

RADIO TEST REPORT

Test Report No. 15486544S-E

Customer	ALPS ALPINE CO., LTD.
Description of EUT	Vehicle equipment
Model Number of EUT	AH00CDC
FCC ID	A269ZUA174
Test Regulation	FCC Part 15 Subpart E
Test Result	Complied
Issue Date	August 6, 2025
Remarks	Wireless LAN (6 GHz band) part Very Low Power Device

Representative Test EngineerShiro Kobayashi
Engineer**Approved By**Kazuya Noda
Leader

CERTIFICATE 1266.03

- ☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan, Inc.
- ☒ There is no testing item of "Non-accreditation".

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 24.0

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REVISION HISTORY

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15486544S-E	August 6, 2025	-

Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	IEC	International Electrotechnical Commission
AC	Alternating Current	IEEE	Institute of Electrical and Electronics Engineers
AFH	Adaptive Frequency Hopping	IF	Intermediate Frequency
AM	Amplitude Modulation	ILAC	International Laboratory Accreditation Conference
Amp, AMP	Amplifier	ISED	Innovation, Science and Economic Development Canada
ANSI	American National Standards Institute	ISO	International Organization for Standardization
Ant, ANT	Antenna	JAB	Japan Accreditation Board
AP	Access Point	LAN	Local Area Network
ASK	Amplitude Shift Keying	LIMS	Laboratory Information Management System
Atten., ATT	Attenuator	MCS	Modulation and Coding Scheme
AV	Average	MRA	Mutual Recognition Arrangement
BPSK	Binary Phase-Shift Keying	N/A	Not Applicable
BR	Bluetooth Basic Rate	NIST	National Institute of Standards and Technology
BT	Bluetooth	NS	No signal detect.
BT LE	Bluetooth Low Energy	NSA	Normalized Site Attenuation
BW	BandWidth	NVLAP	National Voluntary Laboratory Accreditation Program
Cal Int	Calibration Interval	OBW	Occupied Band Width
CCK	Complementary Code Keying	OFDM	Orthogonal Frequency Division Multiplexing
Ch., CH	Channel	OFDMA	Orthogonal Frequency Division Multiple Access
CISPR	Comite International Special des Perturbations Radioelectriques	P/M	Power meter
CW	Continuous Wave	PCB	Printed Circuit Board
DBPSK	Differential BPSK	PER	Packet Error Rate
DC	Direct Current	PHY	Physical Layer
D-factor	Distance factor	PK	Peak
DFS	Dynamic Frequency Selection	PN	Pseudo random Noise
DQPSK	Differential QPSK	PP	Preamble Puncturing
DSSS	Direct Sequence Spread Spectrum	PRBS	Pseudo-Random Bit Sequence
EDR	Enhanced Data Rate	PSD	Power Spectral Density
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	QAM	Quadrature Amplitude Modulation
EMC	ElectroMagnetic Compatibility	QP	Quasi-Peak
EMI	ElectroMagnetic Interference	QPSK	Quadri-Phase Shift Keying
EN	European Norm	RBW	Resolution Band Width
ERP, e.r.p.	Effective Radiated Power	RDS	Radio Data System
EU	European Union	RE	Radio Equipment
EUT	Equipment Under Test	RF	Radio Frequency
Fac.	Factor	RMS	Root Mean Square
FCC	Federal Communications Commission	RSS	Radio Standards Specifications
FHSS	Frequency Hopping Spread Spectrum	Rx	Receiving
FM	Frequency Modulation	SA, S/A	Spectrum Analyzer
Freq.	Frequency	SG	Signal Generator
FSK	Frequency Shift Keying	SVSWR	Site-Voltage Standing Wave Ratio
GFSK	Gaussian Frequency-Shift Keying	TR	Test Receiver
GNSS	Global Navigation Satellite System	Tx	Transmitting
GPS	Global Positioning System	VBW	Video BandWidth
Hori.	Horizontal	Vert.	Vertical
ICES	Interference-Causing Equipment Standard	WLAN	Wireless LAN

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SECTION 1: Customer Information

Company Name	ALPS ALPINE CO., LTD.
Address	20-1 Yoshima Industrial park, Iwaki, Fukushima, Japan 970-1192
Telephone Number	+81-246-36-4111
Contact Person	Kenji Nagase

The information provided by the customer is as follows;

- Customer, Description of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer Information
- SECTION 2: Equipment Under Test (EUT) other than the Receipt Date and Test Date
- SECTION 4: Operation of EUT during testing

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	Vehicle equipment
Model Number	AH00CDC
Serial Number	Refer to SECTION 4.2
Condition	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	December 17, 2024
Test Date	January 23 to April 15, 2025

2.2 Product Description

General Specification

Rating	DC 13.5 V
Operating temperature	-30 deg. C to +70 deg. C

Radio Specification

This report contains data provided by the customer which can impact the validity of results. UL Japan, Inc. is only responsible for the validity of results after the integration of the data provided by the customer. The data provided by the customer is marked "a)" in the table below.

WLAN (IEEE802.11b/11g/11n-20/11ax-20)

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band: 2412 MHz to 2462 MHz	
Type of Modulation	DSSS, OFDM	
	OFDMA (IEEE802.11ax Only)	20 MHz: 26/52/106/242-tone RU
Antenna Type	Printed Inverted F Antenna	
Antenna Gain ^{a)}	ANT1: -1.70 dBi	
	ANT2: -1.70 dBi	

Bluetooth (BR/EDR/Low Energy)

Equipment Type	Transceiver	
Frequency of Operation	2402 MHz to 2480 MHz	
Type of Modulation	BT: FHSS (GFSK, $\pi/4$ DQPSK, 8 DPSK) BT LE: GFSK	
Antenna Type	Printed Inverted F Antenna	
Antenna Gain ^{a)}	-1.70 dBi	

WLAN (IEEE802.11a/11n-20/11ac-20/11ax-20/11n-40/11ac-40/11ax-40/11ac-80/11ax-80/11ac-160/11ax-160)

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band	5180 MHz to 5240 MHz 5260 MHz to 5320 MHz 5500 MHz to 5720 MHz 5745 MHz to 5825 MHz 5955 MHz to 6415 MHz 6535 MHz to 6855 MHz
	40 MHz Band	5190 MHz to 5230 MHz 5270 MHz to 5310 MHz 5510 MHz to 5710 MHz 5755 MHz to 5795 MHz 5965 MHz to 6405 MHz 6565 MHz to 6845 MHz
	80 MHz Band	5210 MHz, 5290 MHz 5530 MHz to 5690 MHz, 5775 MHz 5985 MHz to 6385 MHz 6625 MHz to 6785 MHz
	160 MHz Band	5250 MHz, 5570 MHz 6025 MHz to 6345 MHz, 6665 MHz
Type of Modulation	OFDM	
	OFDMA (IEEE802.11ax Only)	20 MHz: 26/52/106/242-tone RU
		40 MHz: 26/52/106/242/484-tone RU
		80 MHz: 26/52/106/242/484/996-tone RU
Antenna Type	Printed Inverted F Antenna	
	U-NII-1, -2A, -2C, -3	ANT1: 2.73 dBi
		ANT2: 3.30 dBi
	U-NII-5, 7	ANT1: 4.67 dBi
		ANT2: 4.42 dBi
6 GHz Contention Based Protocol Incumbent avoidance	Channel Puncturing: Not Supported	
	Bandwidth Reduction: Supported	

SECTION 3: Test Summary

3.1 Test Specification

Test Specification	FCC Part 15 Subpart E The latest version on the first day of the testing period
Title	FCC 47 CFR Part 15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices Section 15.407 General technical requirements

* Also the EUT complies with FCC Part 15 Subpart B.

3.2 Reference Standards

ANSI/USEMCSC C63.2-2023
ANSI C63.4-2014+C63.4a-2017
ANSI C63.5-2017
ANSI C63.10-2020
ANSI/USEMCSC C63.10/Cor 1-2023
ANSI/USEMCSC C63.10a-2024 for ISED
ANSI C63.25.1-2018
KDB 987594 D02
RSS-Gen Issue 5/Amendment 1/Amendment 2 for ISED

3.3 Summary of Test Results

Item	Specification	Results	Remarks
Conducted Emission	FCC: 15.407 (b) (9) / 15.207 ISED: RSS-Gen 8.8	N/A	*1)
26 dB Emission Bandwidth	FCC: 15.407 (a) (11) ISED: RSS-248 4.4	Complied	Conducted
Maximum Conducted Output Power	FCC: 15.407 (a) (9) ISED: RSS-248 4.5.6	Complied	Conducted
Maximum Power Spectral Density	FCC: 15.407 (a) (9) ISED: RSS-248 4.5.6	Complied	Conducted
Spurious Emission Restricted Band Edge	FCC: 15.407 (b), 15.205 and 15.209 ISED: RSS-248 4.6.2	Complied	Conducted (< 30 MHz) / Radiated (> 30 MHz) *2)
In-Band Emissions	FCC: 15.407 (b) (7) ISED: RSS-248 4.6.2	Complied	Conducted
Contention Based Protocol	FCC: 15.407 (d) (6) ISED: RSS-248 4.7	Complied	Conducted
Transmit Power Control	FCC: 15.407 (d) (10) ISED: RSS-248 4.5.6	N/A	*3)

Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.

*1) The test is not applicable since the EUT does not have AC Mains.

*2) Radiated test was selected over 30 MHz based on FCC 15.407 (b) and KDB 987594 D02 G.

*3) This test was not applicable since the results of maximum EIRP power spectral density were below -11 dBm/MHz.

FCC Part 15.31 (e)

The EUT provides stable voltage constantly to the RF Part regardless of input voltage. Instead of a new battery, DC power supply was used for the test. That does not affect the test result, therefore the EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.4 Addition to Standard

Item	Specification	Results	Remarks
99% Occupied Bandwidth	ISED: -	-	Conducted

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.5 Uncertainty

Measurement uncertainty is not taken into account when stating conformity with a specified requirement.

Note: When margins obtained from test results are less than the measurement uncertainty, the test results may exceed the limit.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k=2$.

Item	Frequency range	Uncertainty (+/-)
Conducted Emission (AC Mains) LISN	150 kHz to 30 MHz	3.0 dB
Radiated Emission (Measurement distance: 3 m)	9 kHz to 30 MHz	3.3 dB
	30 MHz to 200 MHz	4.8 dB
	200 MHz to 1 GHz	6.1 dB
	1 GHz to 6 GHz	4.7 dB
	6 GHz to 18 GHz	5.3 dB
	18 GHz to 40 GHz	5.5 dB
Radiated Emission (Measurement distance: 1 m)	1 GHz to 18 GHz	5.6 dB
	18 GHz to 40 GHz	5.8 dB

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)	1.3 dB
Power Measurement above 1 GHz (Peak Detector)	1.5 dB
Spurious Emission (Conducted) below 1 GHz	0.93 dB
Conducted Emissions Power Density Measurement 1 GHz to 3 GHz	0.93 dB
Conducted Emissions Power Density Measurement 3 GHz to 18 GHz	3.0 dB
Spurious Emission (Conducted) 18 GHz to 26.5 GHz	2.8 dB
Spurious Emission (Conducted) 26.5 GHz to 40 GHz	2.3 dB
Bandwidth Measurement	0.012 %
Duty Cycle and Time Measurement	0.27 %
Temperature	2.2 deg.C.
Humidity	3.4 %
Voltage	0.92 %
Contention based protocol	3.0 dB

3.6 Test Location

UL Japan, Inc. Shonan EMC Lab.

1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 Japan

Telephone: +81-463-50-6400

A2LA Certificate Number: 1266.03

(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

Test room	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber (SAC1)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber (SAC2)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber (SAC3)	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber (SAC4)	8.1 x 5.1 x 3.55	8.1 x 5.1	-
Wireless anechoic chamber 1 (WAC1)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
Wireless anechoic chamber 2 (WAC2)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
No.1 Shielded room (SR1)	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room (SR2)	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room (SR3)	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room (SR4)	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room (SR5)	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room (SR6)	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 Shielded room (SR8)	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room (MR1)	2.55 x 4.1 x 2.5	-	-
No.2 Measurement room (MR2)	4.5 x 3.5 x 2.5	-	-
Wireless shielded room 1 (WSR1)	3.0 x 4.5 x 2.7	3.0 x 4.5	-
Wireless shielded room 2 (WSR2)	3.0 x 4.5 x 2.7	3.0 x 4.5	-

3.7 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

Mode	Remarks*
IEEE 802.11ax SISO 20 MHz BW (11ax-20 SISO)	MCS 11, PN9
IEEE 802.11ax MIMO 20 MHz BW (11ax-20 MIMO)	MCS 11 (1SS), PN9
IEEE 802.11ax SISO 40 MHz BW (11ax-40 SISO)	MCS 11, PN9
IEEE 802.11ax MIMO 40 MHz BW (11ax-40 MIMO)	MCS 11 (1SS), PN9
IEEE 802.11ax SISO 80 MHz BW (11ax-80 SISO)	MCS 11, PN9
IEEE 802.11ax MIMO 80 MHz BW (11ax-80 MIMO)	MCS 11 (1SS), PN9
IEEE 802.11ax SISO 160 MHz BW (11ax-160 SISO)	MCS 11, PN9
IEEE 802.11ax MIMO 160 MHz BW (11ax-160 MIMO)	MCS 11 (1SS), PN9
*The worst rate and burst rate were determined based on the test result refer to the WLAN (5 GHz band) part test report No.15486544S-C issued by UL Japan, Inc.	
*Power of the EUT was set by the software as follows;	
Power Setting: See below table Software: QRCT Version: 4.0.125.1 (Date: 2024.12.17, Storage location: Driven by connected PC) *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	
Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals - " of TCB Council Workshop October 2009 and also was judged the necessity of 802.11ax mode by the pre-test.	

Power Setting table

[OFDM]

		11ax-20	11ax-40	11ax-80	11ax-160
SISO	(U-NII 5)	-13.0	-12.5	-13.0	-13.0
	(U-NII 7)	-12.5	-11.5	-11.5	-12.0
MIMO	(U-NII 5)	-12.5	-12.5	-13.0	-10.0
	(U-NII 7)	-11.5	-11.0	-11.0	-10.0

[OFDMA (U-NII 5)]

		11ax-20	11ax-40	11ax-80	11ax-160
SISO	26-tone RU	-20.5	-20.0	-21.0	-21.5
	52-tone RU	-20.5	-20.0	-21.5	-21.5
	106-tone RU	-20.5	-20.0	-21.5	-21.5
	242-tone RU	-20.5	-20.0	-21.5	-21.5
	484-tone RU	-	-20.0	-21.5	-21.0
	996-tone RU	-	-	-21.0	-21.0
	2x996-tone RU	-	-	-	-21.0
MIMO	26-tone RU	-21.0	-21.0	-21.0	-21.5
	52-tone RU	-21.0	-21.0	-21.0	-21.5
	106-tone RU	-21.0	-21.0	-21.0	-21.5
	242-tone RU	-21.0	-21.0	-21.0	-21.5
	484-tone RU	-	-21.0	-21.0	-21.5
	996-tone RU	-	-	-21.0	-21.5
	2x996-tone RU	-	-	-	-21.5

[OFDMA (U-NII 7)]

		11ax-20	11ax-40	11ax-80	11ax-160
SISO	26-tone RU	-20.0	-20.0	-19.5	-20.5
	52-tone RU	-20.0	-20.0	-19.5	-20.5
	106-tone RU	-20.0	-20.0	-19.5	-20.5
	242-tone RU	-20.0	-20.0	-19.5	-20.5
	484-tone RU	-	-20.0	-19.5	-20.5
	996-tone RU	-	-	-19.5	-20.0
	2x996-tone RU	-	-	-	-20.0
MIMO	26-tone RU	-20.0	-20.0	-20.0	-20.0
	52-tone RU	-20.0	-20.0	-20.0	-20.0
	106-tone RU	-20.0	-20.0	-20.0	-20.0
	242-tone RU	-20.0	-20.0	-20.0	-20.0
	484-tone RU	-	-20.0	-20.0	-20.0
	996-tone RU	-	-	-20.0	-20.0
	2x996-tone RU	-	-	-	-20.5

Note:

1. These above setting values are a unitless value (not dBm).

*The Details of Operation Mode(s)

