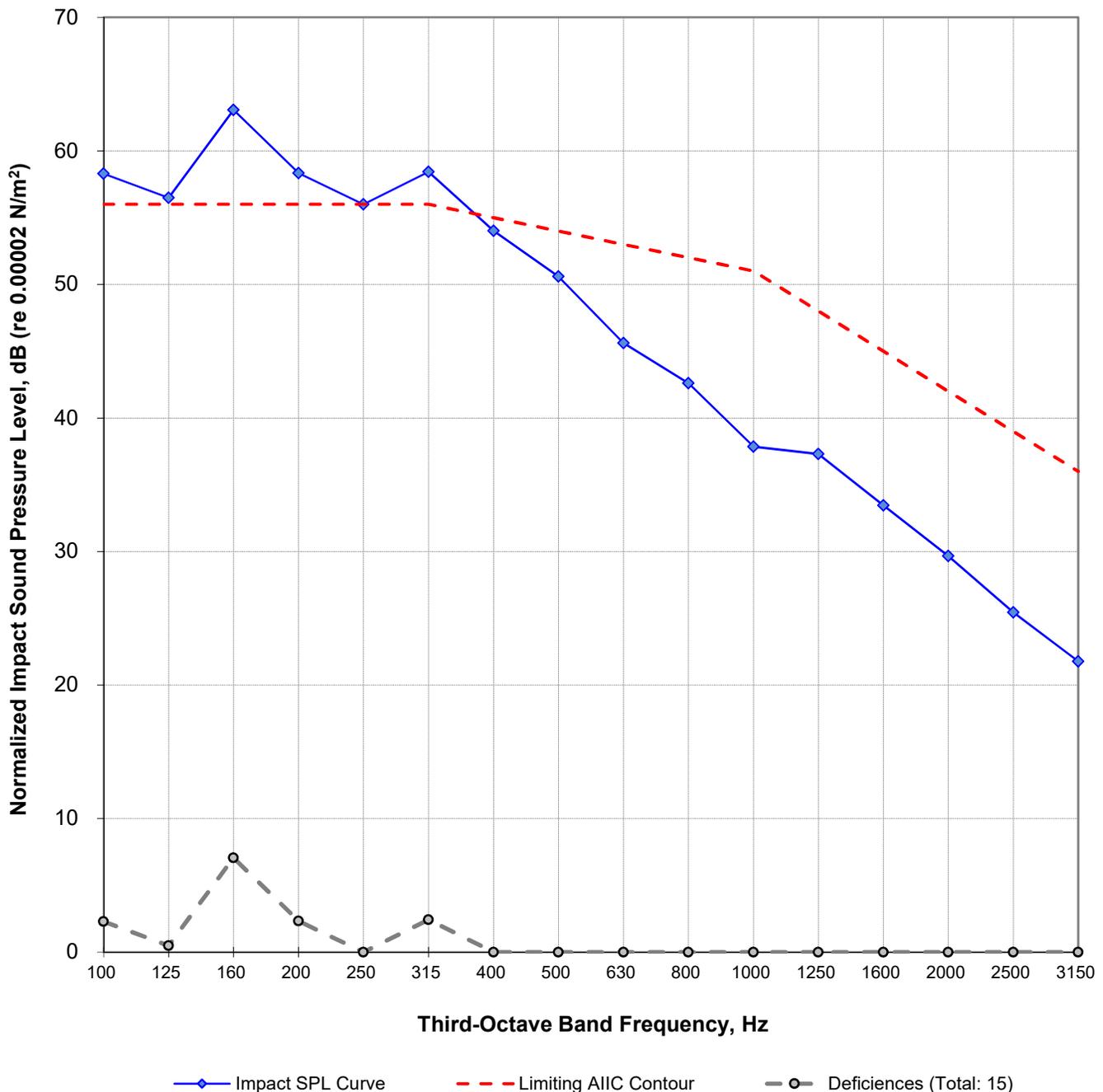
Source: 1005-Living Room

Receiver: 905-Living Room

Flooring Assembly: TAS Tandem 20 mil - Floating Floor



AIIC: 56





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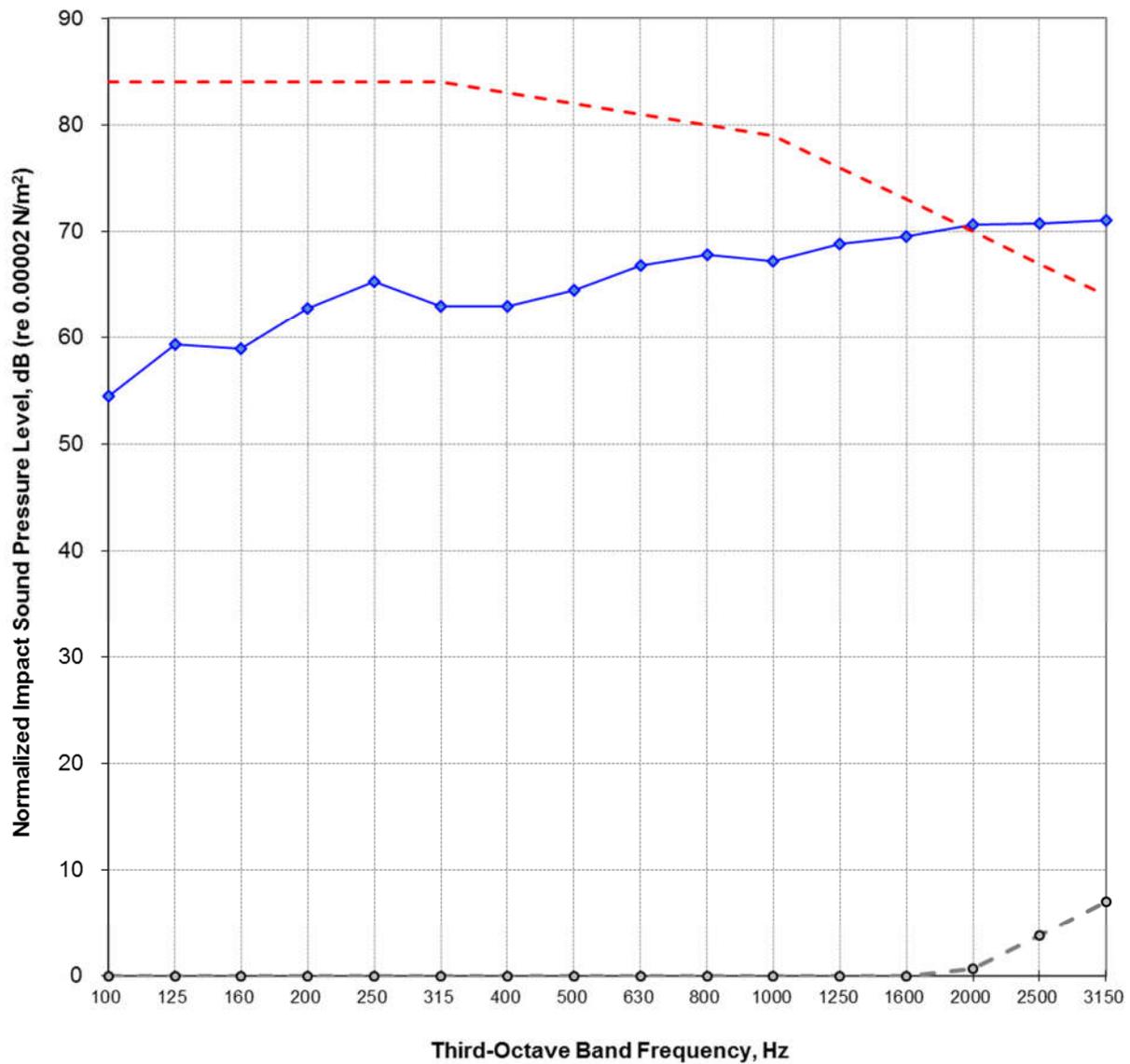
Source: 1005-Bedroom

Receiver: 905-Bedroom

Flooring Assembly: Bare Concrete



AIIIC: 28



—◆— Impact SPL Curve - - - Limiting AIIIC Contour -○- Deficiencies (Total: 12)

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