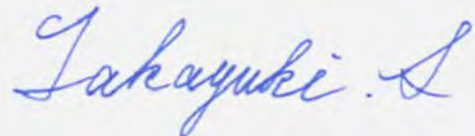


RADIO TEST REPORT

Test Report No.: 15169633H-C

Customer	Panasonic Corporation of North America
Description of EUT	Radio Module (Tested inside of Panasonic Personal Computer FZ-G2)
Model Number of EUT	WW23A
FCC ID	ACJ9TGW23A
Test Regulation	FCC Part 27
Test Result	Complied
Issue Date	May 28, 2024
Remarks	- Mobile operations - For Permissive change

Representative test engineerTakafumi Noguchi
Engineer**Approved by**Takayuki Shimada
Leader

CERTIFICATE 5107.02

- ☐ 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# 23.0

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- This test report covers Radio technical requirements.
It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
- The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
- The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
- The information provided by the customer for this report is identified in SECTION 1.
- The laboratory is not responsible for information provided by the customer which can impact the validity of the results.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

REVISION HISTORY

Original Test Report No.: 15169633H-C

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15169633H-C	May 28, 2024	-

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	P/M	Power meter
CISPR	Comite International Special des Perturbations Radioelectriques	PCB	Printed Circuit Board
CW	Continuous Wave	PER	Packet Error Rate
DBPSK	Differential BPSK	PHY	Physical Layer
DC	Direct Current	PK	Peak
D-factor	Distance factor	PN	Pseudo random Noise
DFS	Dynamic Frequency Selection	PRBS	Pseudo-Random Bit Sequence
DQPSK	Differential QPSK	PSD	Power Spectral Density
DSSS	Direct Sequence Spread Spectrum	QAM	Quadrature Amplitude Modulation
EDR	Enhanced Data Rate	QP	Quasi-Peak
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	QPSK	Quadri-Phase Shift Keying
EMC	ElectroMagnetic Compatibility	RBW	Resolution Band Width
EMI	ElectroMagnetic Interference	RDS	Radio Data System
EN	European Norm	RE	Radio Equipment
ERP, e.r.p.	Effective Radiated Power	RF	Radio Frequency
EU	European Union	RMS	Root Mean Square
EUT	Equipment Under Test	RSS	Radio Standards Specifications
Fac.	Factor	Rx	Receiving
FCC	Federal Communications Commission	SA, S/A	Spectrum Analyzer
FHSS	Frequency Hopping Spread Spectrum	SAR	Specific Absorption Rate
FM	Frequency Modulation	SG	Signal Generator
Freq.	Frequency	SVSWR	Site-Voltage Standing Wave Ratio
FSK	Frequency Shift Keying	TR	Test Receiver
GFSK	Gaussian Frequency-Shift Keying	Tx	Transmitting
GNSS	Global Navigation Satellite System	VBW	Video BandWidth
GPS	Global Positioning System	Vert.	Vertical
Hori.	Horizontal	WLAN	Wireless LAN
ICES	Interference-Causing Equipment Standard	-	-

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SECTION 1: Customer information

Company Name	Panasonic Corporation of North America
Address	Two Riverfront Plaza, Newark, New Jersey, 07102-5490, USA
Telephone Number	+1-201-348-7760
Contact Person	Ben Botros

***Remarks:**

Panasonic Connect Co., Ltd. is on behalf of the applicant: Panasonic Corporation of North America (Company incorporated abroad).

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	Radio Module
Model Number	WW23A
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	April 8, 2024
Test Date	April 9 to May 10, 2024

<Information of Host device>

Type of Equipment	Personal Computer FZ-G2
Model No.	FZ-G2
Remarks	Intel Core Ultra 5 processor 135U, 12M Cache, up to 4.40 GHz 10.1 inch LCD (1920 x 1200)

2.2 Product Description

General Specification

Rating	DC 3.0 V to 3.6 V
Operating temperature	-10 deg. C to 50 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.

WWAN

WCDMA	FDD	2	UMTS Rel. 99 (Data) HSDPA
	FDD	4	HSUPA , HSPA+ , DC-HSDPA
	FDD	5	
LTE	FDD	2	QPSK, 16QAM, 64AQM
	FDD	4	
	FDD	5	Downlink MIMO Support: Yes(2x2)
	FDD	7	Supported band : B2, B4, B5, B7, B12, B13, B14, B25, B26, B42, B48, B66, B71
	FDD	12	
	FDD	13	
	FDD	14	
	FDD	25	
	FDD	26	Uplink MIMO Support: No
	TDD	42	Uplink transmission is limited to a single output stream.
	TDD	48	
	FDD	66	
	FDD	71	
LTE CA	Downlink		Uplink
	Maximum 3 carriers		not supported

*This test report applies to LTE Band 42 (3450 MHz to 3550 MHz) part only.

Antenna Type	Monopole Antenna
Antenna Gain ^{a)}	1.79 dBi

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	FCC Part 27 The latest version on the first day of the testing period
Title	FCC 47CFR Part 27 MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES Subpart C Technical Standards

3.2 Procedures and results

Item	Test Specification & Procedure	Worst margin	Results	Remarks
RF Output Power (Conducted Output Power / Equivalent isotropic radiated power (EIRP))	FCC 2.1046 FCC 27.50	-	Complied	Conducted
Peak to Average power Ratio	FCC 27.50	-	Complied	Conducted
99 % Occupied Bandwidth and 26 dB Bandwidth	FCC 2.1049	-	Complied	Conducted
Out of Band Emission	FCC 2.1051 FCC 27.53	-	Complied	Conducted
Spurious Emission	FCC 2.1053 FCC 27.53	56.7 dB 236.668 MHz Vertical, PK	Complied	Radiated
Frequency Stability (Temperature Variation)	FCC 2.1055 FCC 27.54	-	Complied	Conducted
Frequency Stability (Voltage Variation)	FCC 2.1055 FCC 27.54	-	Complied	Conducted

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

*These tests were also referred to ANSI/C63.26:2015 "American National Standard for Compliance Testing of Transmitters Used in the Licensed Radio Services".

*These tests were also referred to KDB 971168 D01 "Power Meas License Digital Systems v03r01", KDB 971168 D02 "Misc Rev Approv License Devices v02r02" and KDB 442401.

3.3 Addition to Standard

No addition, exclusion nor deviation has been made from the standard.

3.4 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 $k = 2$.

Radiated emission

Measurement distance	Frequency range		Unit	Calculated Uncertainty (+/-)
3 m	9 kHz to 30 MHz		dB	3.3
10 m			dB	3.1
3 m	30 MHz to 200 MHz	Horizontal	dB	4.7
		Vertical	dB	4.7
	200 MHz to 1000 MHz	Horizontal	dB	4.8
		Vertical	dB	6.0
10 m	30 MHz to 200 MHz	Horizontal	dB	5.2
		Vertical	dB	5.1
	200 MHz to 1000 MHz	Horizontal	dB	5.2
		Vertical	dB	5.2
3 m	1 GHz to 6 GHz		dB	5.0
	6 GHz to 18 GHz		dB	5.2
1 m	10 GHz to 18 GHz		dB	5.3
	18 GHz to 26.5 GHz		dB	5.2
	26.5 GHz to 40 GHz		dB	4.7
0.5 m	26.5 GHz to 40 GHz		dB	4.8

Antenna Terminal Conducted

Item	Unit	Calculated Uncertainty (+/-)
Antenna terminated conducted emission / Power density / Burst power	dB	3.47
Adjacent channel power (ACP)	dB	2.28
Bandwidth (OBW)	%	0.96
Time readout (time span upto 100 msec)	%	0.11
Time readout (time span upto 1000 msec)	%	0.11
Time readout (time span upto 60 sec)	%	0.02
Power measurement (Power meter < 8 GHz)	dB	1.46
Power measurement (Call box < 6 GHz)	dB	1.69
Frequency readout (Frequency counter)	ppm	0.67
Frequency readout (Spectrum analyzer frequency readout function)	ppm	2.13
Temperature (constant temperature bath)	deg. C	0.69
Humidity (constant temperature bath)	%RH	2.98
Modulation characteristics	%	6.93
Frequency for mobile	ppm	0.08
Contention-based protocol	dB	2.26

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan

Telephone: +81-596-24-8999

A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919

ISED Lab Company Number: 2973C / CAB identifier: JP0002

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.10 shielded room	3.8 x 2.8 x 2.8	3.8 x 2.8	-	-
No.11 measurement room	4.0 x 3.4 x 2.5	N/A	-	-
No.12 measurement room	2.6 x 3.4 x 2.5	N/A	-	-
Large Chamber	16.9 x 22.1 x 10.17	16.9 x 22.1	-	10 m
Small Chamber	5.3 x 6.69 x 3.59	5.3 x 6.69	-	-

3.6 Test data, Test instruments, and Test set up

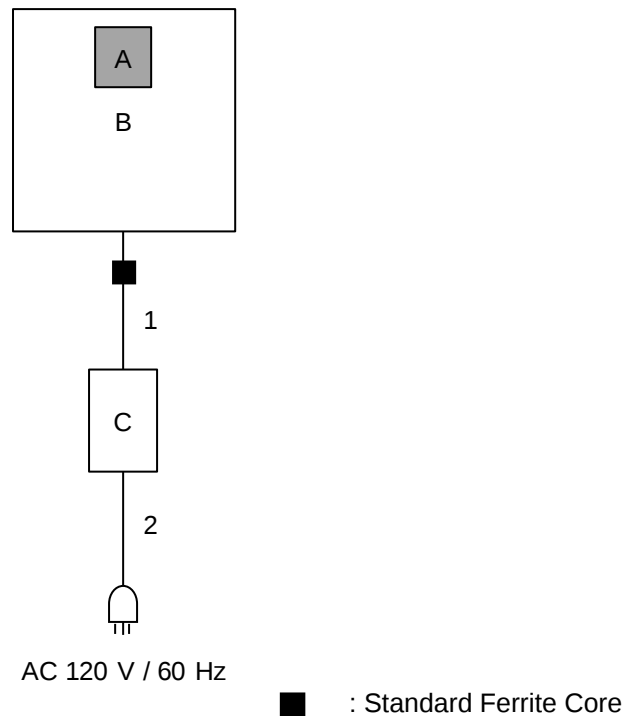
Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