Test Item	Operating Mode	Tested Antenna	Tested Frequency			
			U-NII-5	U-NII-6	U-NII-7	U-NII-8
Radiated Spurious Emission (Below 1 GHz)	Tx 11ax-160 (OFDM) MIMO *1)	ANT1 + ANT2	-	-	6665 MHz	-
26 dB Emission Bandwidth, 99 % Occupied Bandwidth, In-Band Emissions	Tx 11ax-20 (OFDM) MIMO Tx 11ax-20 (OFDMA) MIMO	ANT1 *2)	5955 MHz 6195 MHz 6415 MHz	-	6535 MHz 6695 MHz 6855 MHz	-
	Tx 11ax-40 (OFDM) MIMO Tx 11ax-40 (OFDMA) MIMO		5965 MHz 6205 MHz 6405 MHz	-	6565 MHz 6685 MHz 6845 MHz	-
	Tx 11ax-80 (OFDM) MIMO Tx 11ax-80 (OFDMA) MIMO		5985 MHz 6225 MHz 6385 MHz	-	6625 MHz 6705 MHz 6785 MHz	-
	Tx 11ax-160 (OFDM) MIMO Tx 11ax-160 (OFDMA) MIMO		6025 MHz 6185 MHz 6345 MHz	-	6665 MHz	-
Maximum Conducted Output Power	Tx 11ax-20 (OFDM) MIMO Tx 11ax-20 (OFDMA) MIMO	SISO: ANT1 *2)	5955 MHz 6195 MHz 6415 MHz	-	6535 MHz 6695 MHz 6855 MHz	-
	Tx 11ax-40 (OFDM) MIMO Tx 11ax-40 (OFDMA) MIMO	MIMO: ANT1 + ANT2	5965 MHz 6205 MHz 6405 MHz	-	6565 MHz 6685 MHz 6845 MHz	-
	Tx 11ax-80 (OFDM) MIMO Tx 11ax-80 (OFDMA) MIMO		5985 MHz 6225 MHz 6385 MHz	-	6625 MHz 6705 MHz 6785 MHz	-
	Tx 11ax-160 (OFDM) MIMO Tx 11ax-160 (OFDMA) MIMO		6025 MHz 6185 MHz 6345 MHz	-	6665 MHz	-
Maximum Power Spectral Density	Tx 11ax-20 (OFDM) MIMO Tx 11ax-20 (OFDMA) MIMO	ANT1 + ANT2	5955 MHz 6195 MHz 6415 MHz	-	6535 MHz 6695 MHz 6855 MHz	-
	Tx 11ax-40 (OFDM) MIMO Tx 11ax-40 (OFDMA) MIMO		5965 MHz 6205 MHz 6405 MHz	-	6565 MHz 6685 MHz 6845 MHz	-
	Tx 11ax-80 (OFDM) MIMO Tx 11ax-80 (OFDMA) MIMO		5985 MHz 6225 MHz 6385 MHz	-	6625 MHz 6705 MHz 6785 MHz	-
	Tx 11ax-160 (OFDM) MIMO Tx 11ax-160 (OFDMA) MIMO		6025 MHz 6185 MHz 6345 MHz	-	6665 MHz	-
Radiated Spurious Emission (Above 1 GHz) *3)	Tx 11ax-20 (OFDM) MIMO Tx 11ax-20 (OFDMA) MIMO	ANT1 + ANT2	5955 MHz 6195 MHz 6415 MHz	-	6535 MHz 6695 MHz 6855 MHz	-
	Tx 11ax-40 (OFDM) MIMO Tx 11ax-40 (OFDMA) MIMO		5965 MHz 6205 MHz 6405 MHz	-	6565 MHz 6685 MHz 6845 MHz	-
	Tx 11ax-80 (OFDM) MIMO Tx 11ax-80 (OFDMA) MIMO		5985 MHz 6225 MHz 6385 MHz	-	6625 MHz 6705 MHz 6785 MHz	-
	Tx 11ax-160 (OFDM) MIMO Tx 11ax-160 (OFDMA) MIMO		6025 MHz 6185 MHz 6345 MHz	-	6665 MHz	-
Conducted Spurious Emission	Tx 11ax-160 (OFDM) MIMO *1)	ANT1 *2)	-	-	6665 MHz	-
Contention Based Protocol	Communication 11ax-20	ANT1 + ANT2	6175 MHz	-	6695 MHz	-
	Communication 11ax-160		6185 MHz	-	6665 MHz	-

*1) The mode was tested as a representative because it had the highest power at antenna terminal test.
*2) After the preliminary testing between ANT 1 and ANT 2, the test was performed with the antenna that had higher power as a representative.
*3) OFDMA configuration tests were conducted only at the band edge since preliminary testing indicated that the other spurious emission was lower than OFDM.

Simultaneous transmission

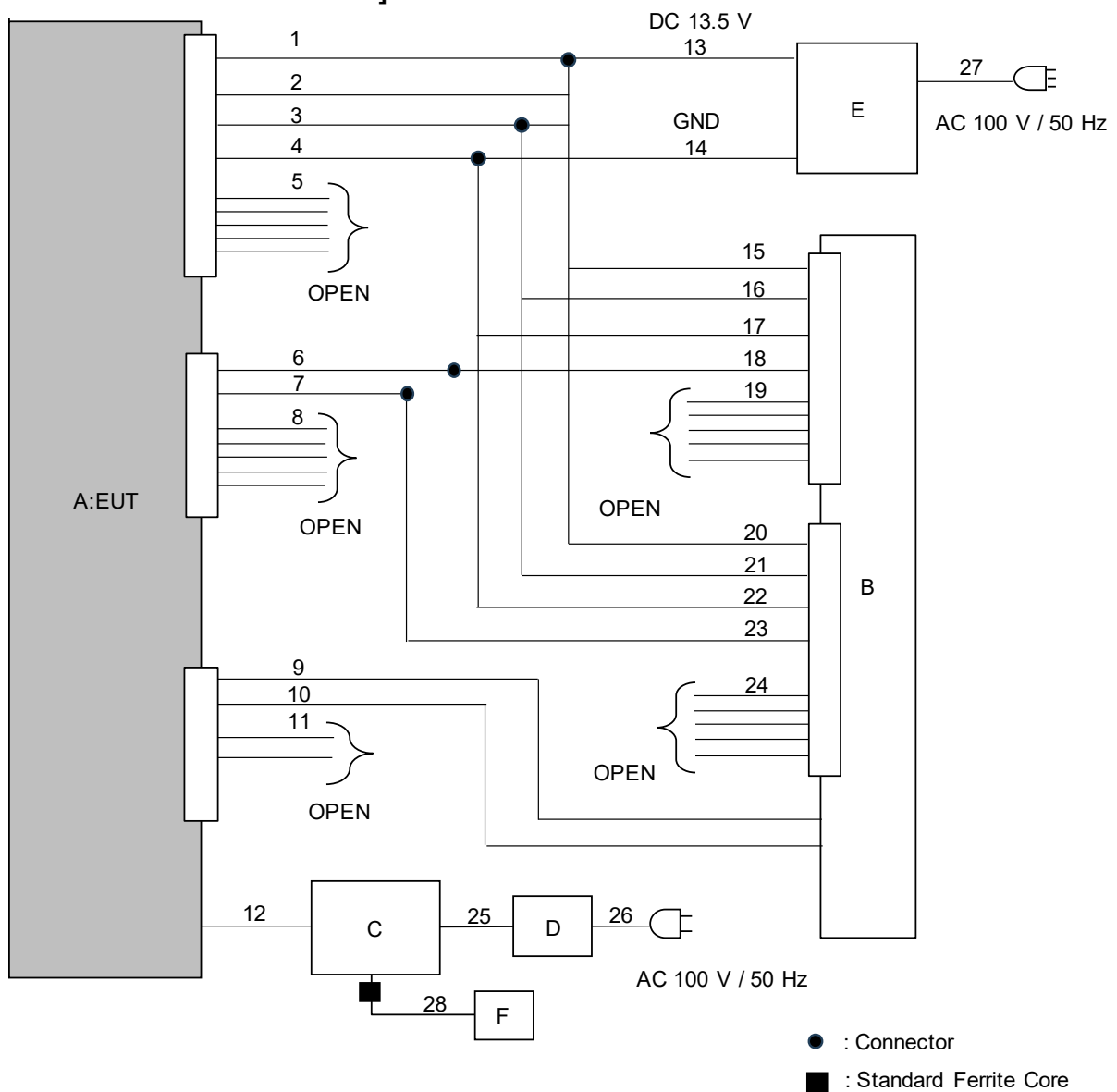
Test Item	Operating Mode *1)	Tested Antenna
Radiated Spurious Emission	Tx 11ax-20(OFDM), MIMO 6195 MHz with BT 3DH5 Hopping *2)	6 GHz WLAN: ANT1 + ANT2 BT: ANT1
	Tx 11ax-20(OFDM), MIMO 6195 MHz with 11g 2462 MHz	6 GHz WLAN: ANT1 + ANT2 2.4 GHz WLAN: ANT1 + ANT2

*1) This test was conducted using a combination of the worst mode above 1 GHz in the WLAN 5 GHz spurious emissions test and the highest power mode in the antenna terminal conducted test as the representative mode.

*2) *Since BT and BT LE have the same modulation method, the test was performed with BT, which has the highest power, as a representative.

4.2 Configuration and Peripherals

[Antenna Terminal Conducted test]



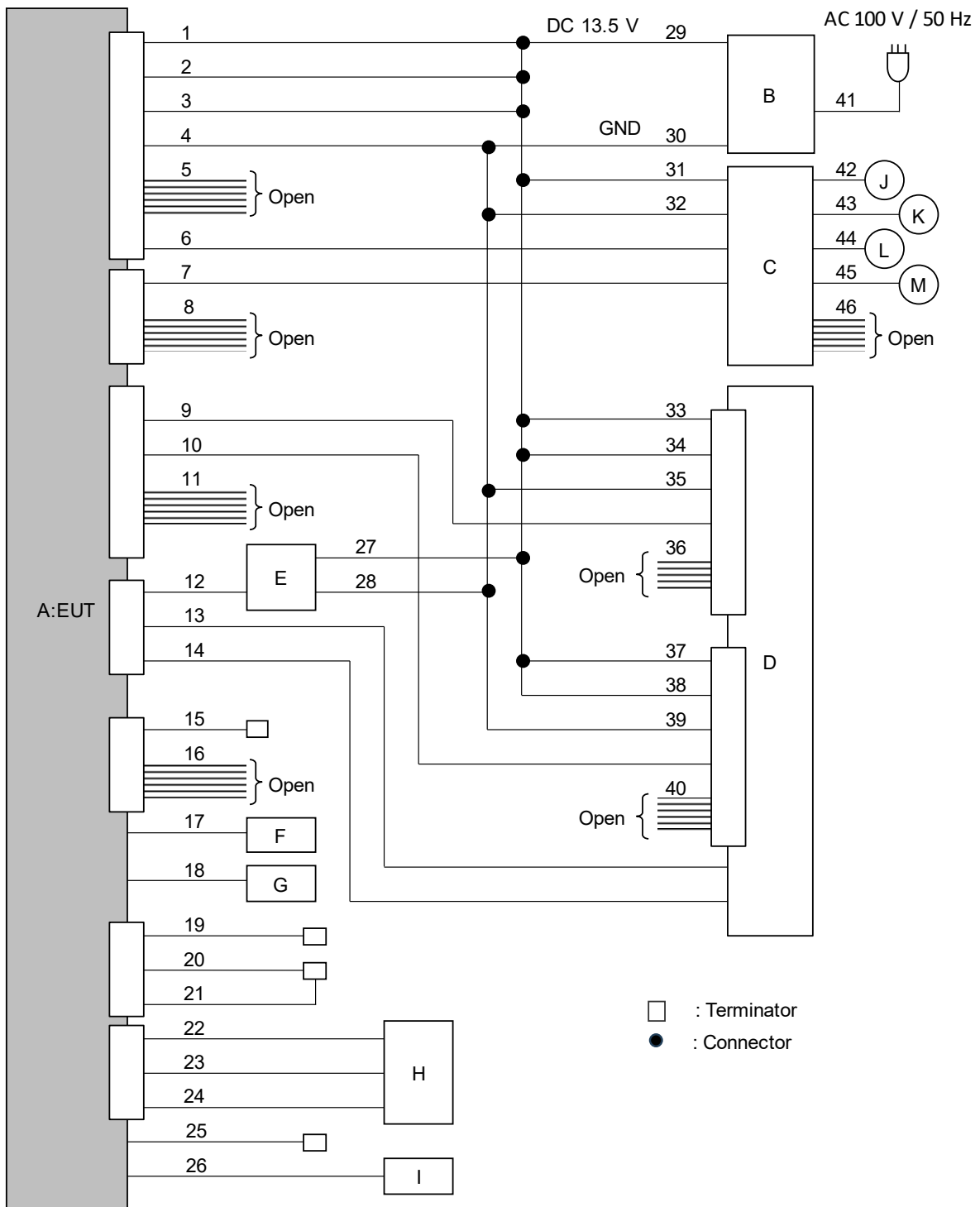
Description of EUT and Support Equipment

No.	Item	Model Number	Serial Number	Manufacturer	Remarks
A	Vehicle equipment	AH00CDC	No.020	ALPS ALPINE CO., LTD.	EUT
B	Display Unit	QH00287A	WK2 379 307	ALPS ALPINE CO., LTD.	-
C	Laptop PC	HP 255 G10	5CD4407TJY	HP	-
D	AC Adapter	TPN-CA14	WHGRE0EV2JWJRT	HP	-
E	Power Supply(DC)	PNA16-10A	ER001077	Kikusui Electronics Corp.	-
F	Mouse	4YH-00003	9170523025388	Microsoft	-

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	IG	0.5+0.1	Unshielded	Unshielded	-
2	ACC	0.5+0.5	Unshielded	Unshielded	-
3	+B	0.5+0.5	Unshielded	Unshielded	-
4	GND	0.5+0.5	Unshielded	Unshielded	-
5	Signal	0.5	Unshielded	Unshielded	-
6	CENTER DISP CONT	0.5	Unshielded	Unshielded	-
7	METER DISP CONT	0.5	Unshielded	Unshielded	-
8	Signal	0.5	Unshielded	Unshielded	-
9	GVIF	0.5	Shielded	Shielded	-
10	GMSL	0.5	Shielded	Shielded	-
11	Signal	0.5	Shielded	Shielded	-
12	USB	0.45 + 2.0	Shielded	Shielded	-
13	DC(+)	1.4	Unshielded	Unshielded	-
14	GND	1.4	Unshielded	Unshielded	-
15	IG1 CID	0.9	Unshielded	Unshielded	-
16	+B CID	0.9	Unshielded	Unshielded	-
17	GND	0.9	Unshielded	Unshielded	-
18	CENTER DISP CONT	0.9	Unshielded	Unshielded	-
19	Signal	0.9	Unshielded	Unshielded	-
20	IG1 METER	0.9	Unshielded	Unshielded	-
21	+B METER	0.9	Unshielded	Unshielded	-
22	GND	0.9	Unshielded	Unshielded	-
23	METER DISP CONT	0.9	Unshielded	Unshielded	-
24	Signal	0.9	Unshielded	Unshielded	-
25	DC	0.9	Unshielded	Unshielded	-
26	AC	1.8	Unshielded	Unshielded	-
27	AC	2.0	Unshielded	Unshielded	-
28	USB	1.8	Shielded	Shielded	-

[Radiated Emission test]



* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support Equipment

No.	Item	Model Number	Serial Number	Manufacturer	Remarks
A	Vehicle equipment	AH00CDC	No.030	ALPS ALPINE CO., LTD.	EUT
B	Power Supply(DC)	PAN35-10A	CY002948	KIKUSUI	-
C	Amplifier	AMP ASSY 17CH	No.03	HARMAN	-
D	Display Unit	QH00287A	E239Z1QH00 287A26000062	ALPS ALPINE CO., LTD.	-
E	Ether Jig	-	-	-	-
F	USB Memory	USM4GL-W	-	Sony Corporation	-
G	GPS Antenna	8B550-T20-A111-M1-03N10907	-	ALPS ALPINE CO., LTD.	-
H	HUD Jig	-	-	-	-
I	Tablet Computer	JDN2-L09	D89E61C92966	Huawei	-
J	Speaker	KFC-RS160	-	KENWOOD	-
K	Speaker	KFC-RS160	-	KENWOOD	-
L	Speaker	KFC-RS160	-	KENWOOD	-
M	Speaker	KFC-RS160	-	KENWOOD	-