Test	Operating Mode	Tested Frequency	Uplink Channel	Power Setting
RF Output Power	Transmitting (Tx) LTE Band 42 (5 MHz band)	3452.5 MHz 3500.0 MHz 3547.5 MHz	42115 42590 43065	Max, Reduction
	Transmitting (Tx) LTE Band 42 (10 MHz band)	3455.0 MHz 3500.0 MHz 3545.0 MHz	42140 42590 43040	Max, Reduction
	Transmitting (Tx) LTE Band 42 (15 MHz band)	3457.5 MHz 3500.0 MHz 3542.5 MHz	42165 42590 43015	Max, Reduction
	Transmitting (Tx) LTE Band 42 (20 MHz band)	3460.0 MHz 3500.0 MHz 3540.0 MHz	42190 42590 42990	Max, Reduction
Peak to Average power Ratio (Conducted), 99 % Occupied Bandwidth and 26 dB Bandwidth	Transmitting (Tx) LTE Band 42 (5 MHz band / 10 MHz band / 15 MHz band / 20 MHz band)	3500.0 MHz	42590	Max
Out of Band Emission	Transmitting (Tx) LTE Band 42 (5 MHz band)	3452.5 MHz 3547.5 MHz	42115 43065	Max
	Transmitting (Tx) LTE Band 42 (10 MHz band)	3455.0 MHz 3545.0 MHz	42140 43040	Max
	Transmitting (Tx) LTE Band 42 (15 MHz band)	3457.5 MHz 3542.5 MHz	42165 43015	Max
	Transmitting (Tx) LTE Band 42 (20 MHz band)	3460.0 MHz 3540.0 MHz	42190 42990	Max
Transmitter Unwanted Emissions (Radiated)	Transmitting (Tx) LTE Band 42 (20 MHz band) *1)	3460.0 MHz 3500.0 MHz 3540.0 MHz	42190 42590 42990	Max
Frequency Stability (Voltage Variation)	Transmitting (Tx) LTE Band 42 (5 MHz band) *1)	3452.5 MHz 3547.5 MHz	42115 43065	Max
*1) The test was performed on the worst mode according to the result of preliminary testing.				
*Power of the EUT was set by the software as follows; Power Setting: Same as production model Power Control: TPC All Up bits (Max) Software: SWIX12C.02.02.02.16				
*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.				

4.1 Configuration and peripherals



* 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	Radio Module	WW23A	*1)	Panasonic Connect Co., Ltd.	EUT
B	Personal Computer	FZ-G2mk3 *2)	4CTSA00726 for AT* 4CTSA00664 for RE*	Panasonic Connect Co., Ltd.	-
C	AC Adaptor	CF-AA5713A M8	5713AM8223045238WB	Panasonic Connect Co., Ltd.	-

*1) This item is controlled with B: Personal Computer.

*2) Marketing model number is FZ-G2.

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	1.4	Unshielded	Unshielded	-
2	AC Cable	1.9	Unshielded	Unshielded	-

*AT: Antenna Terminal Conducted tests

RE: Spurious Emission

SECTION 5: RF Output Power

The RF output power was measured with a Power Meter and an attenuator at the antenna port.

§ 27.50 Power limits and duty cycle.

(k)(3) Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

Sample calculations

$EIRP = \text{Conducted Power [dBm]} + \text{Ant. Gain[dBi]}$

(Conducted Power includes the losses such as cable or attenuator or combiners etc.)

Test data	:	APPENDIX
Test result	:	Pass

SECTION 6: Peak to Average power Ratio

Peak to Average power Ratio was measured with a Spectrum Analyzer and an attenuator at the antenna port.

Function of Complementary Cumulative Distribution Function (CCDF) curves of the spectrum analyzer is used.

Setting of the spectrum analyzer: integrated bandwidths is set as the enough wider than tested signal (e.g. integrated bandwidths 20 MHz for LTE 20 MHz band width)

For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.

Limit: 13 dB

Result: value of the 0.1%

Test data : **APPENDIX**

Test result : **Pass**

SECTION 7: 99 % Occupied Bandwidth and 26 dB Bandwidth

99 % Occupied Bandwidth and 26 dB Bandwidth was measured with below setting connected to the antenna port.

RBW	VBW	Span	Sweep time	Detector	Trace	Instrument Used
1 % to 5 % of OBW	Three times of RBW	Enough width to display emission skirts	Auto	Peak	Max Hold	Spectrum Analyzer

Limit: not specified

Result: 99 % and - 26 dB bandwidth value.

Test data : **APPENDIX**

Test result : **Only reported**

SECTION 8: Out of Band Emission

Out of Band Emission was measured with a Spectrum Analyzer and an attenuator at the antenna port.

§ 27.53 Emission limits.
(n)(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Sample calculations: Result = Amplitude [dBm]
(Amplitude includes the losses such as cable or attenuator or combiners etc.)

Test data	:	APPENDIX
Test result	:	Pass

SECTION 9: Spurious Emission

§ 27.53 Emission limits.

(n)(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

[For below 1 GHz]

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 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.

[For 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.

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.

Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beam width of the antenna.

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

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

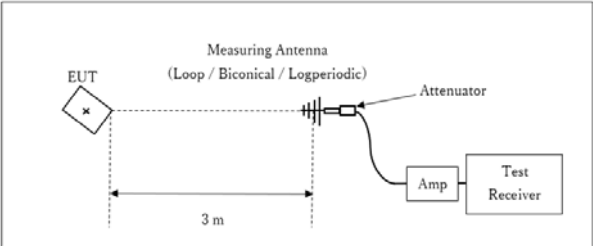
- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Setting of the spectrum analyzer:

Frequency	PK
Below 1 GHz	RBW 100 kHz, VBW 300 kHz
Above 1 GHz	RBW 1 MHz, VBW 3 MHz

Figure 2: Test Setup

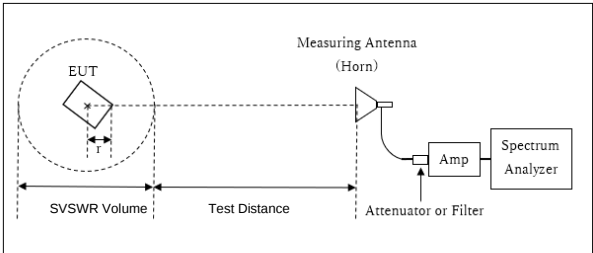
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz



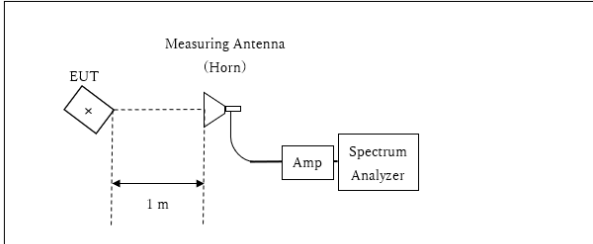
r : Radius of an outer periphery of EUT
× : Center of turn table

[1 GHz to 6 GHz]
Distance Factor: $20 \times \log (3.8 \text{ m} / 3.0 \text{ m}) = 2.06 \text{ dB}$
Test Distance: $(3 + \text{SVSWR Volume} / 2) - r = 3.8 \text{ m}$
SVSWR Volume : 2.0 m

[6 GHz to 10 GHz]
Distance Factor: $20 \times \log (4.8 \text{ m} / 3.0 \text{ m}) = 4.09 \text{ dB}$
Test Distance: $(4.3 + \text{SVSWR Volume} / 2) - r = 4.8 \text{ m}$
SVSWR Volume : 1.4 m

r = 0.2 m

10 GHz to 40 GHz



× : Center of turn table

Distance Factor: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$
Test Distance: 1 m

The test results and limit are rounded off, so some differences might be observed.

Measurement range : 30 MHz to 40 GHz
Test data : APPENDIX
Test result : Pass

SECTION 10: Frequency Stability (Temperature/Voltage Variation)

99 % Occupied Bandwidth was measured with below setting connected to the antenna port.

RBW	VBW	Span	Sweep time	Detector	Trace	Instrument Used
1 % to 5 % of OBW	Three times of RBW	Enough width to display emission skirts	Auto	Peak	Max Hold	Spectrum Analyzer

The Frequency Drift was measured with the 10 deg. C. steps from 50 deg. C. to -30 deg. C., and it is presented as the edge frequency of 99 % Occupied Bandwidth. The Frequency Drift was measured with the normal temperature (20 deg. C.) and Voltage tolerance, and it is presented as the edge frequency of 99 % Occupied Bandwidth.

Temperature : -30 deg. C to +50 deg. C (10 deg. C. step)
Voltage : Vnom: AC 120 V, Vmin: AC 102 V, Vmax: AC 138 V (AC Adapter)
Vnom: DC 10.8 V, Vmin: DC 7.5 V (Battery Output)

Frequency Stability test was performed under the above condition.

Limit
§ 27.54 Frequency stability.

Test data : APPENDIX
Test result : Pass

APPENDIX 1: Test data

Worst configuration mode check

Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.10
April 9, 2024
22 deg. C / 52 % RH
Takafumi Noguchi
LTE

Band						Burst Power [dBm]
42						UL Ch #
BW (MHz)	Modulation	UL RB Allocation	UL RB Start	Uplink/ Downlink Configuration	Special Subframe	42590
						Freq [MHz]
20	QPSK	1	49	0	0	18.35
					1	18.28
					2	18.29
					3	18.31
					4	18.31
					5	18.32
					6	18.37
					7	18.31
20	QPSK	1	49	1	0	18.32
					1	18.33
					2	18.32
					3	18.34
					4	18.29
					5	18.33
					6	18.36
					7	18.35
20	QPSK	1	49	2	0	18.36
					1	18.35
					2	18.35
					3	18.36
					4	18.29
					5	18.32
					6	18.27
					7	18.29
20	QPSK	1	49	3	0	18.30
					1	18.33
					2	18.30
					3	18.30
					4	18.34
					5	18.35
					6	18.30
					7	18.26
20	QPSK	1	49	4	0	18.35
					1	18.30
					2	18.32
					3	18.33
					4	18.33
					5	18.33
					6	18.34
					7	18.32
20	QPSK	1	49	5	0	18.33
					1	18.35
					2	18.32
					3	18.32
					4	18.32
					5	18.36
					6	18.36
					7	18.33
20	QPSK	1	49	6	0	18.36
					1	18.34
					2	18.34
					3	18.32
					4	18.35
					5	18.33
					6	18.33
					7	18.34

Cyclic prefix = Extended

*Difference between worst configuration mode check data and formal test result is due to the different test condition.

RF Output Power

Test place Ise EMC Lab.
Measurement Room No.10
Date April 9, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	ERP	EIRP Limit	Margin
[MHz]	Ch #	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
5	42115 Low	3452.5	QPSK	1	0	18.30	1.79	20.09	30.00	9.91
				1	12	18.36	1.79	20.15	30.00	9.85
				1	24	18.39	1.79	20.18	30.00	9.82
				12	0	17.45	1.79	19.24	30.00	10.76
				12	6	17.47	1.79	19.26	30.00	10.74
				12	13	17.49	1.79	19.28	30.00	10.72
				25	0	17.61	1.79	19.40	30.00	10.60
			16QAM	1	0	17.61	1.79	19.40	30.00	10.60
				1	12	17.68	1.79	19.47	30.00	10.53
				1	24	17.73	1.79	19.52	30.00	10.48
				12	0	16.52	1.79	18.31	30.00	11.69
				12	6	16.52	1.79	18.31	30.00	11.69
				12	13	16.55	1.79	18.34	30.00	11.66
				25	0	16.68	1.79	18.47	30.00	11.53
			64QAM	1	0	16.61	1.79	18.40	30.00	11.60
				1	12	16.66	1.79	18.45	30.00	11.55
				1	24	16.64	1.79	18.43	30.00	11.57
				12	0	15.52	1.79	17.31	30.00	12.69
				12	6	15.57	1.79	17.36	30.00	12.64
				12	13	15.56	1.79	17.35	30.00	12.65
				25	0	15.71	1.79	17.50	30.00	12.50
	42590 Mid	3500	QPSK	1	0	18.21	1.79	20.00	30.00	10.00
				1	12	18.30	1.79	20.09	30.00	9.91
				1	24	18.28	1.79	20.07	30.00	9.93
				12	0	17.45	1.79	19.24	30.00	10.76
				12	6	17.46	1.79	19.25	30.00	10.75
				12	13	17.46	1.79	19.25	30.00	10.75
				25	0	17.49	1.79	19.28	30.00	10.72
			16QAM	1	0	17.52	1.79	19.31	30.00	10.69
				1	12	17.83	1.79	19.62	30.00	10.38
				1	24	17.74	1.79	19.53	30.00	10.47
				12	0	16.48	1.79	18.27	30.00	11.73
				12	6	16.50	1.79	18.29	30.00	11.71
				12	13	16.53	1.79	18.32	30.00	11.68
				25	0	16.57	1.79	18.36	30.00	11.64
			64QAM	1	0	16.43	1.79	18.22	30.00	11.78
				1	12	16.55	1.79	18.34	30.00	11.66
				1	24	16.59	1.79	18.38	30.00	11.62
				12	0	15.51	1.79	17.30	30.00	12.70
				12	6	15.52	1.79	17.31	30.00	12.69
				12	13	15.55	1.79	17.34	30.00	12.66
				25	0	15.58	1.79	17.37	30.00	12.63
	43065 High	3547.5	QPSK	1	0	18.34	1.79	20.13	30.00	9.87
				1	12	18.38	1.79	20.17	30.00	9.83
				1	24	18.49	1.79	20.28	30.00	9.72
				12	0	17.55	1.79	19.34	30.00	10.66
				12	6	17.56	1.79	19.35	30.00	10.65
				12	13	17.58	1.79	19.37	30.00	10.63
				25	0	17.60	1.79	19.39	30.00	10.61
			16QAM	1	0	17.86	1.79	19.65	30.00	10.35
				1	12	17.77	1.79	19.56	30.00	10.44
				1	24	17.97	1.79	19.76	30.00	10.24
				12	0	16.58	1.79	18.37	30.00	11.63
				12	6	16.59	1.79	18.38	30.00	11.62
				12	13	16.69	1.79	18.48	30.00	11.52
				25	0	16.78	1.79	18.57	30.00	11.43
			64QAM	1	0	16.58	1.79	18.37	30.00	11.63
				1	12	16.68	1.79	18.47	30.00	11.53
				1	24	16.85	1.79	18.64	30.00	11.36
				12	0	15.62	1.79	17.41	30.00	12.59
				12	6	15.63	1.79	17.42	30.00	12.58
				12	13	15.65	1.79	17.44	30.00	12.56
				25	0	15.77	1.79	17.56	30.00	12.44

EIRP = Conducted Power* + Ant.Gain

* includes the losses such as cable or attenuator or combiners etc.

The test was performed with Gate function.

RF Output Power

Test place Ise EMC Lab.
Measurement Room No.10
Date April 9, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	EIRP	EIRP Limit	Margin
[MHz]	Ch #	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
10	42140 Low	3455	QPSK	1	0	18.11	1.79	19.90	30.00	10.10
				1	24	18.31	1.79	20.10	30.00	9.90
				1	49	18.46	1.79	20.25	30.00	9.75
				25	0	17.41	1.79	19.20	30.00	10.80
				25	12	17.57	1.79	19.36	30.00	10.64
				25	25	17.66	1.79	19.45	30.00	10.55
				50	0	17.67	1.79	19.46	30.00	10.54
			16QAM	1	0	17.46	1.79	19.25	30.00	10.75
				1	24	17.55	1.79	19.34	30.00	10.66
				1	49	17.84	1.79	19.63	30.00	10.37
				25	0	16.48	1.79	18.27	30.00	11.73
				25	12	16.73	1.79	18.52	30.00	11.48
				25	25	16.70	1.79	18.49	30.00	11.51
				50	0	16.77	1.79	18.56	30.00	11.44
			64QAM	1	0	16.44	1.79	18.23	30.00	11.77
				1	24	16.55	1.79	18.34	30.00	11.66
				1	49	16.79	1.79	18.58	30.00	11.42
				25	0	15.51	1.79	17.30	30.00	12.70
				25	12	15.74	1.79	17.53	30.00	12.47
				25	25	15.73	1.79	17.52	30.00	12.48
	50	0		15.78	1.79	17.57	30.00	12.43		
	42590 Mid	3500	QPSK	1	0	18.09	1.79	19.88	30.00	10.12
				1	24	18.29	1.79	20.08	30.00	9.92
				1	49	18.34	1.79	20.13	30.00	9.87
				25	0	17.41	1.79	19.20	30.00	10.80
				25	12	17.54	1.79	19.33	30.00	10.67
				25	25	17.58	1.79	19.37	30.00	10.63
				50	0	17.51	1.79	19.30	30.00	10.70
			16QAM	1	0	17.45	1.79	19.24	30.00	10.76
				1	24	17.65	1.79	19.44	30.00	10.56
				1	49	17.69	1.79	19.48	30.00	10.52
				25	0	16.54	1.79	18.33	30.00	11.67
				25	12	16.59	1.79	18.38	30.00	11.62
				25	25	16.64	1.79	18.43	30.00	11.57
				50	0	16.60	1.79	18.39	30.00	11.61
			64QAM	1	0	16.50	1.79	18.29	30.00	11.71
				1	24	16.50	1.79	18.29	30.00	11.71
				1	49	16.65	1.79	18.44	30.00	11.56
				25	0	15.55	1.79	17.34	30.00	12.66
				25	12	15.61	1.79	17.40	30.00	12.60
				25	25	15.65	1.79	17.44	30.00	12.56
	50	0		15.68	1.79	17.47	30.00	12.53		
	43040 High	3545	QPSK	1	0	18.05	1.79	19.84	30.00	10.16
				1	24	18.16	1.79	19.95	30.00	10.05
				1	49	18.45	1.79	20.24	30.00	9.76
				25	0	17.37	1.79	19.16	30.00	10.84
				25	12	17.41	1.79	19.20	30.00	10.80
				25	25	17.46	1.79	19.25	30.00	10.75
				50	0	17.48	1.79	19.27	30.00	10.73
			16QAM	1	0	17.42	1.79	19.21	30.00	10.79
				1	24	17.57	1.79	19.36	30.00	10.64
				1	49	17.81	1.79	19.60	30.00	10.40
				25	0	16.44	1.79	18.23	30.00	11.77
				25	12	16.54	1.79	18.33	30.00	11.67
				25	25	16.53	1.79	18.32	30.00	11.68
				50	0	16.60	1.79	18.39	30.00	11.61
			64QAM	1	0	16.34	1.79	18.13	30.00	11.87
				1	24	16.49	1.79	18.28	30.00	11.72
				1	49	16.69	1.79	18.48	30.00	11.52
				25	0	15.47	1.79	17.26	30.00	12.74
				25	12	15.52	1.79	17.31	30.00	12.69
				25	25	15.61	1.79	17.40	30.00	12.60
	50	0		15.58	1.79	17.37	30.00	12.63		

EIRP = Conducted Power* + Ant.Gain

* includes the losses such as cable or attenuator or combiners etc.

The test was performed with Gate function.