List of Cables Used [1/2]

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	IG	0.5+0.2	Unshielded	Unshielded	-
2	ACC	0.5+0.1	Unshielded	Unshielded	-
3	+B	0.5+0.5	Unshielded	Unshielded	-
4	GND	0.5+0.2	Unshielded	Unshielded	-
5	Signal	0.5+1.0	Unshielded	Unshielded	-
6	SWD +B	0.5+1.0	Unshielded	Unshielded	-
7	A2B AUDIO B+/-	0.5+1.0	Unshielded	Unshielded	-
8	Signal	0.5+1.0	Unshielded	Unshielded	-
9	CTR DISP CONT	0.5+1.0	Unshielded	Unshielded	-
10	METER DISP CONT	0.5+1.0	Unshielded	Unshielded	-
11	Signal	0.5+1.0	Unshielded	Unshielded	-
12	Ether	2.2+0.6	Shielded	Shielded	-
13	GVIF	2.2	Shielded	Shielded	-
14	GMLS	2.2	Shielded	Shielded	-
15	Camera	1.1	Shielded	Shielded	-
16	Camera	1.1	Shielded	Shielded	-
17	USB	0.5+2.0	Shielded	Shielded	-
18	GPS	0.4+0.4	Shielded	Shielded	-
19	FM/AM	0.2+2.0	Shielded	Shielded	Main
20	FM/AM	0.3	Shielded	Shielded	Sub
21	AMT+B	0.2+1.0	Unshielded	Unshielded	-
22	Signal	0.8	Shielded	Shielded	-
23	DC(+)	0.8	Unshielded	Unshielded	-
24	GND	0.8	Unshielded	Unshielded	-
25	SiriusXM	0.5+2.0	Shielded	Shielded	-
26	HDMI	0.2+2.9	Shielded	Shielded	-
27	DC(+)	0.5+0.4	Unshielded	Unshielded	-
28	GND	0.5+0.2	Unshielded	Unshielded	-
29	DC(+)	1.5	Unshielded	Unshielded	-
30	GND	1.5	Unshielded	Unshielded	-
31	DC(+)	1.0+0.9	Unshielded	Unshielded	-
32	GND	1.0+0.5	Unshielded	Unshielded	-
33	IG1 CID	1.0+0.4	Unshielded	Unshielded	-
34	+B CID	1.0+0.6	Unshielded	Unshielded	-
35	GND	1.0+0.1	Unshielded	Unshielded	-
36	Signal	1.0	Unshielded	Unshielded	-

List of Cables Used [2/2]

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
37	IG1 METER	1.0+0.3	Unshielded	Unshielded	-
38	+B METER	1.0+0.7	Unshielded	Unshielded	-
39	GND	1.0+0.3	Unshielded	Unshielded	-
40	Signal	1.0	Unshielded	Unshielded	-
41	AC	2.9	Unshielded	Unshielded	-
42	Speaker	1.0+2.0	Unshielded	Unshielded	-
43	Speaker	1.0+2.0	Unshielded	Unshielded	-
44	Speaker	1.0+2.0	Unshielded	Unshielded	-
45	Speaker	1.0+2.0	Unshielded	Unshielded	-
46	Signal	1.0	Unshielded	Unshielded	-

SECTION 5: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

< Below 1 GHz >

EUT was placed on a urethane platform of nominal size, 1.0 m by 2.0 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

< Above 1 GHz >

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane. Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

The height of the measuring antenna varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

< Below 1 GHz >

The result also satisfied with the general limits specified in section 15.209 (a).

< Above 1 GHz >

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

Apply to limit 68.2 dBuV/m, 3 m (-27 dBm e.i.r.p.*) in the Section 15.407 (b) (6).

Restricted band edge:

Apply to limit in the Section 15.209 (a).

Since this limit is severer than the limit of the inside of restricted bands.

*Electric field strength to e.i.r.p. conversion:

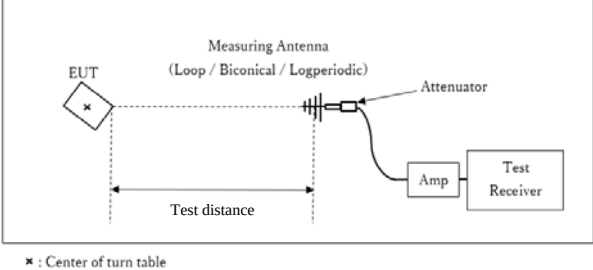
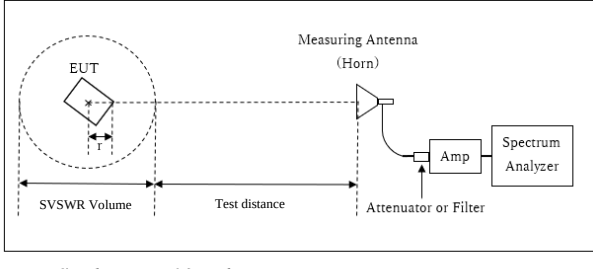
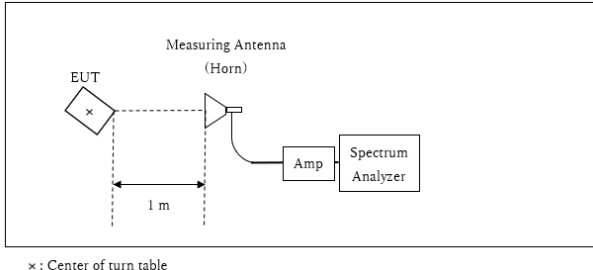
$$E = \frac{1000000\sqrt{30P}}{3} \text{ (uV/m)} \quad : P \text{ is the e.i.r.p. (Watts)}$$

Test Antennas are used as below;

Frequency	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

Frequency	Below 1 GHz	Above 1 GHz	
Instrument Used	Test Receiver	Spectrum Analyzer	
Detector	QP	Peak	Average
IF Bandwidth	BW: 120 kHz	RBW: 1 MHz VBW: 3 MHz	Method AD RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: ≥ 100 traces If duty cycle was less than 98%, a duty factor was added to the results.

Figure 2: Test Setup

Below 1 GHz	
	Test Distance: 3 m
1 GHz to 10 GHz	
	Distance Factor: $20 \times \log(3.87 \text{ m}^* / 3.0 \text{ m}) = 2.22 \text{ dB}$ *(Test Distance + SVSWR Volume / 2) - r = 3.87 m Test Distance: 3 m SVSWR Volume: 2 m (SVSWR Volume has been calibrated based on CISPR 16-1-4.) r: 0.13 m
10 GHz to 40 GHz	
	Distance Factor: $20 \times \log(1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$ *Test Distance: 1 m

The test was made on EUT at the normal use position.

Measurement Range : 30 MHz to 40 GHz
Test Data : APPENDIX
Test Result : Pass

SECTION 6: Antenna Terminal Conducted Tests

Test Procedure

The tests were made with below setting connected to the antenna port. (Contention Based Protocol is described in SECTION 8.)

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used and Test method
26 dB Bandwidth	Enough to capture the emission	Close to 1 % of EBW	> RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99 % Occupied Bandwidth *1)	Enough width to display emission skirts	1 % to 5 % of OBW	≥ 3 RBW	Auto	Peak	Max Hold	Spectrum Analyzer
6 dB Bandwidth	Enough to capture the emission	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Conducted Output Power	-	-	-	Auto	Average	-	Power Meter (Sensor: 160 MHz BW) (Method PM-G)
Maximum Power Spectral Density	Encompass the entire EBW	1 MHz	≥ 3 RBW	Auto	RMS Power Averaging (500 times)	Clear Write	Spectrum Analyzer
Conducted Spurious Emission*2) *3)	9 kHz to 150 kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150 kHz to 30 MHz	10 kHz	30 kHz				
In-Band Emissions	Enough to capture the emission	same RBW used for 26 dB Bandwidth measurement	≥ 3 RBW	Auto	RMS Power Averaging (≥ 100 traces)	Clear Write	Spectrum Analyzer

*1) Peak hold was applied as Worst-case measurement.
 *2) In the frequency range below 30 MHz, RBW was narrowed to separate the noise contents. Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart. (9 kHz to 150 kHz: RBW = 200 Hz, 150 kHz to 30 MHz: RBW = 10 kHz)
 *3) The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohms. For example, the measurement at frequency 9 kHz resulted in a level of 45.5 dBuV/m, which is equivalent to 45.5 – 51.5 = -6.0 dBuA/m, which has the same margin, 3 dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

Test results are rounded off and limit are rounded down, so some differences might be observed.
 The equipment and cables were not used for factor 0 dB of the data sheets.

Test Data : APPENDIX
 Test Result : Pass

SECTION 7: Contention Based Protocol

Operating Modes

The EUT operates in the following band / bands: U-NII-5 (5925 MHz to 6425 MHz) and U-NII-7 (6525 MHz to 6875 MHz).

The EUT is classified as a 6 GHz Very Low Power Device.

The lowest gain antenna assembly utilized with the EUT has a gain of 4.42 dBi in the U-NII 5 and the U-NII 7 band.

Two sets of two antennas, one set per chain, are utilized to meet the diversity and MIMO operational requirements.

The EUT uses two transmitter/receiver chains, each connected to a 50-ohm coaxial antenna port. All antenna ports are connected to the test system via a power divider to perform conducted tests.

The maximum allowable AWGN Incumbent Detection Threshold level is -62 dBm/MHz.

WLAN traffic was generated by transferring a data stream from the EUT to the Companion Device using iPerf version 2.0.9 software package.

(Date: October 12, 2020 / Storage location: Driven by connected PC)

The EUT utilizes the 802.11ax architecture, with a 20 MHz, 40 MHz, 80 MHz and 160 MHz channel bandwidth.

System Overview

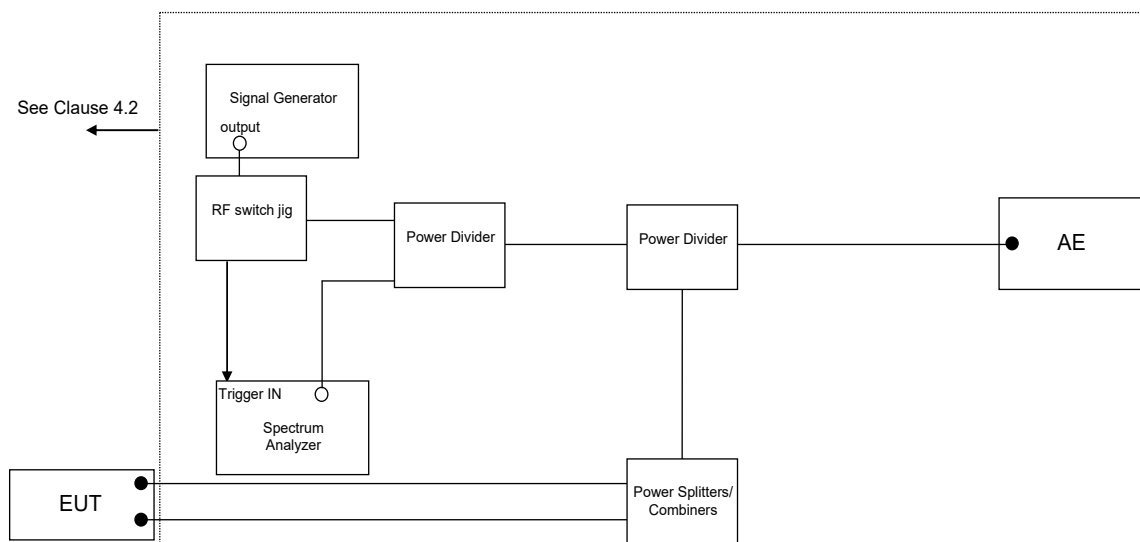
Should multiple RF ports be utilized for the EUT and/or Companion devices (for example, for diversity or MIMO implementations), combiner/dividers are inserted between the EUT MIMO Combiner/Divider and the attenuator connected to the EUT (and/or between the Companion MIMO Combiner/Divider and the attenuator connected to the Companion Device). Additional attenuators may be utilized such that there is one attenuator at each RF port on each device.

The Test setup is different from 987594 D02 U-NII 6 GHz EMC Measurement v02r01, but it is equivalent.

SYSTEM CALIBRATION

The monitoring cable is disconnected from the spectrum analyzer and a 50-ohm load is connected to the end of the monitoring cable in place of the spectrum analyzer. The cable connected to the EUT is then attached to the spectrum analyzer in place of the monitoring cable. A signal generator is then set to produce a modulated AWGN Incumbent Signal that has a 99% occupied power bandwidth of 10 MHz. The output amplitude of the signal generator is adjusted to yield the allowable maximum AWGN Incumbent Signal level as measured on the spectrum analyzer. The EUT and monitoring cables are then returned to their original configurations to perform the test.

Conducted Methods System Block Diagram



Test Data : APPENDIX
Test Result : Pass

APPENDIX 1: Test Data

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-20(OFDM), MIMO			
Date	Test Place	Temperature	Humidity	Engineer
February 7, 2025	SR5	24 deg.C	27 %RH	Miku Ikudome

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5955	22.597	19051.6
6195	22.471	19083.3
6415	22.433	19083.5
6535	22.843	19092.7
6695	22.954	19133.1
6855	22.331	19114.8

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-20(OFDMA) 26-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 10, 2025	SR5	21 deg.C	21 %RH	Shiro Kobayashi

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
26-tone RU	5955	0	20.761	18700.9
	6195	4	18.997	17399.4
	6415	8	20.306	18492.8
	6535	0	20.698	18705.4
	6695	4	19.003	17395.5
	6855	8	20.400	18558.3

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-20(OFDMA) 52-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 10, 2025	SR5	21 deg.C	21 %RH	Shiro Kobayashi

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
52-tone RU	5955	37	20.558	18315.5
	6195	38	19.693	17408.1
	6415	40	21.175	18568.4
	6535	37	20.574	18321.2
	6695	38	19.685	17418.7
	6855	40	21.360	18594.3

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-20(OFDMA) 106-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 10, 2025	SR5	21 deg.C	21 %RH	Shiro Kobayashi

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
106-tone RU	5955	53	21.972	18396.9
	6195	53	22.097	18409.1
	6415	54	21.721	18496.4
	6535	53	21.924	18386.5
	6695	53	22.288	18402.9
	6855	54	22.039	18516.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-20(OFDMA) 242-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 10, 2025	SR5	21 deg.C	21 %RH	Shiro Kobayashi

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
242-tone RU	5955	61	22.524	19081.1
	6195	61	22.491	19064.3
	6415	61	22.851	19066.2
	6535	61	22.923	19095.3
	6695	61	22.685	19089.3
	6855	61	22.738	19076.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-40(OFDM), MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 7, 2025	SR5	24 deg.C	27 %RH	Miku Ikudome

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5965	44.855	38052.2
6205	44.631	37998.5
6405	44.805	38067.3
6565	45.201	38064.8
6685	45.442	38042.3
6845	44.689	38097.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-40(OFDMA) 26-tone RU, MIMO			
Date	Test Place	Temperature	Humidity	Engineer
February 12, 2025	SR5	22 deg.C	24 %RH	Hiromasa Sato

11ax-40(OFDMA)

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
26-tone RU	5965	0	40.803	38259.9
	6205	8	38.280	36462.5
	6405	17	40.643	38432.6
	6565	0	40.847	38380.4
	6685	8	38.289	36593.4
	6845	17	40.338	38238.9

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-40(OFDMA) 52-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 12, 2025	SR5	22 deg.C	24 %RH	Hiromasa Sato

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
52-tone RU	5965	37	41.344	37987.7
	6205	40	38.938	36714.8
	6405	44	41.529	38101.2
	6565	37	41.343	38013.9
	6685	40	38.987	36691.0
	6845	44	41.638	38132.0

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-40(OFDMA) 106-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 12, 2025	SR5	22 deg.C	24 %RH	Hiromasa Sato

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
106-tone RU	5965	53	42.096	37675.5
	6205	54	40.095	36839.9
	6405	56	41.820	37695.1
	6565	53	42.156	37693.4
	6685	54	40.138	36813.5
	6845	56	41.932	37726.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-40(OFDMA) 242-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 12, 2025	SR5	22 deg.C	24 %RH	Hiromasa Sato