RF Output Power

Test place Ise EMC Lab.
Measurement Room No.10
Date April 9, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	ERP	EIRP Limit	Margin
[MHz]	Ch #	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
15	42165 Low	3457.5	QPSK	1	0	18.16	1.79	19.95	30.00	10.05
				1	37	18.40	1.79	20.19	30.00	9.81
				1	74	18.49	1.79	20.28	30.00	9.72
				36	0	17.60	1.79	19.39	30.00	10.61
				36	19	17.76	1.79	19.55	30.00	10.45
				36	39	17.77	1.79	19.56	30.00	10.44
				75	0	17.67	1.79	19.46	30.00	10.54
			16QAM	1	0	17.53	1.79	19.32	30.00	10.68
				1	37	17.97	1.79	19.76	30.00	10.24
				1	74	17.89	1.79	19.68	30.00	10.32
				36	0	16.63	1.79	18.42	30.00	11.58
				36	19	16.82	1.79	18.61	30.00	11.39
				36	39	16.84	1.79	18.63	30.00	11.37
				75	0	16.79	1.79	18.58	30.00	11.42
			64QAM	1	0	16.39	1.79	18.18	30.00	11.82
				1	37	16.67	1.79	18.46	30.00	11.54
				1	74	16.75	1.79	18.54	30.00	11.46
				36	0	15.68	1.79	17.47	30.00	12.53
				36	19	15.86	1.79	17.65	30.00	12.35
				36	39	15.87	1.79	17.66	30.00	12.34
				75	0	15.79	1.79	17.58	30.00	12.42
	42590 Mid	3500	QPSK	1	0	18.06	1.79	19.85	30.00	10.15
				1	37	18.23	1.79	20.02	30.00	9.98
				1	74	18.45	1.79	20.24	30.00	9.76
				36	0	17.45	1.79	19.24	30.00	10.76
				36	19	17.53	1.79	19.32	30.00	10.68
				36	39	17.64	1.79	19.43	30.00	10.57
				75	0	17.46	1.79	19.25	30.00	10.75
			16QAM	1	0	17.63	1.79	19.42	30.00	10.58
				1	37	17.59	1.79	19.38	30.00	10.62
				1	74	17.86	1.79	19.65	30.00	10.35
				36	0	16.52	1.79	18.31	30.00	11.69
				36	19	16.64	1.79	18.43	30.00	11.57
				36	39	16.77	1.79	18.56	30.00	11.44
				75	0	16.64	1.79	18.43	30.00	11.57
			64QAM	1	0	16.39	1.79	18.18	30.00	11.82
				1	37	16.51	1.79	18.30	30.00	11.70
				1	74	16.77	1.79	18.56	30.00	11.44
				36	0	15.53	1.79	17.32	30.00	12.68
				36	19	15.70	1.79	17.49	30.00	12.51
				36	39	15.74	1.79	17.53	30.00	12.47
				75	0	15.63	1.79	17.42	30.00	12.58
	43015 High	3542.5	QPSK	1	0	18.04	1.79	19.83	30.00	10.17
				1	37	18.10	1.79	19.89	30.00	10.11
				1	74	18.37	1.79	20.16	30.00	9.84
				36	0	17.35	1.79	19.14	30.00	10.86
				36	19	17.43	1.79	19.22	30.00	10.78
				36	39	17.50	1.79	19.29	30.00	10.71
				75	0	17.37	1.79	19.16	30.00	10.84
			16QAM	1	0	17.48	1.79	19.27	30.00	10.73
				1	37	17.46	1.79	19.25	30.00	10.75
				1	74	17.76	1.79	19.55	30.00	10.45
				36	0	16.45	1.79	18.24	30.00	11.76
				36	19	16.54	1.79	18.33	30.00	11.67
				36	39	16.62	1.79	18.41	30.00	11.59
				75	0	16.48	1.79	18.27	30.00	11.73
			64QAM	1	0	16.46	1.79	18.25	30.00	11.75
				1	37	16.50	1.79	18.29	30.00	11.71
				1	74	16.80	1.79	18.59	30.00	11.41
				36	0	15.46	1.79	17.25	30.00	12.75
				36	19	15.55	1.79	17.34	30.00	12.66
				36	39	15.60	1.79	17.39	30.00	12.61
				75	0	15.50	1.79	17.29	30.00	12.71

EIRP = Conducted Power* + Ant.Gain

* includes the losses such as cable or attenuator or combiners etc.

The test was performed with Gate function.

RF Output Power

Test place Ise EMC Lab.
Measurement Room No.10
Date April 9, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	EIRP	EIRP Limit	Margin		
[MHz]	Ch #	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]		
20	42190 Low	3460	QPSK	1	0	18.13	1.79	19.92	30.00	10.08		
				1	49	18.47	1.79	20.26	30.00	9.74		
				1	99	18.50	1.79	20.29	30.00	9.71		
				50	0	17.70	1.79	19.49	30.00	10.51		
				50	24	17.80	1.79	19.59	30.00	10.41		
				50	50	17.78	1.79	19.57	30.00	10.43		
			100	0	17.63	1.79	19.42	30.00	10.58			
			16QAM	1	0	17.59	1.79	19.38	30.00	10.62		
				1	49	17.85	1.79	19.64	30.00	10.36		
				1	99	17.84	1.79	19.63	30.00	10.37		
				50	0	16.77	1.79	18.56	30.00	11.44		
				50	24	16.87	1.79	18.66	30.00	11.34		
				50	50	16.97	1.79	18.76	30.00	11.24		
			64QAM	100	0	16.74	1.79	18.53	30.00	11.47		
				1	0	16.54	1.79	18.33	30.00	11.67		
				1	49	16.88	1.79	18.67	30.00	11.33		
				1	99	16.88	1.79	18.67	30.00	11.33		
				50	0	15.80	1.79	17.59	30.00	12.41		
				50	24	16.32	1.79	18.11	30.00	11.89		
			42590 Mid	3500	QPSK	50	50	15.99	1.79	17.78	30.00	12.22
						100	0	15.76	1.79	17.55	30.00	12.45
	1	0				18.07	1.79	19.86	30.00	10.14		
	1	49				18.24	1.79	20.03	30.00	9.97		
	1	99				18.55	1.79	20.34	30.00	9.66		
	50	0				17.45	1.79	19.24	30.00	10.76		
	16QAM	50			24	17.55	1.79	19.34	30.00	10.66		
		50			50	17.70	1.79	19.49	30.00	10.51		
		100			0	17.45	1.79	19.24	30.00	10.76		
		1			0	17.45	1.79	19.24	30.00	10.76		
		1			49	17.67	1.79	19.46	30.00	10.54		
		1			99	18.00	1.79	19.79	30.00	10.21		
	64QAM	50			0	16.56	1.79	18.35	30.00	11.65		
		50			24	16.67	1.79	18.46	30.00	11.54		
		50			50	16.81	1.79	18.60	30.00	11.40		
		100			0	16.57	1.79	18.36	30.00	11.64		
		1			0	16.44	1.79	18.23	30.00	11.77		
		1			49	16.60	1.79	18.39	30.00	11.61		
	42990 High	3540			QPSK	1	99	16.87	1.79	18.66	30.00	11.34
						50	0	15.59	1.79	17.38	30.00	12.62
						50	24	15.68	1.79	17.47	30.00	12.53
			50	50		15.83	1.79	17.62	30.00	12.38		
			100	0		15.59	1.79	17.38	30.00	12.62		
			1	0		18.26	1.79	20.05	30.00	9.95		
			16QAM	1	49	18.04	1.79	19.83	30.00	10.17		
				1	99	18.50	1.79	20.29	30.00	9.71		
				50	0	17.40	1.79	19.19	30.00	10.81		
	64QAM	50	24	17.33	1.79	19.12	30.00	10.88				
		50	50	17.40	1.79	19.19	30.00	10.81				
		100	0	17.35	1.79	19.14	30.00	10.86				
		1	0	17.48	1.79	19.27	30.00	10.73				
		1	49	17.37	1.79	19.16	30.00	10.84				
		1	99	17.63	1.79	19.42	30.00	10.58				
		50	0	16.53	1.79	18.32	30.00	11.68				
		50	24	16.48	1.79	18.27	30.00	11.73				
		50	50	16.56	1.79	18.35	30.00	11.65				
	100	0	16.44	1.79	18.23	30.00	11.77					
	64QAM	1	0	16.58	1.79	18.37	30.00	11.63				
		1	49	16.56	1.79	18.35	30.00	11.65				
		1	99	16.82	1.79	18.61	30.00	11.39				
		50	0	15.45	1.79	17.24	30.00	12.76				
		50	24	15.48	1.79	17.27	30.00	12.73				
		50	50	15.56	1.79	17.35	30.00	12.65				
	100	0	15.42	1.79	17.21	30.00	12.79					

EIRP = Conducted Power* + Ant.Gain

* includes the losses such as cable or attenuator or combiners etc.

The test was performed with Gate function.

RF Output Power
(Power Reduction)

Test place Ise EMC Lab.
Measurement Room No.10
Date April 10, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	EIRP	EIRP Limit	Margin
[MHz]	Ch #	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
5	42115 Low	3452.5	QPSK	1	0	10.24	1.79	12.03	30.00	17.97
				1	12	10.25	1.79	12.04	30.00	17.96
				1	24	10.35	1.79	12.14	30.00	17.86
				12	0	10.38	1.79	12.17	30.00	17.83
				12	6	10.45	1.79	12.24	30.00	17.76
				12	13	10.45	1.79	12.24	30.00	17.76
				25	0	10.51	1.79	12.30	30.00	17.70
			16QAM	1	0	10.85	1.79	12.64	30.00	17.36
				1	12	10.72	1.79	12.51	30.00	17.49
				1	24	10.78	1.79	12.57	30.00	17.43
				12	0	10.51	1.79	12.30	30.00	17.70
				12	6	10.53	1.79	12.32	30.00	17.68
				12	13	10.51	1.79	12.30	30.00	17.70
				25	0	10.59	1.79	12.38	30.00	17.62
			64QAM	1	0	10.51	1.79	12.30	30.00	17.70
				1	12	10.55	1.79	12.34	30.00	17.66
				1	24	10.54	1.79	12.33	30.00	17.67
				12	0	10.45	1.79	12.24	30.00	17.76
				12	6	10.48	1.79	12.27	30.00	17.73
				12	13	10.48	1.79	12.27	30.00	17.73
				25	0	10.56	1.79	12.35	30.00	17.65
	42590 Mid	3500	QPSK	1	0	10.26	1.79	12.05	30.00	17.95
				1	12	10.35	1.79	12.14	30.00	17.86
				1	24	10.39	1.79	12.18	30.00	17.82
				12	0	10.49	1.79	12.28	30.00	17.72
				12	6	10.48	1.79	12.27	30.00	17.73
				12	13	10.49	1.79	12.28	30.00	17.72
				25	0	10.53	1.79	12.32	30.00	17.68
			16QAM	1	0	10.86	1.79	12.65	30.00	17.35
				1	12	10.89	1.79	12.68	30.00	17.32
				1	24	10.98	1.79	12.77	30.00	17.23
				12	0	10.46	1.79	12.25	30.00	17.75
				12	6	10.56	1.79	12.35	30.00	17.65
				12	13	10.56	1.79	12.35	30.00	17.65
				25	0	10.58	1.79	12.37	30.00	17.63
			64QAM	1	0	10.49	1.79	12.28	30.00	17.72
				1	12	10.60	1.79	12.39	30.00	17.61
				1	24	10.57	1.79	12.36	30.00	17.64
				12	0	10.49	1.79	12.28	30.00	17.72
				12	6	10.58	1.79	12.37	30.00	17.63
				12	13	10.54	1.79	12.33	30.00	17.67
				25	0	10.61	1.79	12.40	30.00	17.60
	43065 High	3547.5	QPSK	1	0	10.23	1.79	12.02	30.00	17.98
				1	12	10.36	1.79	12.15	30.00	17.85
				1	24	10.51	1.79	12.30	30.00	17.70
				12	0	10.47	1.79	12.26	30.00	17.74
				12	6	10.47	1.79	12.26	30.00	17.74
				12	13	10.47	1.79	12.26	30.00	17.74
				25	0	10.60	1.79	12.39	30.00	17.61
			16QAM	1	0	10.72	1.79	12.51	30.00	17.49
				1	12	10.74	1.79	12.53	30.00	17.47
				1	24	10.97	1.79	12.76	30.00	17.24
				12	0	10.52	1.79	12.31	30.00	17.69
				12	6	10.61	1.79	12.40	30.00	17.60
				12	13	10.61	1.79	12.40	30.00	17.60
				25	0	10.64	1.79	12.43	30.00	17.57
			64QAM	1	0	10.75	1.79	12.54	30.00	17.46
				1	12	10.78	1.79	12.57	30.00	17.43
				1	24	10.89	1.79	12.68	30.00	17.32
				12	0	10.47	1.79	12.26	30.00	17.74
				12	6	10.57	1.79	12.36	30.00	17.64
				12	13	10.58	1.79	12.37	30.00	17.63
				25	0	10.64	1.79	12.43	30.00	17.57

EIRP = Conducted Power* + Ant.Gain
* includes the losses such as cable or attenuator or combiners etc.
The test was performed with Gate function.

RF Output Power (Power Reduction)

Test place Ise EMC Lab.
Measurement Room No.10
Date April 10, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	EIRP	EIRP Limit	Margin
[MHz]	Ch #	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
10	42140 Low	3455	QPSK	1	0	10.20	1.79	11.99	30.00	18.01
				1	24	10.44	1.79	12.23	30.00	17.77
				1	49	10.59	1.79	12.38	30.00	17.62
				25	0	10.51	1.79	12.30	30.00	17.70
				25	12	10.77	1.79	12.56	30.00	17.44
				25	25	10.73	1.79	12.52	30.00	17.48
				50	0	10.74	1.79	12.53	30.00	17.47
			16QAM	1	0	10.87	1.79	12.66	30.00	17.34
				1	24	10.93	1.79	12.72	30.00	17.28
				1	49	10.99	1.79	12.78	30.00	17.22
				25	0	10.61	1.79	12.40	30.00	17.60
				25	12	10.86	1.79	12.65	30.00	17.35
				25	25	10.91	1.79	12.70	30.00	17.30
				50	0	10.84	1.79	12.63	30.00	17.37
			64QAM	1	0	10.51	1.79	12.30	30.00	17.70
				1	24	10.65	1.79	12.44	30.00	17.56
				1	49	10.77	1.79	12.56	30.00	17.44
				25	0	10.56	1.79	12.35	30.00	17.65
				25	12	10.78	1.79	12.57	30.00	17.43
				25	25	10.73	1.79	12.52	30.00	17.48
				50	0	10.80	1.79	12.59	30.00	17.41
	42590 Mid	3500	QPSK	1	0	10.20	1.79	11.99	30.00	18.01
				1	24	10.33	1.79	12.12	30.00	17.88
				1	49	10.48	1.79	12.27	30.00	17.73
				25	0	10.54	1.79	12.33	30.00	17.67
				25	12	10.55	1.79	12.34	30.00	17.66
				25	25	10.61	1.79	12.40	30.00	17.60
				50	0	10.56	1.79	12.35	30.00	17.65
			16QAM	1	0	10.64	1.79	12.43	30.00	17.57
				1	24	10.70	1.79	12.49	30.00	17.51
				1	49	10.90	1.79	12.69	30.00	17.31
				25	0	10.58	1.79	12.37	30.00	17.63
				25	12	10.66	1.79	12.45	30.00	17.55
				25	25	10.72	1.79	12.51	30.00	17.49
				50	0	10.74	1.79	12.53	30.00	17.47
			64QAM	1	0	10.67	1.79	12.46	30.00	17.54
				1	24	10.69	1.79	12.48	30.00	17.52
				1	49	10.82	1.79	12.61	30.00	17.39
				25	0	10.57	1.79	12.36	30.00	17.64
				25	12	10.70	1.79	12.49	30.00	17.51
				25	25	10.74	1.79	12.53	30.00	17.47
				50	0	10.71	1.79	12.50	30.00	17.50
	43040 High	3545	QPSK	1	0	10.16	1.79	11.95	30.00	18.05
				1	24	10.23	1.79	12.02	30.00	17.98
				1	49	10.54	1.79	12.33	30.00	17.67
				25	0	10.45	1.79	12.24	30.00	17.76
				25	12	10.56	1.79	12.35	30.00	17.65
				25	25	10.60	1.79	12.39	30.00	17.61
				50	0	10.55	1.79	12.34	30.00	17.66
			16QAM	1	0	10.60	1.79	12.39	30.00	17.61
				1	24	10.72	1.79	12.51	30.00	17.49
				1	49	10.91	1.79	12.70	30.00	17.30
				25	0	10.57	1.79	12.36	30.00	17.64
				25	12	10.59	1.79	12.38	30.00	17.62
				25	25	10.64	1.79	12.43	30.00	17.57
				50	0	10.66	1.79	12.45	30.00	17.55
			64QAM	1	0	10.51	1.79	12.30	30.00	17.70
				1	24	10.57	1.79	12.36	30.00	17.64
				1	49	10.87	1.79	12.66	30.00	17.34
				25	0	10.55	1.79	12.34	30.00	17.66
				25	12	10.57	1.79	12.36	30.00	17.64
				25	25	10.63	1.79	12.42	30.00	17.58
				50	0	10.67	1.79	12.46	30.00	17.54

EIRP = Conducted Power* + Ant.Gain

* includes the losses such as cable or attenuator or combiners etc.

The test was performed with Gate function.

RF Output Power (Power Reduction)

Test place Ise EMC Lab.
Measurement Room No.10
Date April 10, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	EIRP	EIRP Limit	Margin
[MHz]	Ch.#	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
15	42165 Low	3457.5	QPSK	1	0	10.18	1.79	11.97	30.00	18.03
				1	37	10.53	1.79	12.32	30.00	17.68
				1	74	10.69	1.79	12.48	30.00	17.52
				36	0	10.65	1.79	12.44	30.00	17.56
				36	19	10.78	1.79	12.57	30.00	17.43
				36	39	10.81	1.79	12.60	30.00	17.40
				75	0	10.76	1.79	12.55	30.00	17.45
			16QAM	1	0	10.67	1.79	12.46	30.00	17.54
				1	37	10.93	1.79	12.72	30.00	17.28
				1	74	10.98	1.79	12.77	30.00	17.23
				36	0	10.74	1.79	12.53	30.00	17.47
				36	19	10.87	1.79	12.66	30.00	17.34
				36	39	10.89	1.79	12.68	30.00	17.32
				75	0	10.82	1.79	12.61	30.00	17.39
			64QAM	1	0	10.50	1.79	12.29	30.00	17.71
				1	37	10.78	1.79	12.57	30.00	17.43
				1	74	10.94	1.79	12.73	30.00	17.27
				36	0	10.76	1.79	12.55	30.00	17.45
				36	19	10.85	1.79	12.64	30.00	17.36
				36	39	10.87	1.79	12.66	30.00	17.34
				75	0	10.80	1.79	12.59	30.00	17.41
	42590 Mid	3500	QPSK	1	0	10.17	1.79	11.96	30.00	18.04
				1	37	10.36	1.79	12.15	30.00	17.85
				1	74	10.57	1.79	12.36	30.00	17.64
				36	0	10.47	1.79	12.26	30.00	17.74
				36	19	10.52	1.79	12.31	30.00	17.69
				36	39	10.66	1.79	12.45	30.00	17.55
				75	0	10.56	1.79	12.35	30.00	17.65
			16QAM	1	0	10.49	1.79	12.28	30.00	17.72
				1	37	10.86	1.79	12.65	30.00	17.35
				1	74	10.91	1.79	12.70	30.00	17.30
				36	0	10.48	1.79	12.27	30.00	17.73
				36	19	10.62	1.79	12.41	30.00	17.59
				36	39	10.76	1.79	12.55	30.00	17.45
				75	0	10.62	1.79	12.41	30.00	17.59
			64QAM	1	0	10.42	1.79	12.21	30.00	17.79
				1	37	10.56	1.79	12.35	30.00	17.65
				1	74	10.75	1.79	12.54	30.00	17.46
				36	0	10.48	1.79	12.27	30.00	17.73
				36	19	10.65	1.79	12.44	30.00	17.56
				36	39	10.78	1.79	12.57	30.00	17.43
				75	0	10.61	1.79	12.40	30.00	17.60
	43015 High	3542.5	QPSK	1	0	10.23	1.79	12.02	30.00	17.98
				1	37	10.20	1.79	11.99	30.00	18.01
				1	74	10.40	1.79	12.19	30.00	17.81
				36	0	10.40	1.79	12.19	30.00	17.81
				36	19	10.47	1.79	12.26	30.00	17.74
				36	39	10.55	1.79	12.34	30.00	17.66
				75	0	10.46	1.79	12.25	30.00	17.75
			16QAM	1	0	10.47	1.79	12.26	30.00	17.74
				1	37	10.57	1.79	12.36	30.00	17.64
				1	74	10.74	1.79	12.53	30.00	17.47
				36	0	10.45	1.79	12.24	30.00	17.76
				36	19	10.48	1.79	12.27	30.00	17.73
				36	39	10.58	1.79	12.37	30.00	17.63
				75	0	10.56	1.79	12.35	30.00	17.65
			64QAM	1	0	10.48	1.79	12.27	30.00	17.73
				1	37	10.61	1.79	12.40	30.00	17.60
				1	74	10.75	1.79	12.54	30.00	17.46
				36	0	10.52	1.79	12.31	30.00	17.69
				36	19	10.61	1.79	12.40	30.00	17.60
				36	39	10.60	1.79	12.39	30.00	17.61
				75	0	10.60	1.79	12.39	30.00	17.61

EIRP = Conducted Power* + Ant.Gain

* includes the losses such as cable or attenuator or combiners etc.

The test was performed with Gate function.