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
242-tone RU	5965	61	42.850	37495.4
	6205	61	42.947	37512.6
	6405	62	42.640	37549.8
	6565	61	42.853	37500.7
	6685	61	42.903	37488.7
	6845	62	42.675	37566.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-40(OFDMA) 484-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 12, 2025	SR5	22 deg.C	24 %RH	Hiromasa Sato

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
484-tone RU	5965	65	44.176	38063.8
	6205	65	44.314	38074.6
	6405	65	44.476	38082.0
	6565	65	44.593	38090.2
	6685	65	44.600	38095.4
	6845	65	44.791	38091.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-80(OFDM), MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 7, 2025	SR5	24 deg.C	27 %RH	Miku Ikudome

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5985	87.740	77640.5
6225	88.522	77686.5
6385	87.836	77727.0
6625	87.920	77684.1
6705	89.852	77776.1
6785	88.705	77800.9

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-80(OFDMA) 26-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 17, 2025	SR5	21 deg.C	32 %RH	Miku Ikudome

11ax-80(OFDMA)

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
26-tone RU	5985	0	82.490	79098.4
	6225	18	78.438	75173.3
	6385	36	82.018	78679.9
	6625	0	82.400	79174.8
	6705	18	78.423	75339.8
	6785	36	82.016	78582.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-80(OFDMA) 52-tone RU, MIMO			
Date	Test Place	Temperature	Humidity	Engineer
February 17, 2025	SR5	21 deg.C	32 %RH	Miku Ikudome

11ax-80(OFDMA)

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
52-tone RU	5985	37	82.580	78060.1
	6225	44	78.681	75210.5
	6385	52	83.730	79458.7
	6625	37	83.058	78454.4
	6705	44	78.713	75311.4
	6785	52	83.943	79150.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-80(OFDMA) 106-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 17, 2025	SR5	21 deg.C	32 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
106-tone RU	5985	53	84.558	77953.9
	6225	56	81.219	76200.1
	6385	60	83.785	77874.7
	6625	53	85.031	78150.8
	6705	56	80.971	76257.4
	6785	60	84.013	78007.4

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-80(OFDMA) 242-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 17, 2025	SR5	21 deg.C	32 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
242-tone RU	5985	61	85.123	77603.7
	6225	62	82.421	75836.6
	6385	64	84.195	77402.7
	6625	61	84.945	77665.9
	6705	62	82.244	75962.2
	6785	64	84.157	77489.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-80(OFDMA) 484-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 17, 2025	SR5	21 deg.C	32 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
484-tone RU	5985	65	90.321	77384.4
	6225	65	90.065	77557.1
	6385	66	87.483	77085.1
	6625	65	90.256	77597.8
	6705	65	89.883	77636.6
	6785	66	87.520	77202.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-80(OFDMA) 996-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 17, 2025	SR5	21 deg.C	32 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
996-tone RU	5985	67	90.445	77754.3
	6225	67	90.022	77829.8
	6385	67	90.763	77863.9
	6625	67	90.335	77880.2
	6705	67	89.859	77834.0
	6785	67	90.232	77830.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-160(OFDM), MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
6025	169.803	156895.6
6185	171.725	156982.2
6345	173.134	156761.3
6665	171.388	156905.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-160(OFDMA) 26-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

11ax-160(OFDMA)

RU Type	Tested Frequency [MHz]	segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
26-tone RU	6025	0	0	164.538	159129.4
	6185	0	36	158.201	152816.4
	6345	1	36	163.283	158534.9
	6665	0	0	164.440	159393.8
		1	36	163.390	158902.0

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-160(OFDMA) 52-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

11ax-160(OFDMA)

RU Type	Tested Frequency [MHz]	segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
52-tone RU	6025	0	37	164.602	158680.3
	6185	0	52	159.283	154054.7
	6345	1	52	165.662	159570.0
	6665	0	37	163.901	158593.5
		1	52	165.779	159795.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-160(OFDMA) 106-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

11ax-160(OFDMA)

RU Type	Tested Frequency [MHz]	segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
106-tone RU	6025	0	53	167.014	158246.2
	6185	0	60	160.573	154124.8
	6345	1	60	166.919	158681.0
	6665	0	53	166.997	158733.3
		1	60	167.009	159097.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-160(OFDMA) 242-tone RU, MIMO				
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
242-tone RU	6025	0	61	166.912	156495.9
	6185	0	64	161.570	153871.2
	6345	1	64	166.187	156643.5
	6665	0	61	166.739	156401.6
		1	64	166.644	157284.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-160(OFDMA) 484-tone RU, MIMO				
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
484-tone RU	6025	0	65	169.992	156487.4
	6185	0	66	163.943	154006.2
	6345	1	66	168.138	156087.9
	6665	0	65	170.160	156482.7
		1	66	168.668	156702.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Mode	Tx 11ax-160(OFDMA) 996-tone RU, MIMO				
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
996-tone RU	6025	0	67	169.757	155848.4
	6185	0	67	171.271	156320.6
	6345	1	67	168.473	156081.6
	6665	0	67	169.655	155819.2
		1	67	168.341	156440.0

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

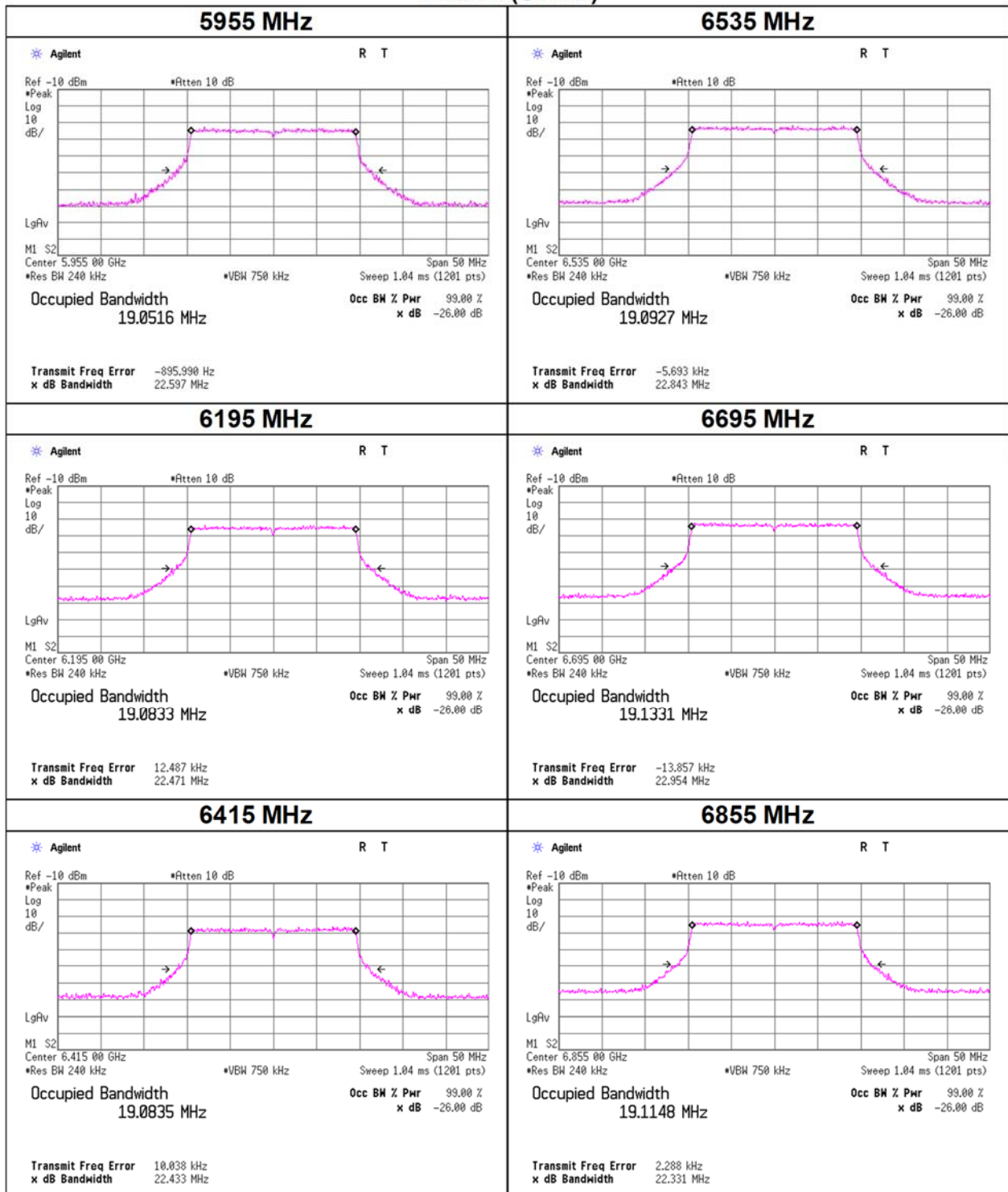
Mode	Tx 11ax-160(OFDMA) 2x996-tone RU, MIMO			
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Date	Test Place	Temperature	Humidity	Engineer
February 18, 2025	SR5	21 deg.C	35 %RH	Miku Ikudome

RU Type	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
2x996-tone RU	6025	68	172.423	156929.2
	6185	68	172.256	157001.4
	6345	68	171.941	156917.7
	6665	68	172.024	157043.3

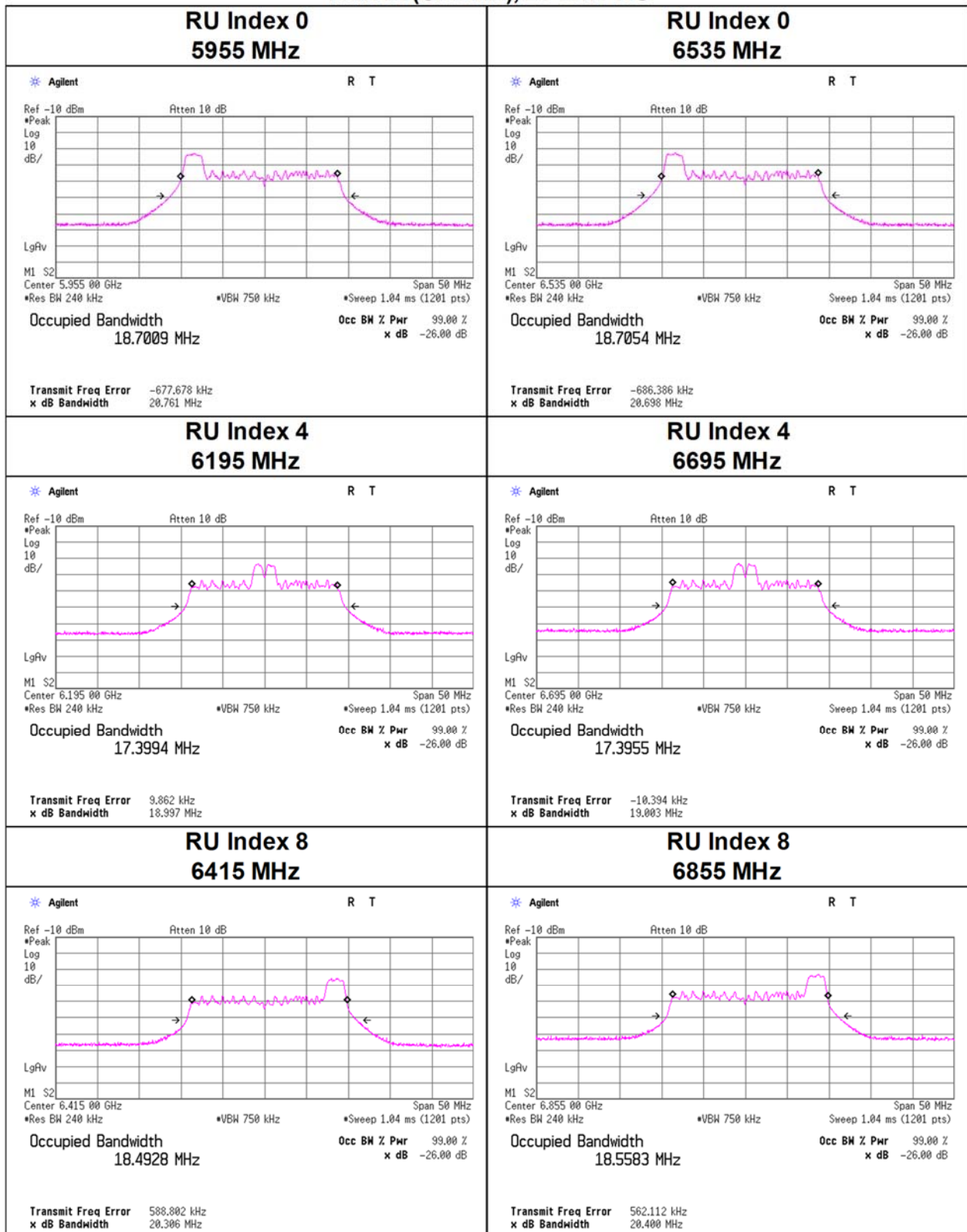
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-20(OFDM)



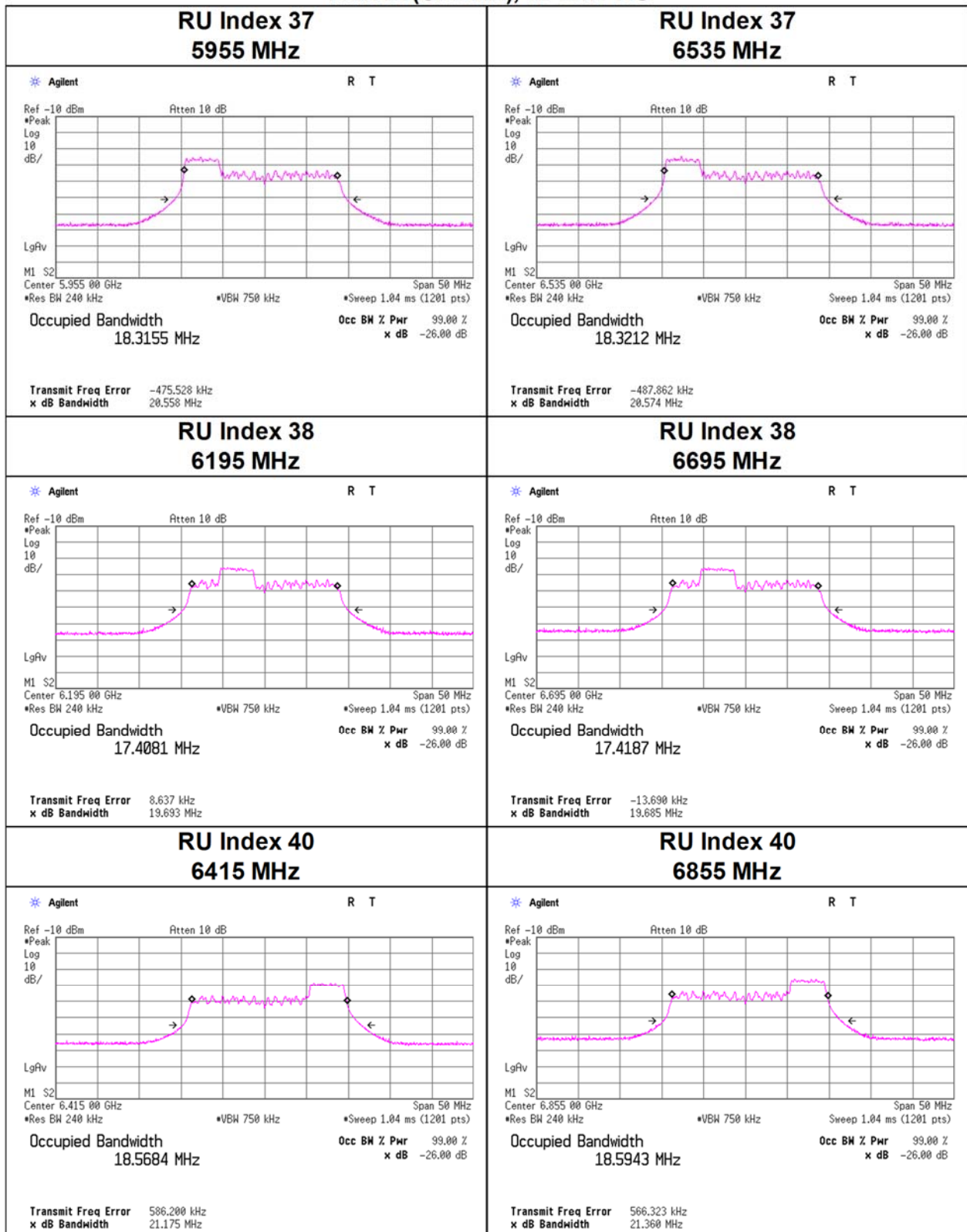
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-20(OFDMA), 26-tone RU