RF Output Power
(Power Reduction)

Test place Ise EMC Lab.
Measurement Room No.10
Date April 10, 2024
Temperature / Humidity 22 deg. C / 52 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modulation	UL RB	UL RB	Conducted Power	Ant.Gain	EIRP	EIRP Limit	Margin
[MHz]	Ch.#	[MHz]		Allocation	Start	[dBm]	[dBi]	[dBm]	[dBm]	[dB]
20	42190 Low	3460	QPSK	1	0	10.24	1.79	12.03	30.00	17.97
				1	49	10.59	1.79	12.38	30.00	17.62
				1	99	10.57	1.79	12.36	30.00	17.64
				50	0	10.74	1.79	12.53	30.00	17.47
				50	24	10.90	1.79	12.69	30.00	17.31
				50	50	10.91	1.79	12.70	30.00	17.30
				100	0	10.72	1.79	12.51	30.00	17.49
			16QAM	1	0	10.70	1.79	12.49	30.00	17.51
				1	49	10.96	1.79	12.75	30.00	17.25
				1	99	10.99	1.79	12.78	30.00	17.22
				50	0	10.85	1.79	12.64	30.00	17.36
				50	24	10.98	1.79	12.77	30.00	17.23
				50	50	10.97	1.79	12.76	30.00	17.24
				100	0	10.82	1.79	12.61	30.00	17.39
			64QAM	1	0	10.46	1.79	12.25	30.00	17.75
				1	49	10.81	1.79	12.60	30.00	17.40
				1	99	10.84	1.79	12.63	30.00	17.37
				50	0	10.79	1.79	12.58	30.00	17.42
				50	24	10.93	1.79	12.72	30.00	17.28
				50	50	10.97	1.79	12.76	30.00	17.24
				100	0	10.83	1.79	12.62	30.00	17.38
	42590 Mid	3500	QPSK	1	0	10.11	1.79	11.90	30.00	18.10
				1	49	10.33	1.79	12.12	30.00	17.88
				1	99	10.57	1.79	12.36	30.00	17.64
				50	0	10.49	1.79	12.28	30.00	17.72
				50	24	10.58	1.79	12.37	30.00	17.63
				50	50	10.72	1.79	12.51	30.00	17.49
				100	0	10.51	1.79	12.30	30.00	17.70
			16QAM	1	0	10.58	1.79	12.37	30.00	17.63
				1	49	10.82	1.79	12.61	30.00	17.39
				1	99	10.92	1.79	12.71	30.00	17.29
				50	0	10.61	1.79	12.40	30.00	17.60
				50	24	10.70	1.79	12.49	30.00	17.51
				50	50	10.84	1.79	12.63	30.00	17.37
				100	0	10.60	1.79	12.39	30.00	17.61
			64QAM	1	0	10.41	1.79	12.20	30.00	17.80
				1	49	10.62	1.79	12.41	30.00	17.59
				1	99	10.84	1.79	12.63	30.00	17.37
				50	0	10.53	1.79	12.32	30.00	17.68
				50	24	10.71	1.79	12.50	30.00	17.50
				50	50	10.85	1.79	12.64	30.00	17.36
				100	0	10.61	1.79	12.40	30.00	17.60
	42990 High	3540	QPSK	1	0	10.34	1.79	12.13	30.00	17.87
				1	49	10.13	1.79	11.92	30.00	18.08
				1	99	10.40	1.79	12.19	30.00	17.81
				50	0	10.47	1.79	12.26	30.00	17.74
				50	24	10.49	1.79	12.28	30.00	17.72
				50	50	10.55	1.79	12.34	30.00	17.66
				100	0	10.43	1.79	12.22	30.00	17.78
			16QAM	1	0	10.61	1.79	12.40	30.00	17.60
				1	49	10.58	1.79	12.37	30.00	17.63
				1	99	10.74	1.79	12.53	30.00	17.47
				50	0	10.58	1.79	12.37	30.00	17.63
				50	24	10.53	1.79	12.32	30.00	17.68
				50	50	10.60	1.79	12.39	30.00	17.61
				100	0	10.49	1.79	12.28	30.00	17.72
			64QAM	1	0	10.61	1.79	12.40	30.00	17.60
				1	49	10.47	1.79	12.26	30.00	17.74
				1	99	10.69	1.79	12.48	30.00	17.52
				50	0	10.53	1.79	12.32	30.00	17.68
				50	24	10.55	1.79	12.34	30.00	17.66
				50	50	10.61	1.79	12.40	30.00	17.60
				100	0	10.49	1.79	12.28	30.00	17.72

EIRP = Conducted Power* + Ant.Gain
* includes the losses such as cable or attenuator or combiners etc.
The test was performed with Gate function.

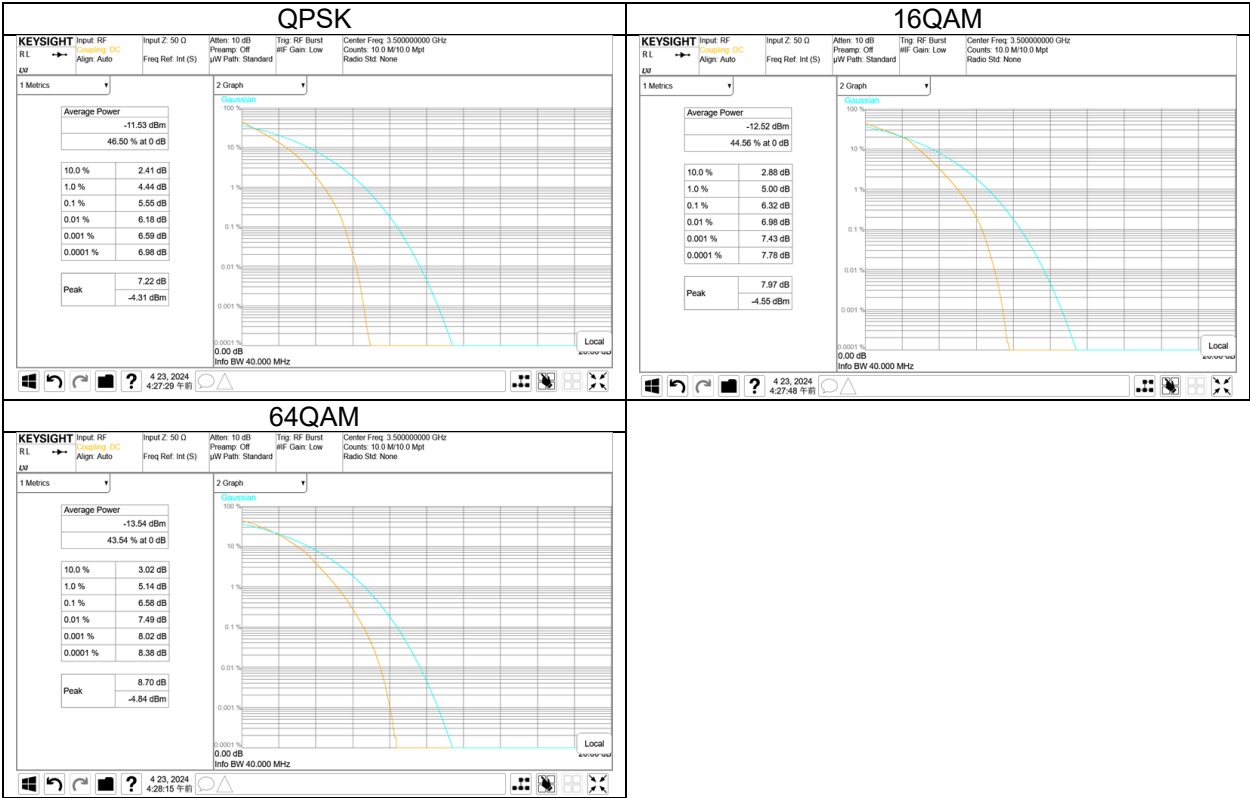
Peak to Average power Ratio

Test place Ise EMC Lab.
Measurement Room No.2
Date April 23, 2024
Temperature / Humidity 24 deg. C / 56 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW [MHz]	UL Ch #	Freq. [MHz]	Modulation	UL RB Allocation	UL RB Start	Peak-to-Average Ratio (PAR) [dB]	Limit [dB]	Margin [dB]
5	42590	3500	QPSK	25	0	5.55	13	7.45
			16QAM	25	0	6.32	13	6.68
			64QAM	25	0	6.58	13	6.42
10	42590	3500	QPSK	50	0	5.62	13	7.38
			16QAM	50	0	6.27	13	6.73
			64QAM	50	0	6.51	13	6.49
15	42590	3500	QPSK	75	0	5.43	13	7.57
			16QAM	75	0	6.22	13	6.78
			64QAM	75	0	6.48	13	6.52
20	42590	3500	QPSK	100	0	5.42	13	7.58
			16QAM	100	0	6.22	13	6.78
			64QAM	100	0	6.47	13	6.53