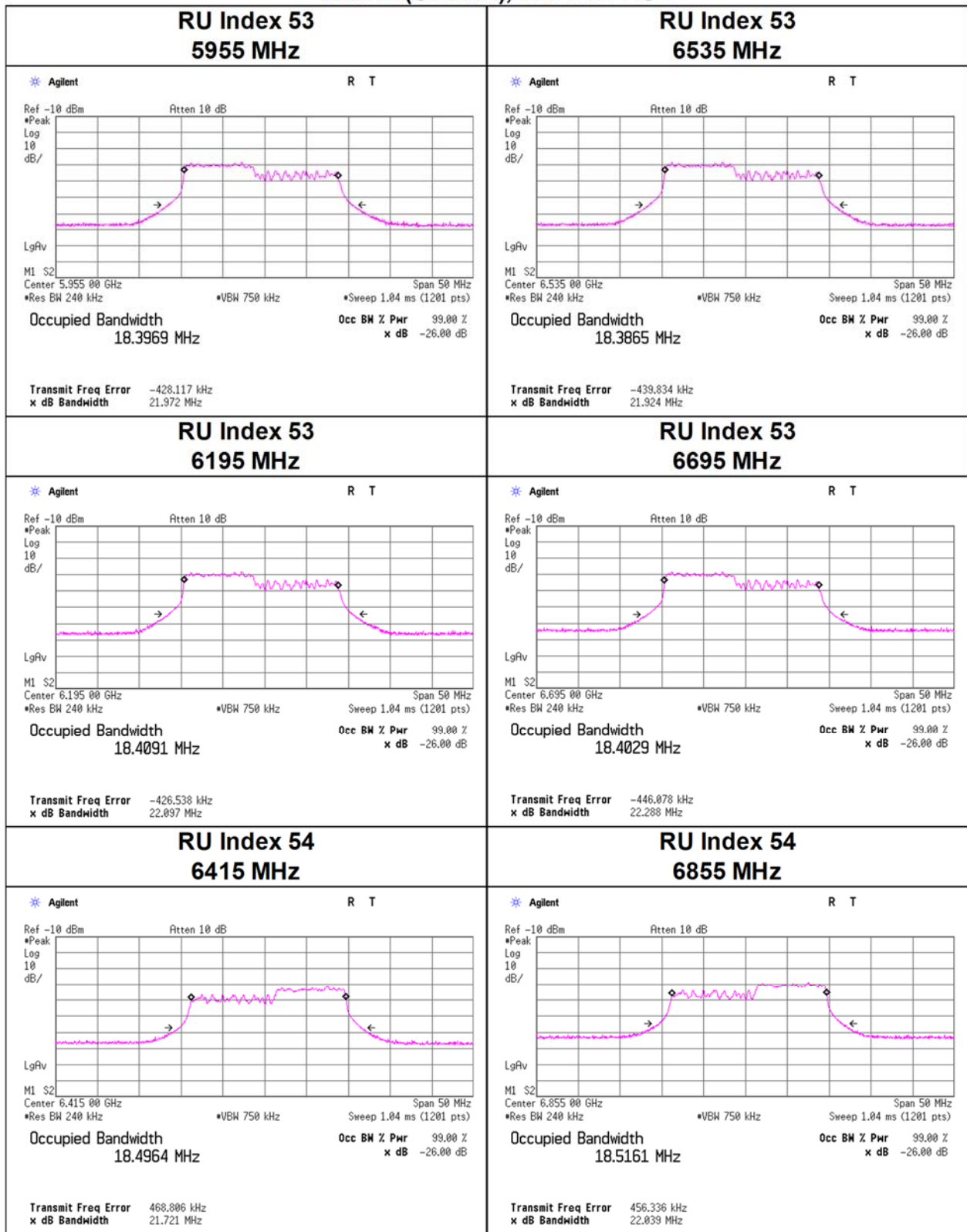
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-20(OFDMA), 52-tone RU



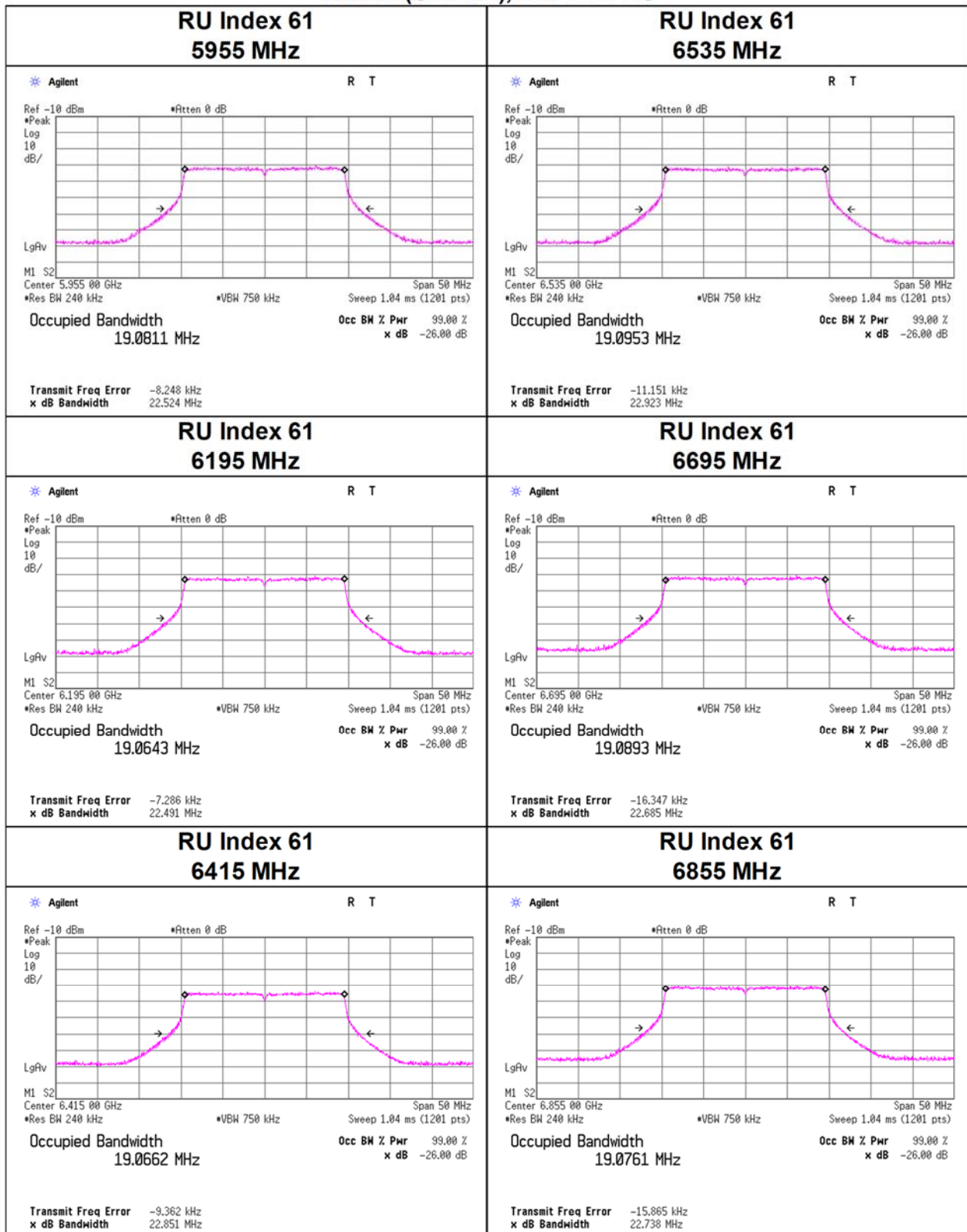
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-20(OFDMA), 106-tone RU



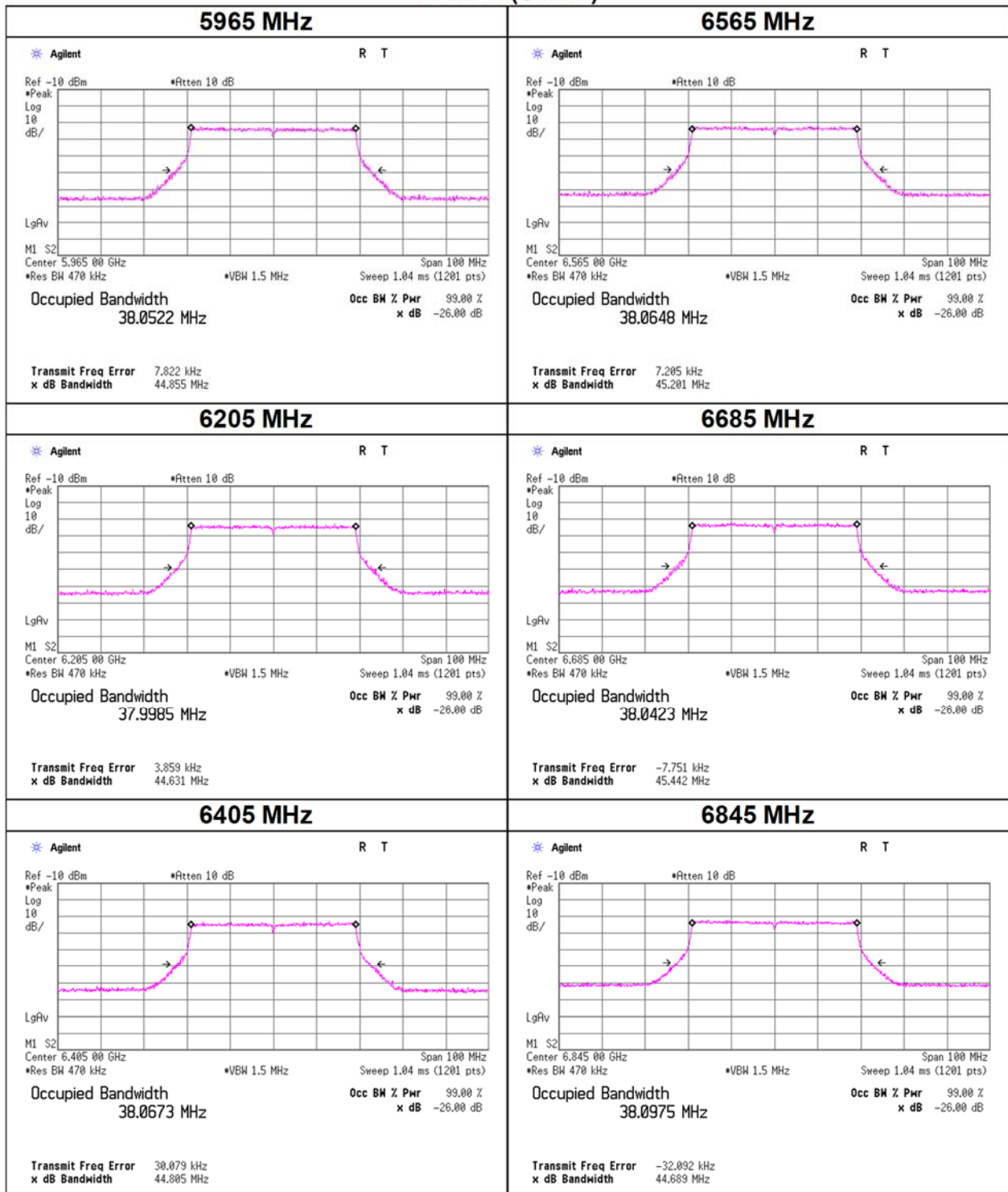
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-20(OFDMA), 242-tone RU



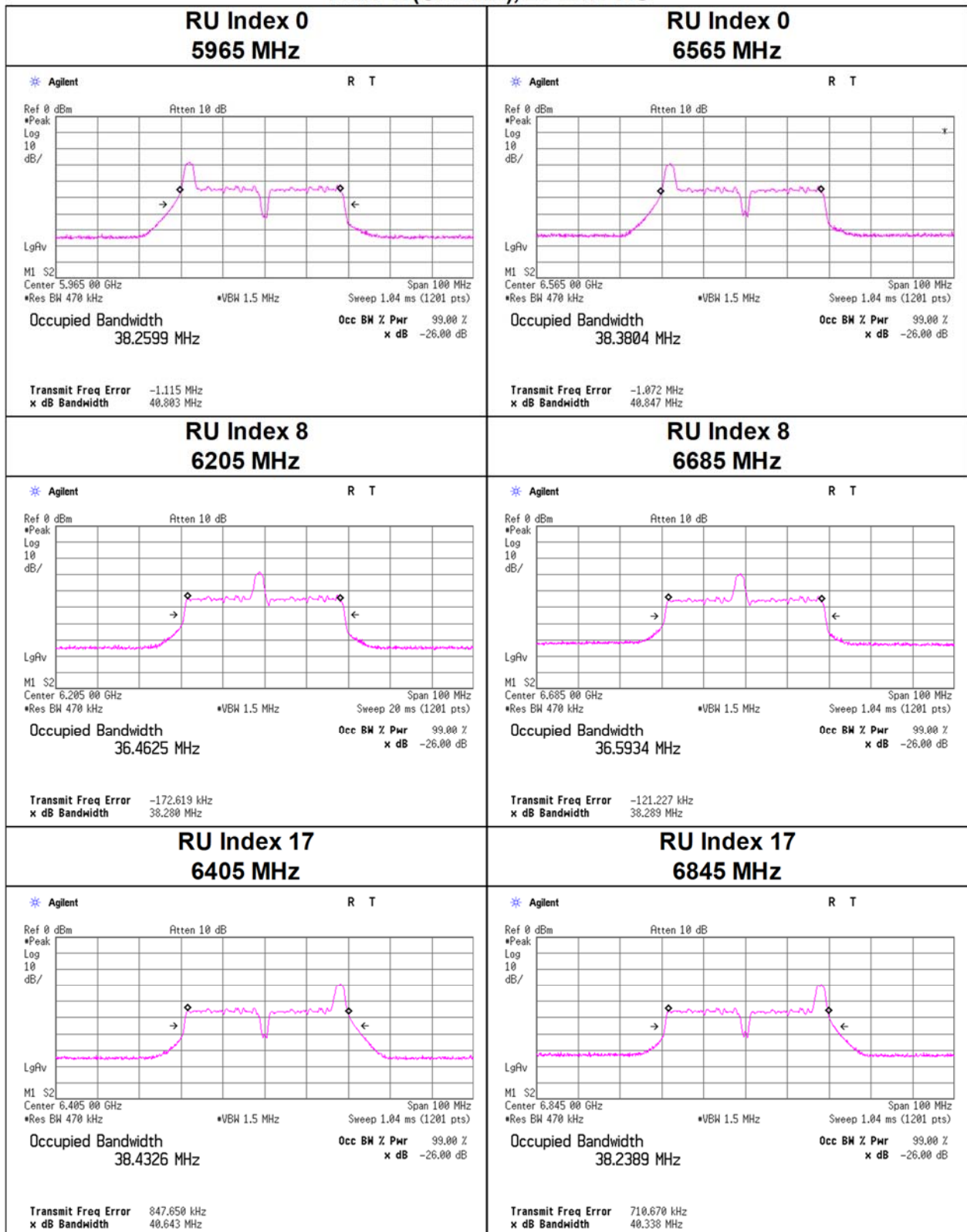
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-40(OFDM)



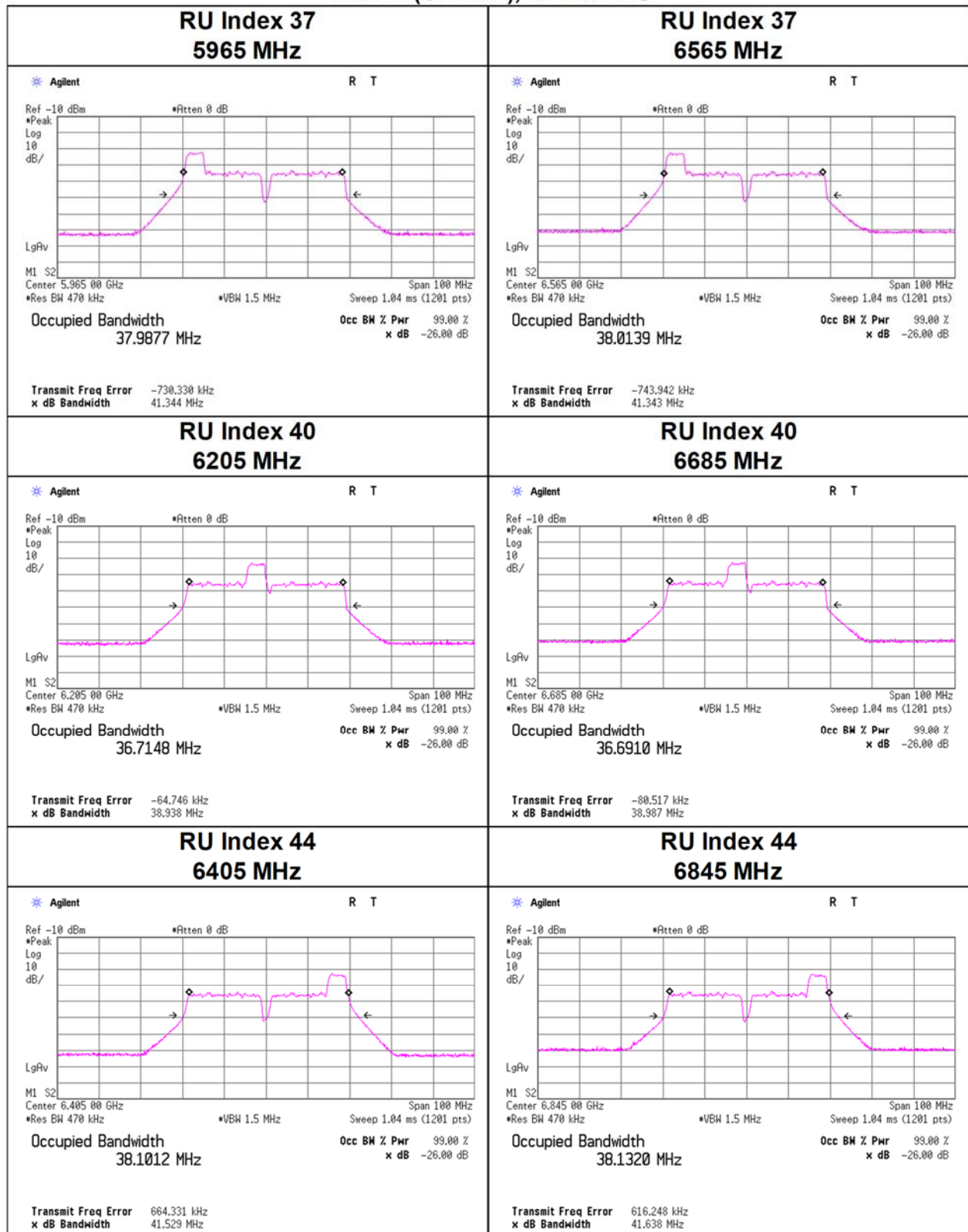
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-40(OFDMA), 26-tone RU



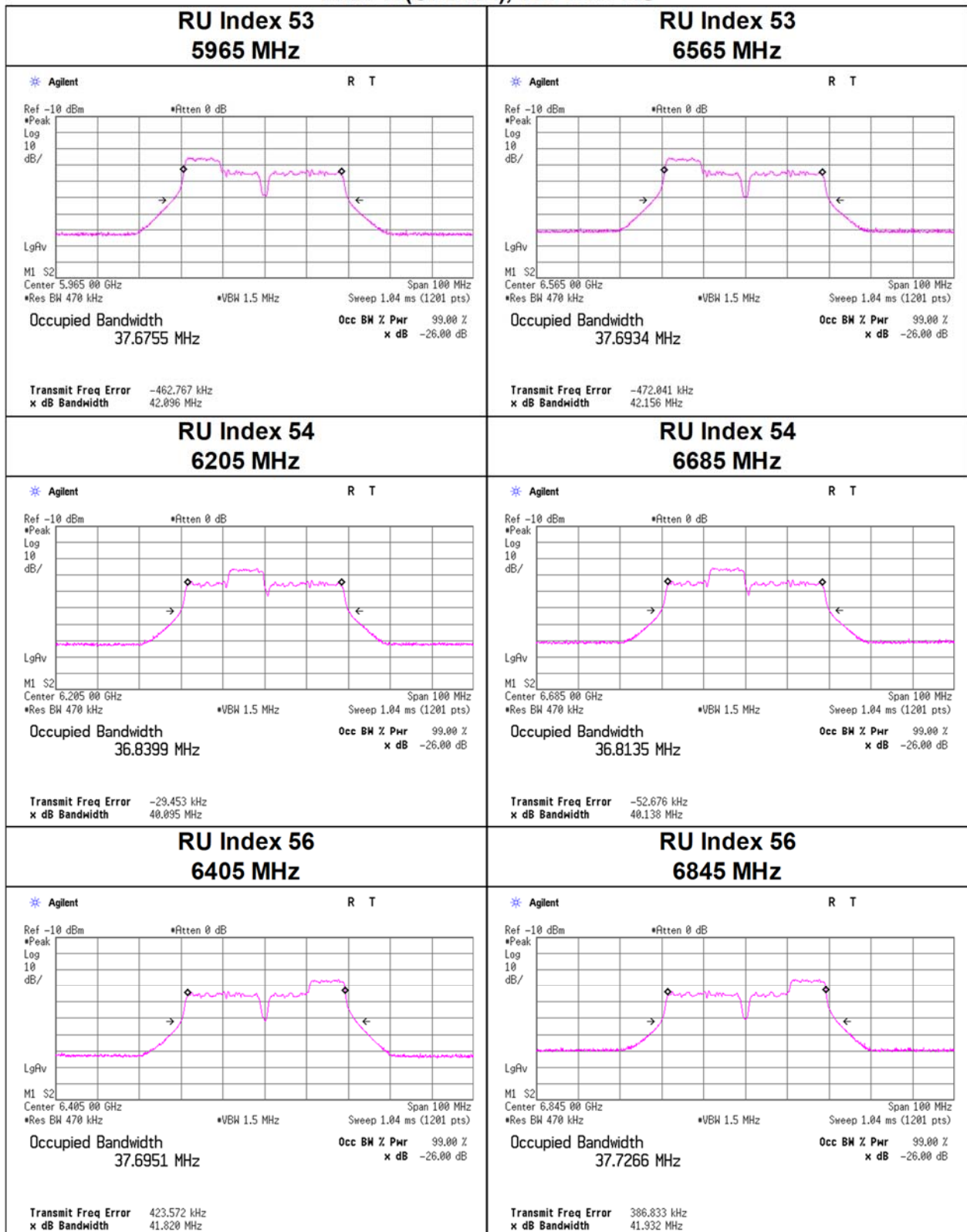
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-40(OFDMA), 52-tone RU



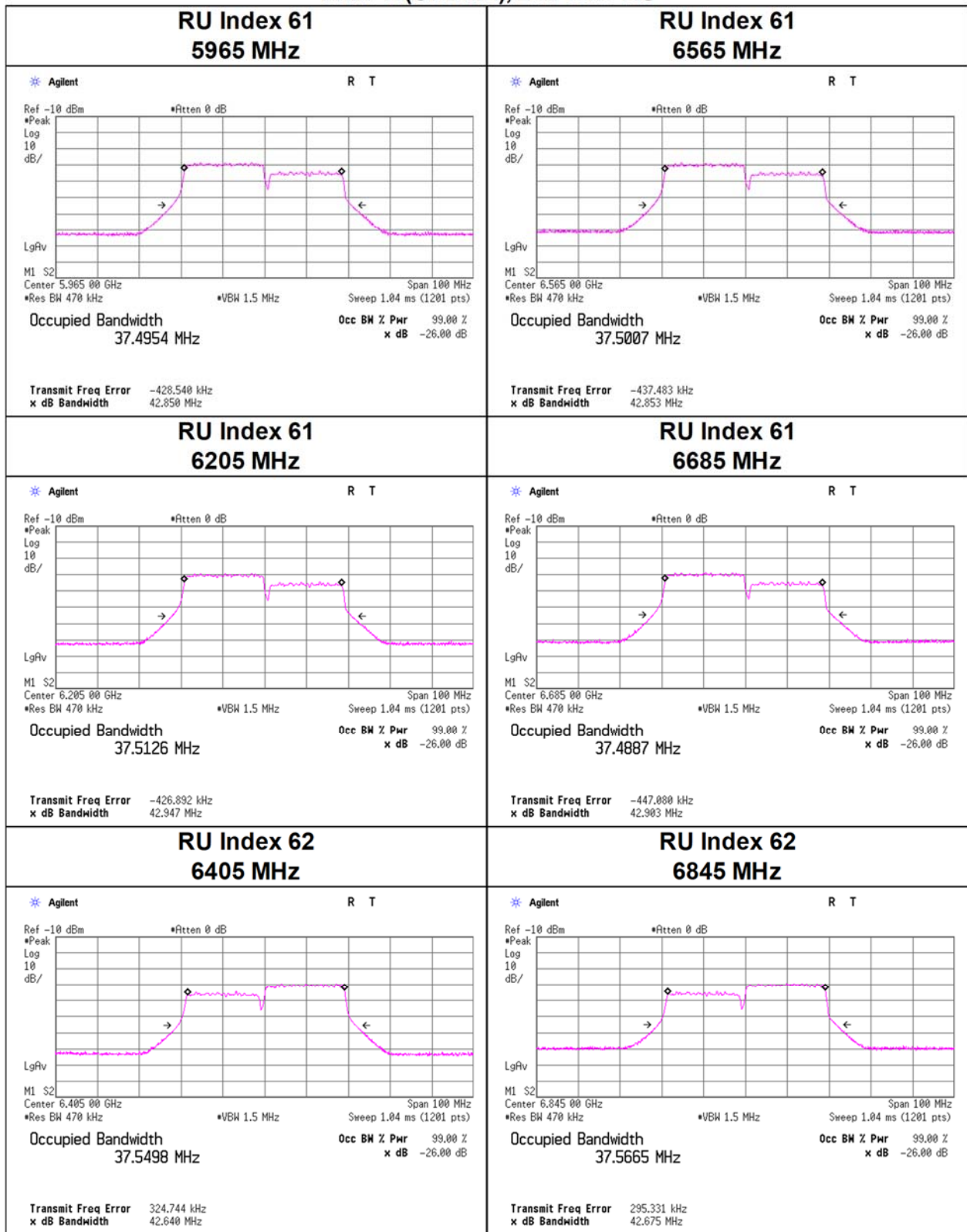
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-40(OFDMA), 106-tone RU



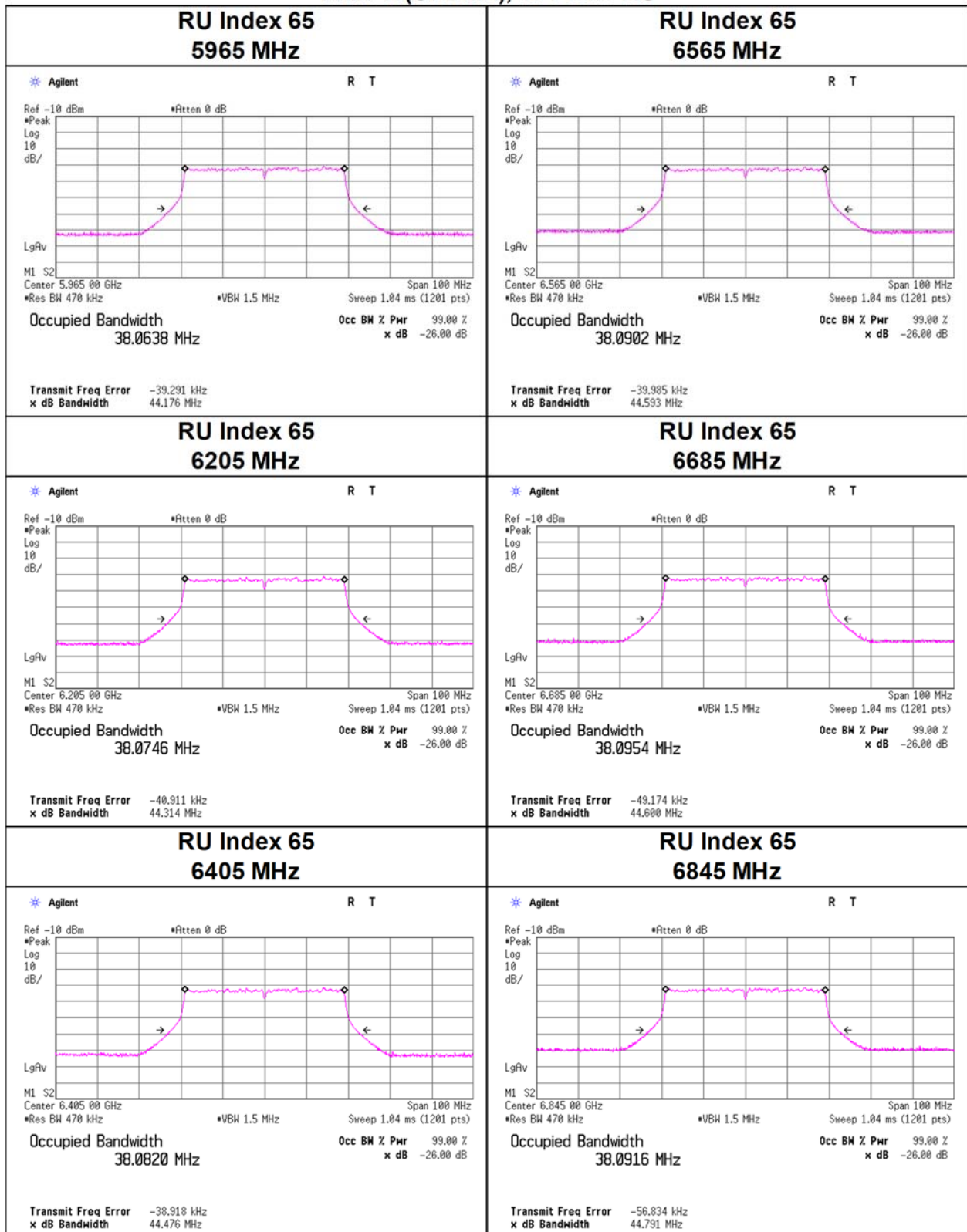
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-40(OFDMA), 242-tone RU