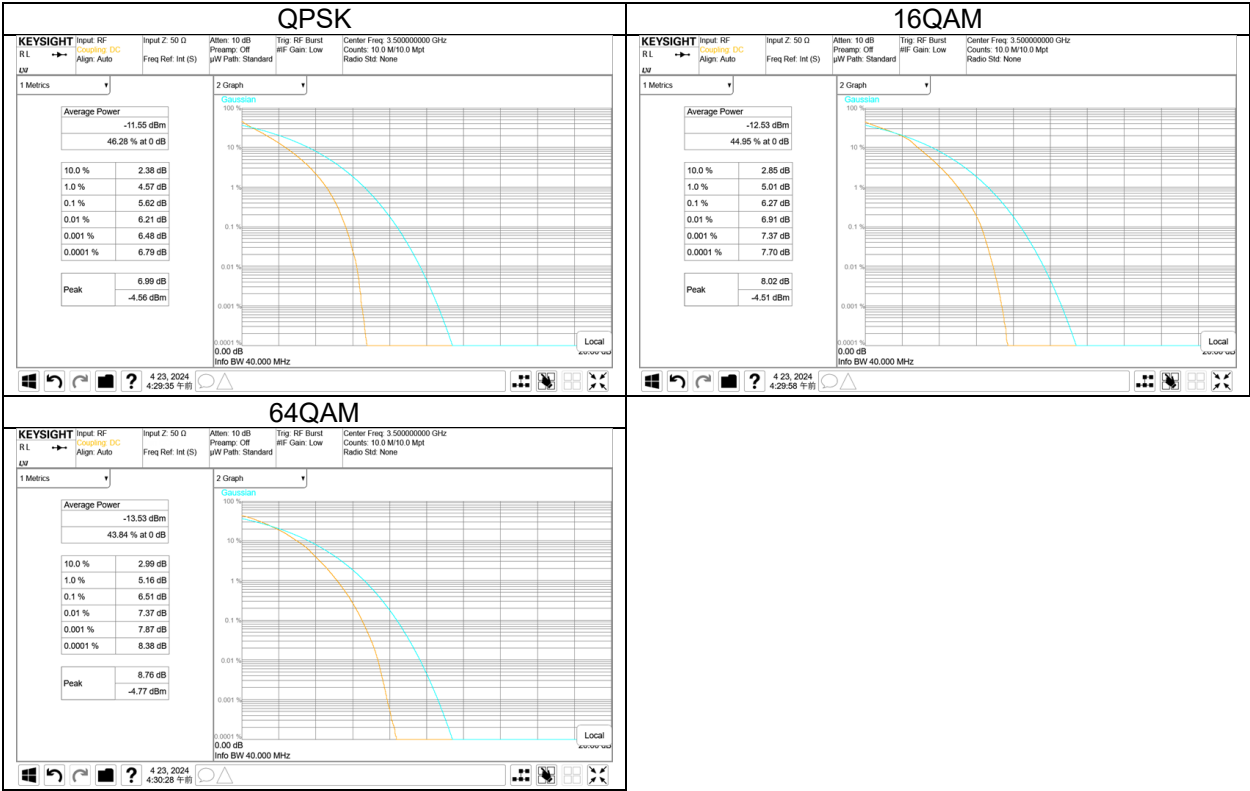
Peak to Average power Ratio

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 5 MHz, 3500 MHz, RB25-0



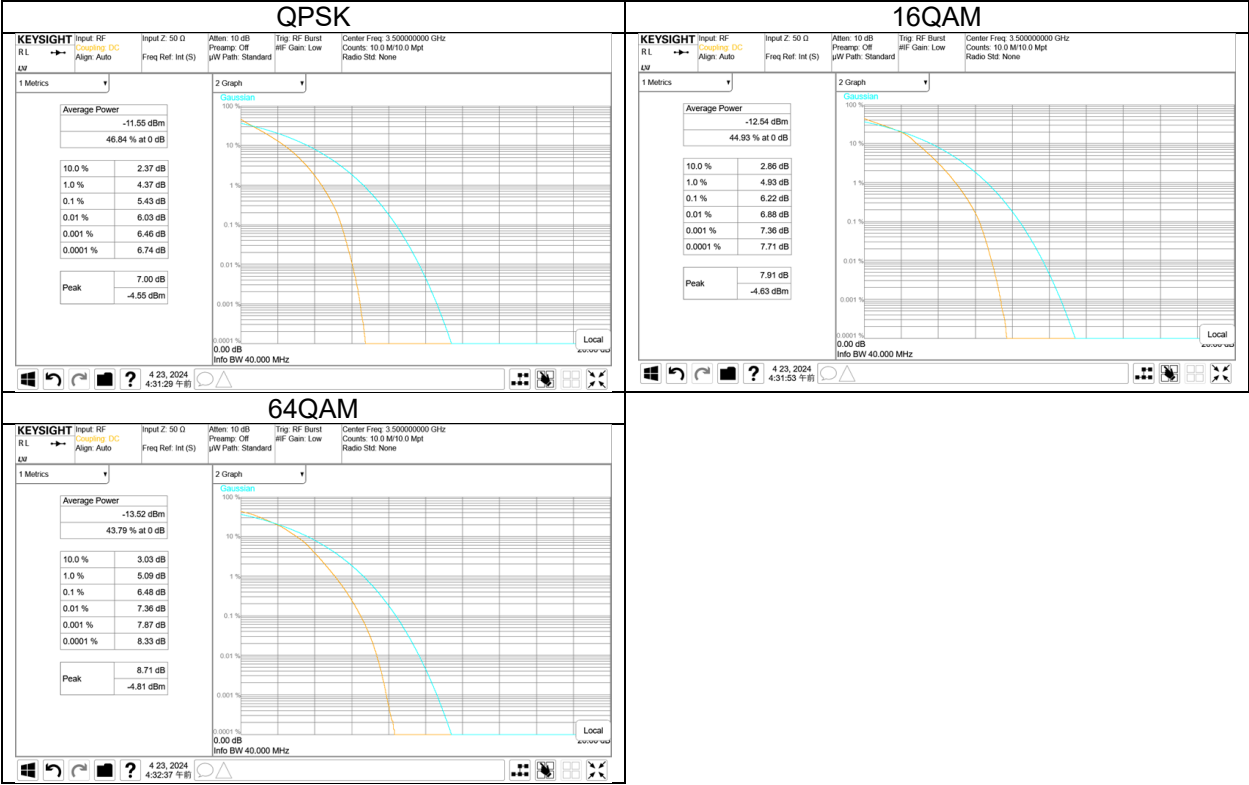
Peak to Average power Ratio

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 10 MHz, 3500 MHz, RB50-0



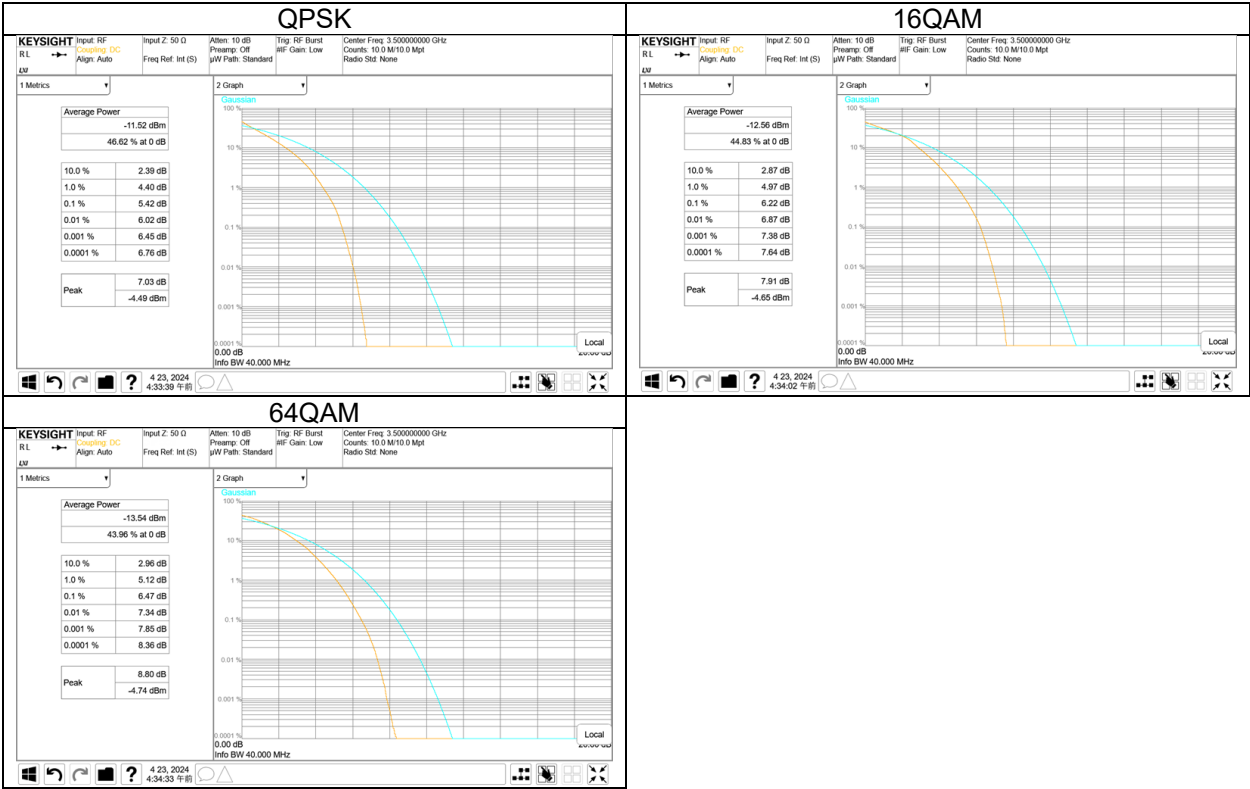
Peak to Average power Ratio

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 15 MHz, 3500 MHz, RB75-0



Peak to Average power Ratio

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 20 MHz, 3500 MHz, RB100-0



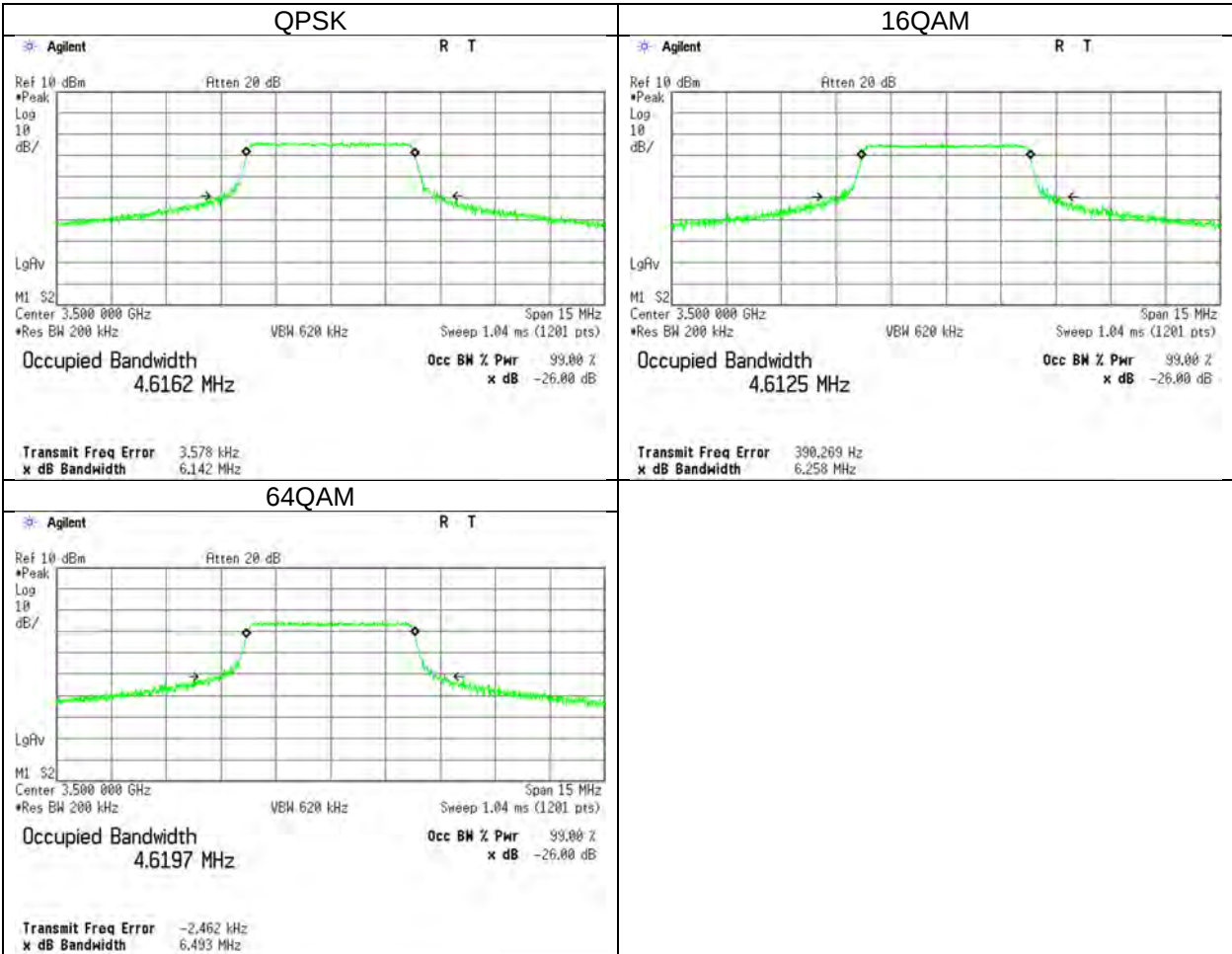
99 % Occupied Bandwidth and 26 dB Bandwidth