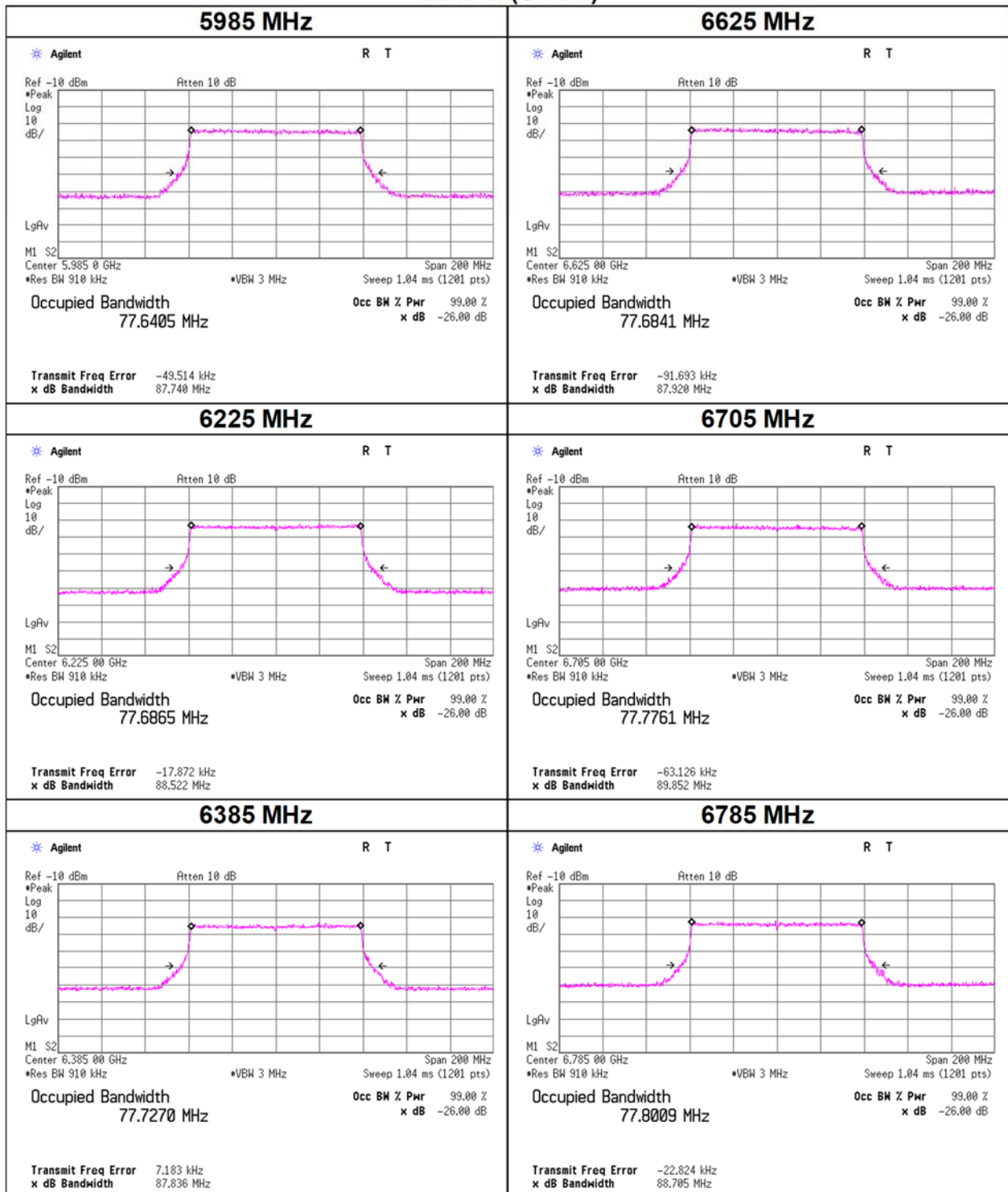
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-40(OFDMA), 484-tone RU



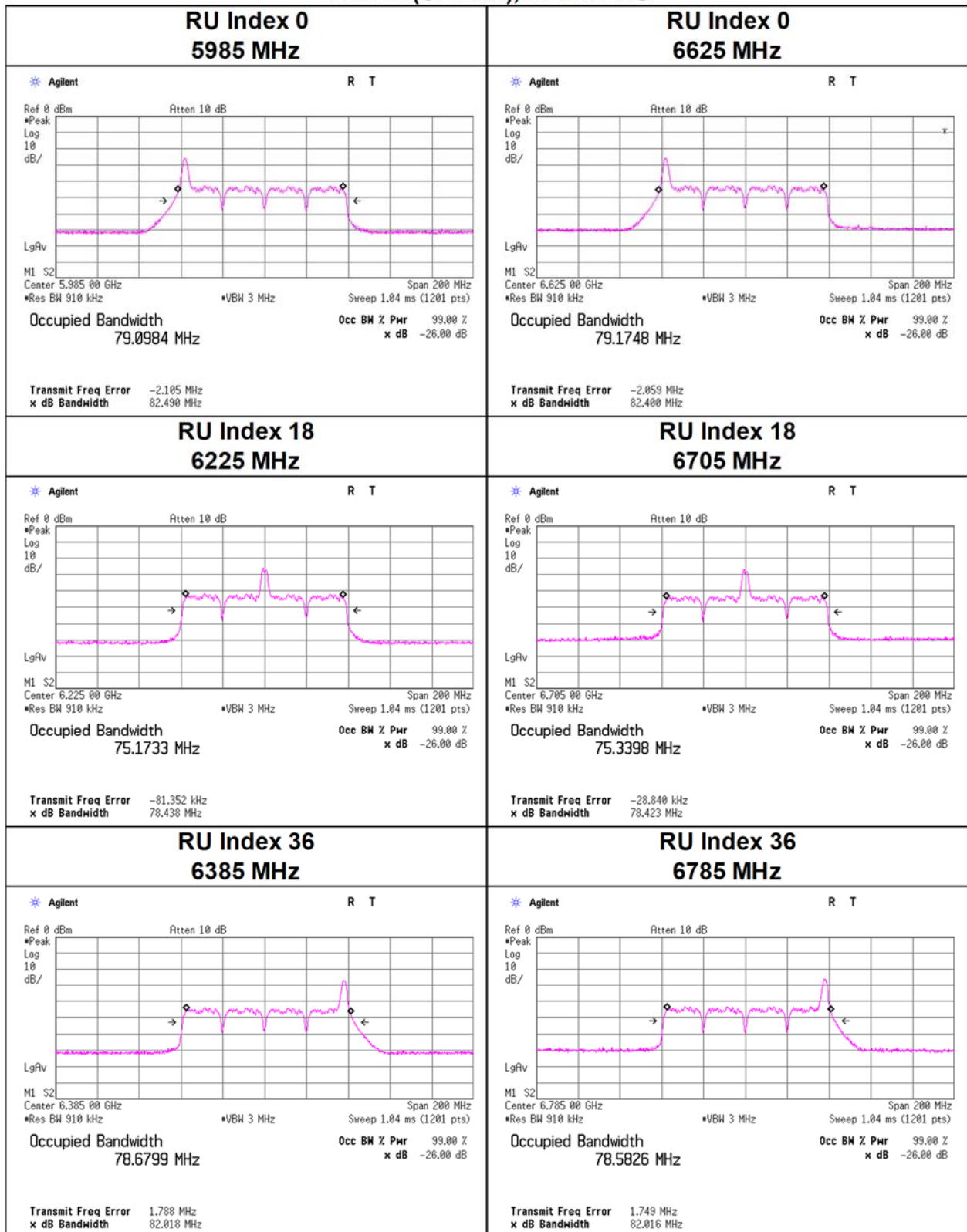
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-80(OFDM)



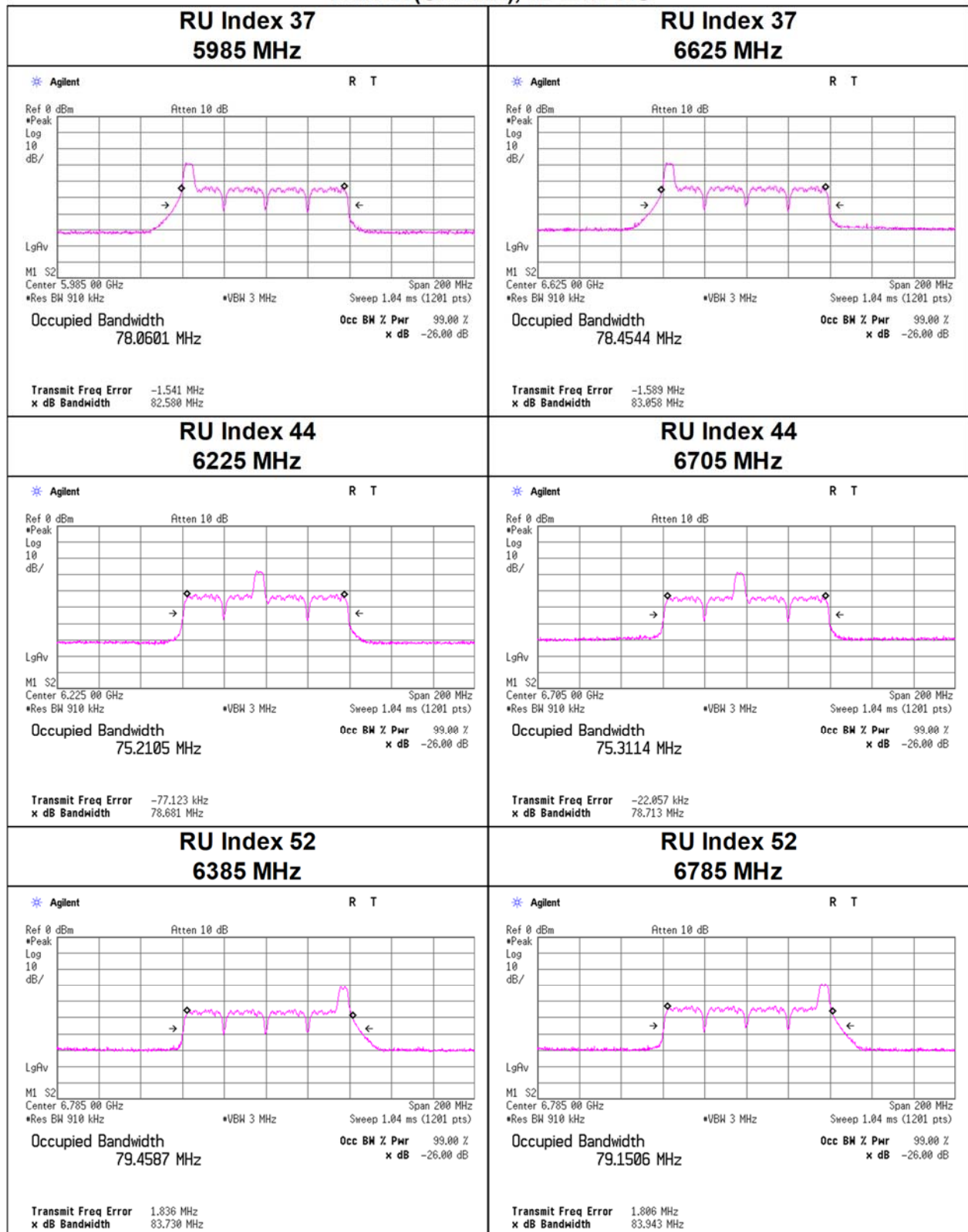
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-80(OFDMA), 26-tone RU



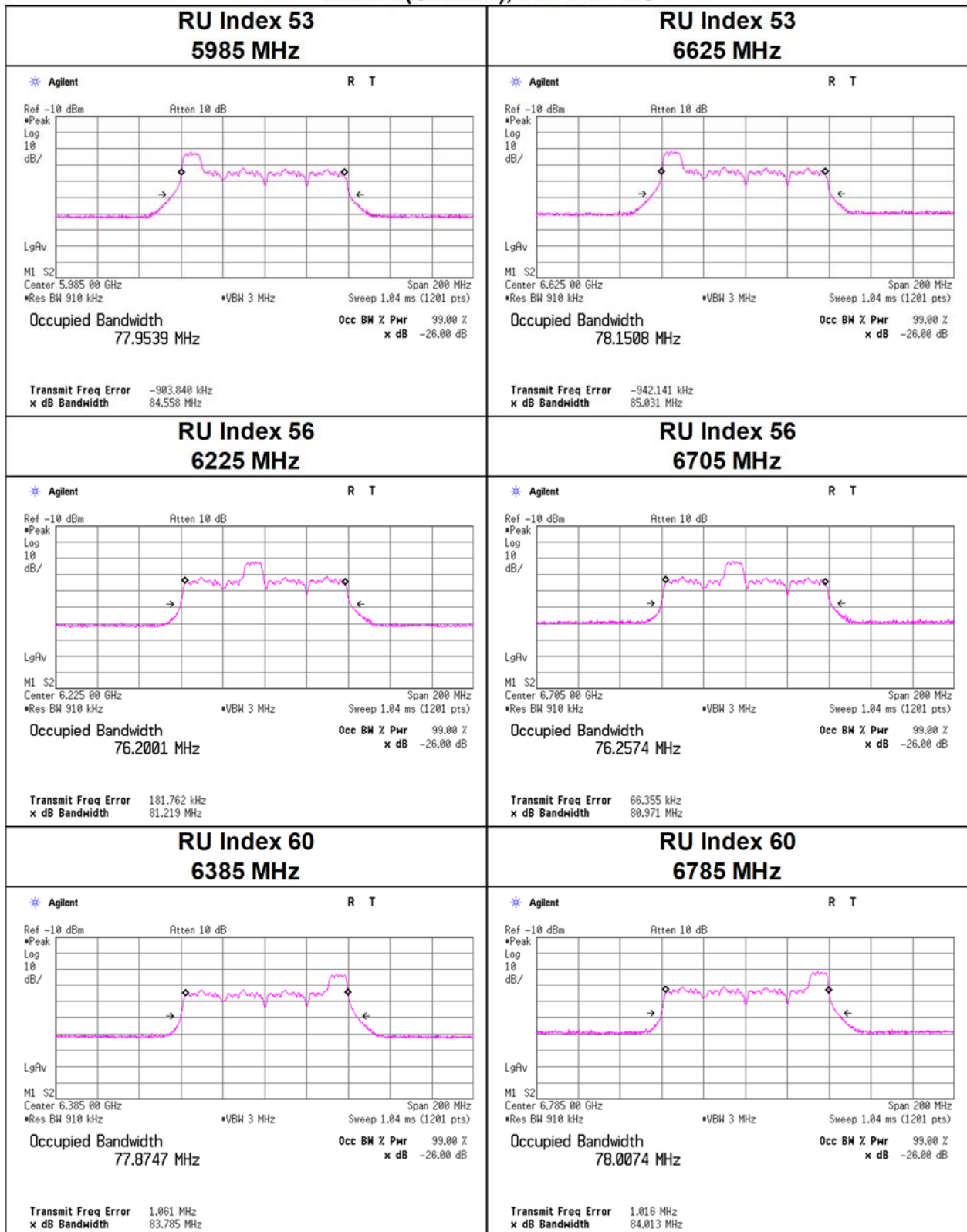
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-80(OFDMA), 52-tone RU



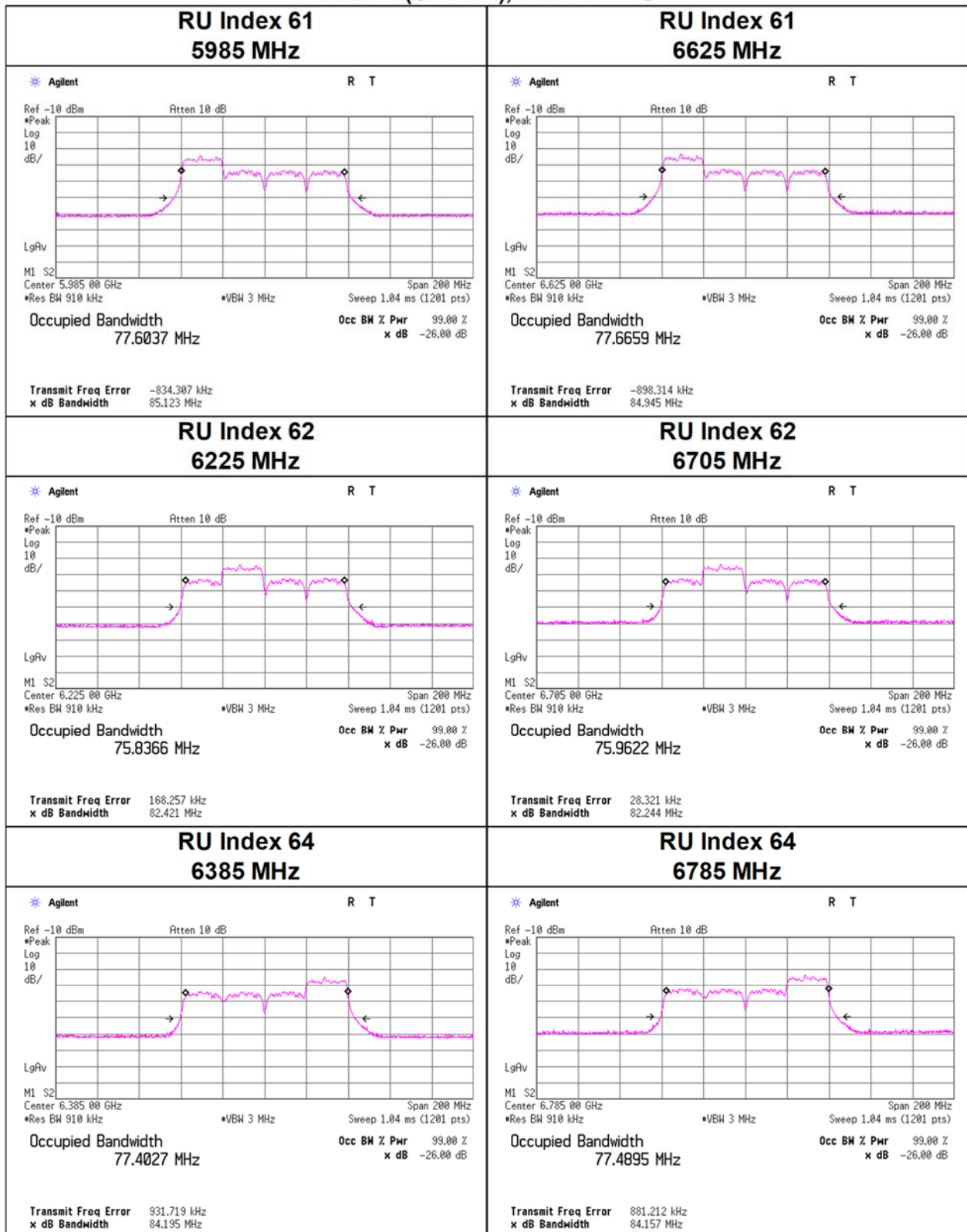
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-80(OFDMA), 106-tone RU



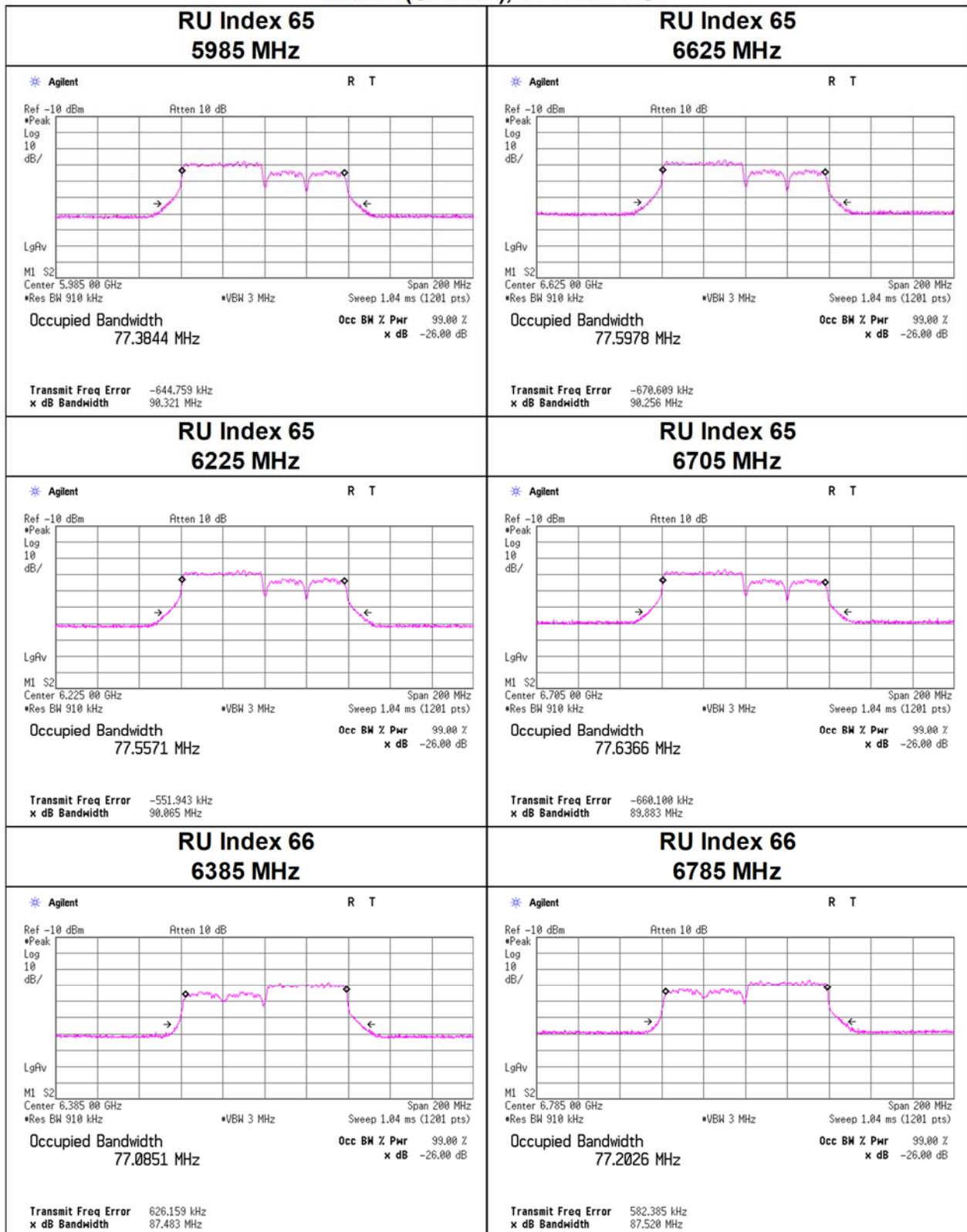
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-80(OFDMA), 242-tone RU



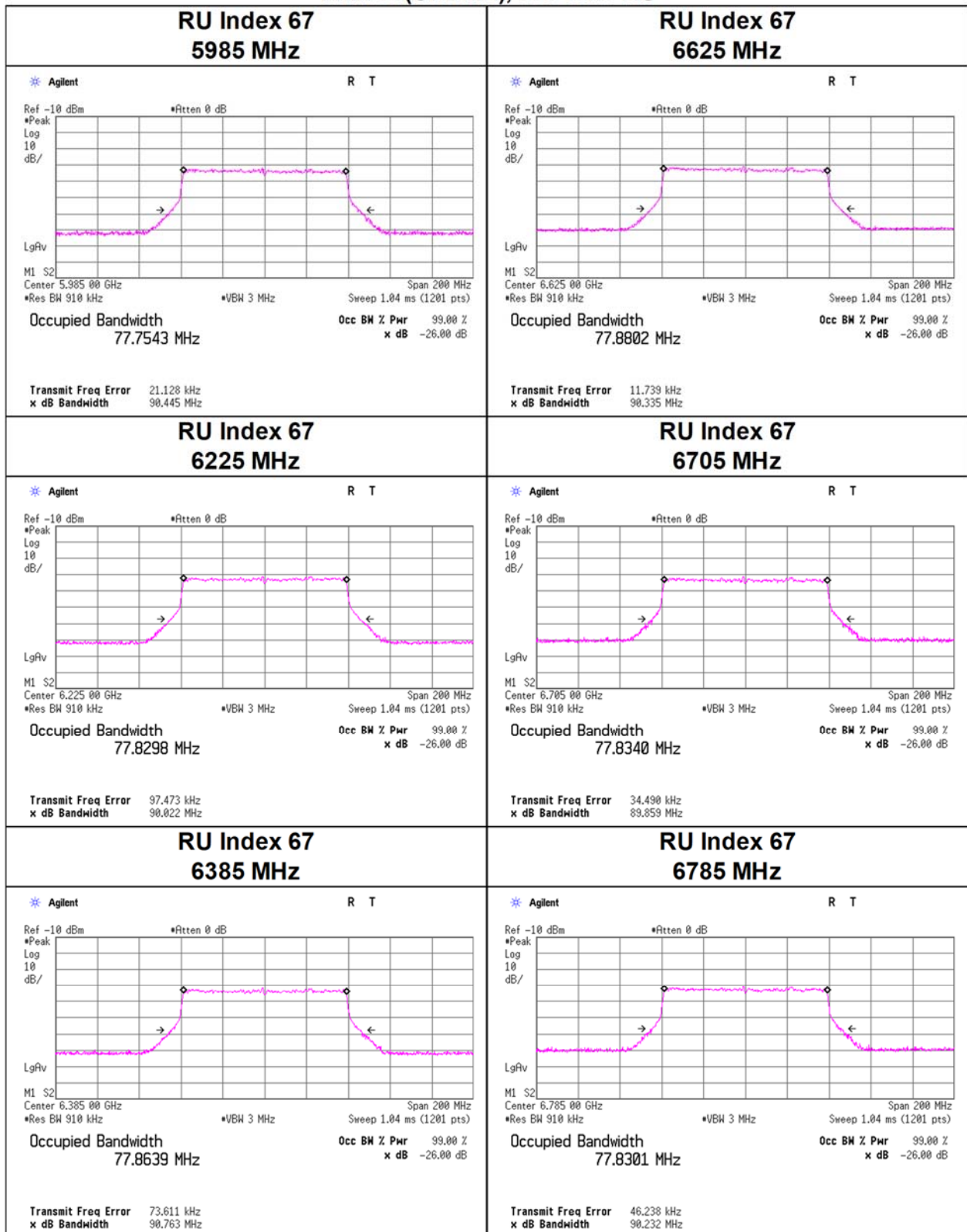
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-80(OFDMA), 484-tone RU



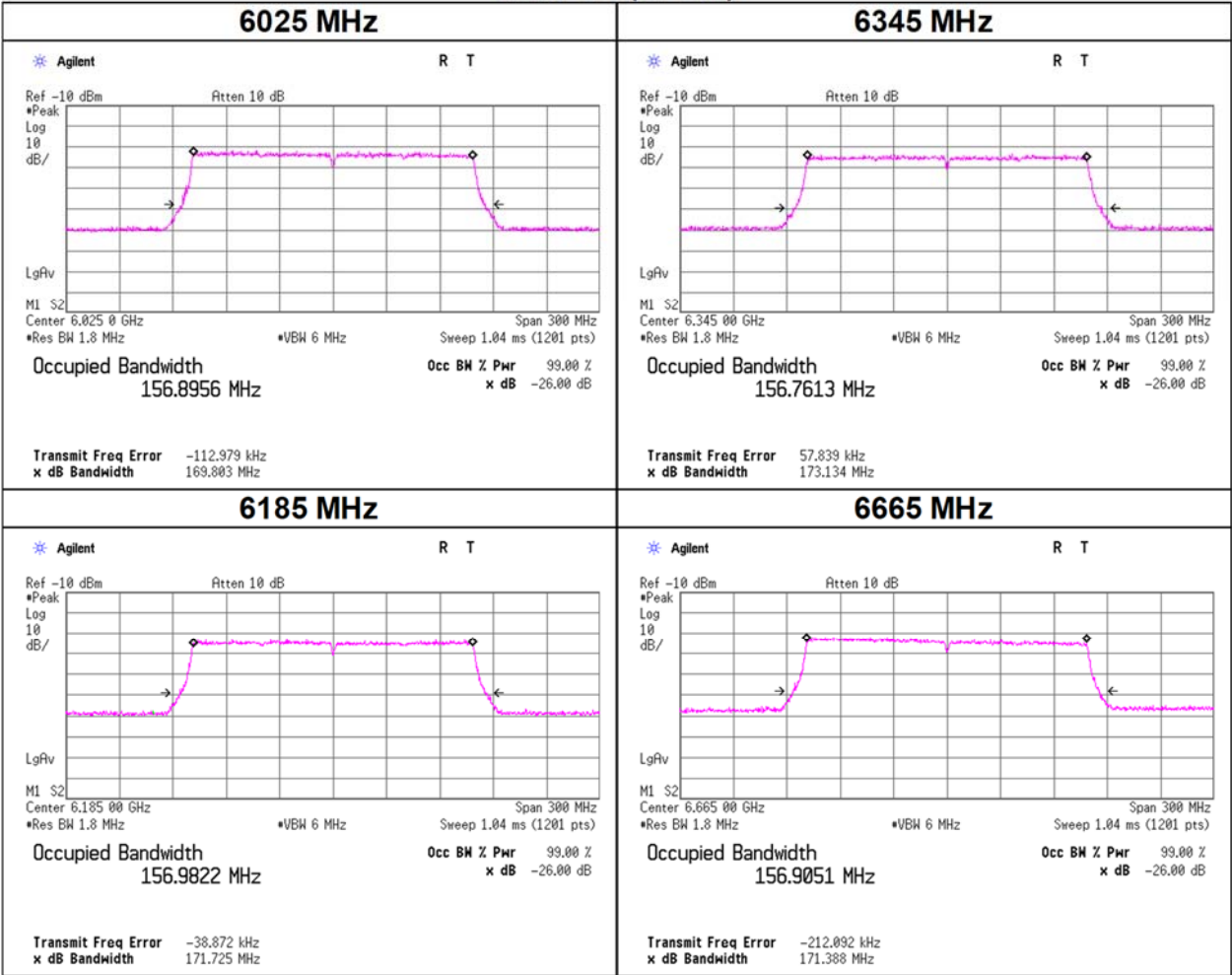
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-80(OFDMA), 996-tone RU



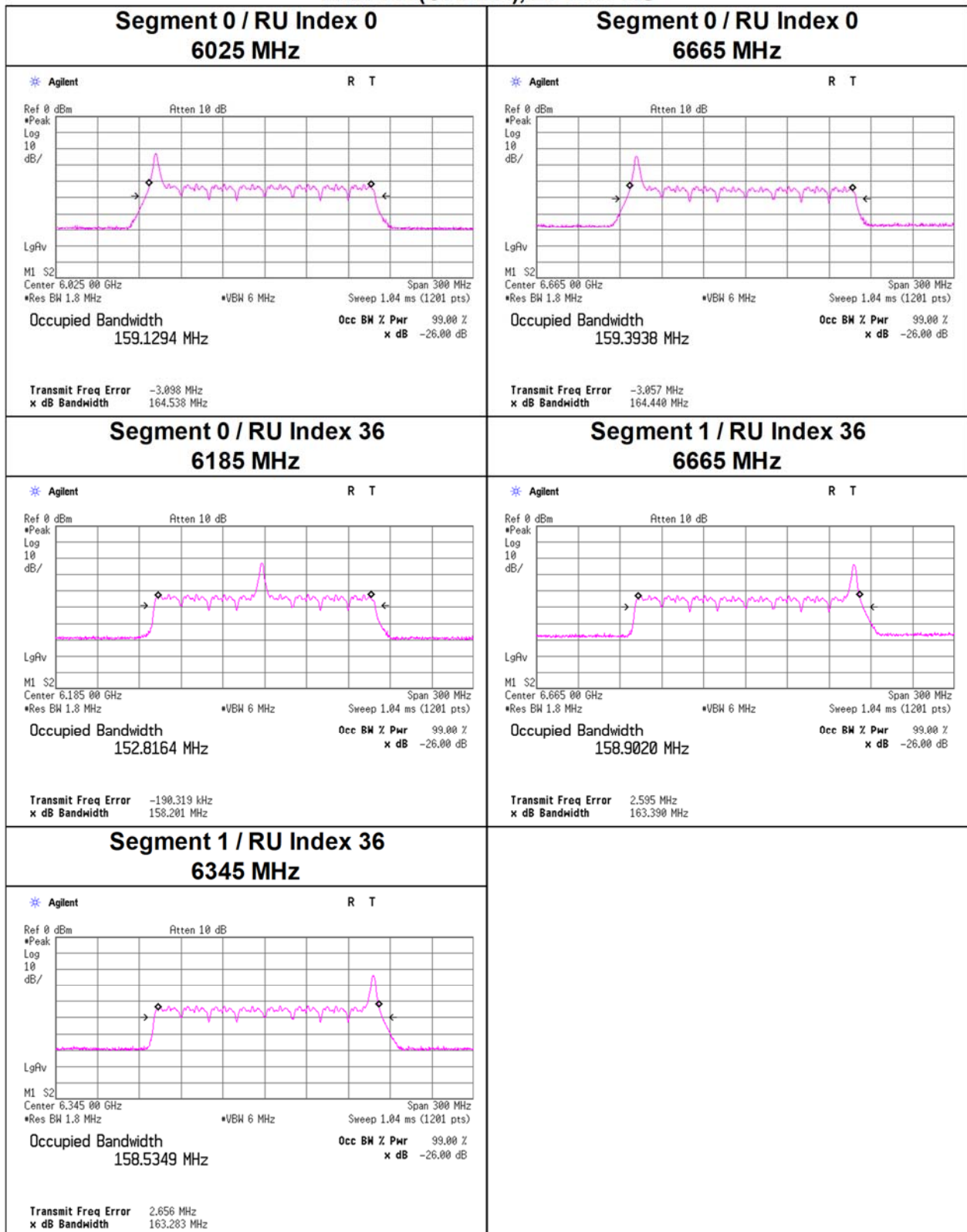
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-160(OFDM)



26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-160(OFDMA), 26-tone RU



26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ax-160(OFDMA), 52-tone RU