Test place Ise EMC Lab.
Measurement Room No.2
Date April 23, 2024
Temperature / Humidity 24 deg. C / 56 % RH
Engineer Takafumi Noguchi
Mode LTE Band 42

BW	UL	Freq.	Modu-	UL RB	UL RB	99%	26 dB Bandwidth
[MHz]	Ch #	[MHz]	lation	Allocation	Start	Occupied bandwidth	[MHz]
5	42590 Mid	3500	QPSK	25	0	4.6162	6.142
			16QAM	25	0	4.6125	6.258
			64QAM	25	0	4.6197	6.493
10	42590 Mid	3500	QPSK	50	0	8.9943	9.843
			16QAM	50	0	8.9890	9.879
			64QAM	50	0	8.9859	9.974
15	42590 Mid	3500	QPSK	75	0	13.4075	14.860
			16QAM	75	0	13.4219	15.092
			64QAM	75	0	13.4472	14.873
20	42590 Mid	3500	QPSK	100	0	17.8551	19.219
			16QAM	100	0	17.8529	19.330
			64QAM	100	0	17.8499	19.243

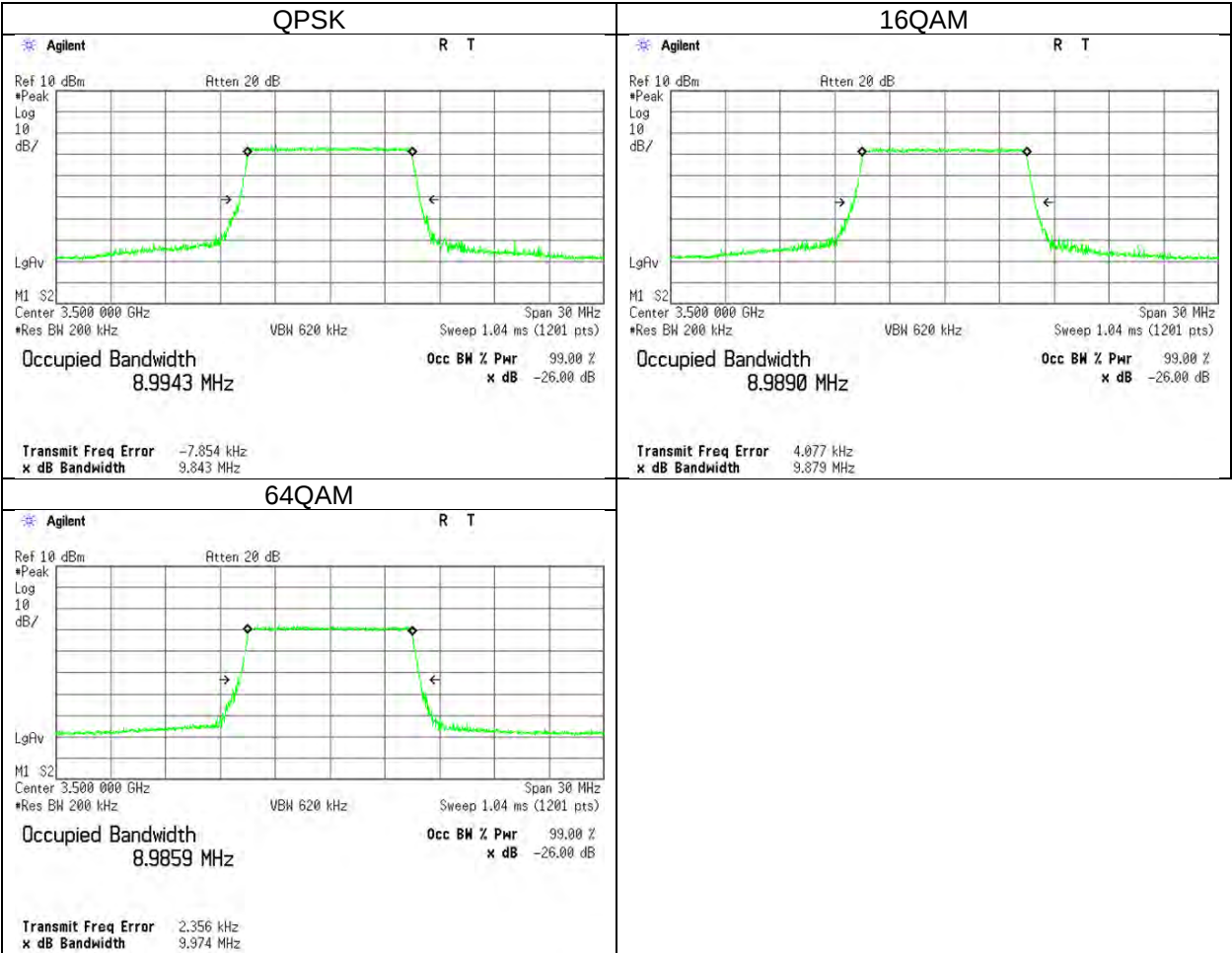
99 % Occupied Bandwidth and 26 dB Bandwidth

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 5 MHz, 3500 MHz, RB25-0



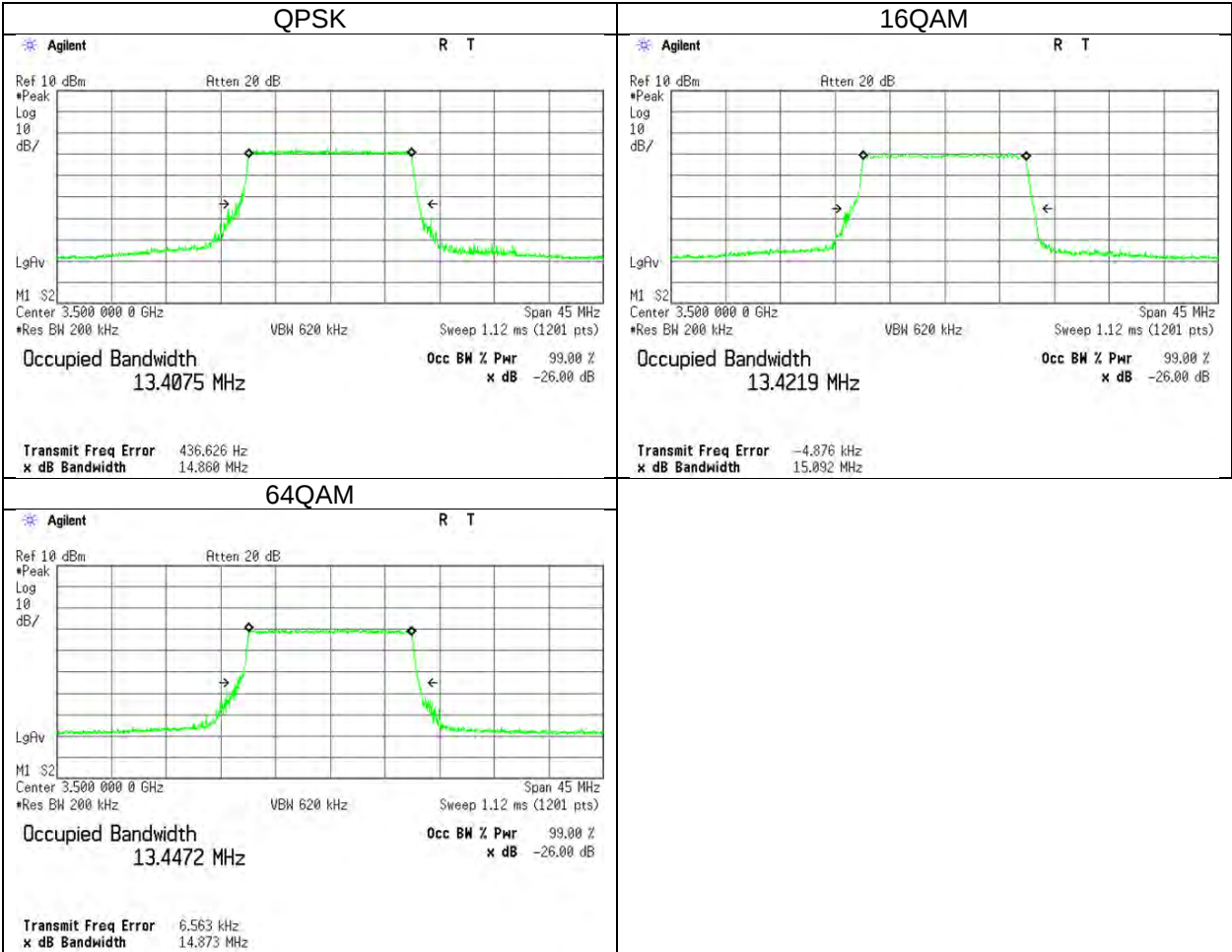
99 % Occupied Bandwidth and 26 dB Bandwidth

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 10 MHz, 3500 MHz, RB50-0



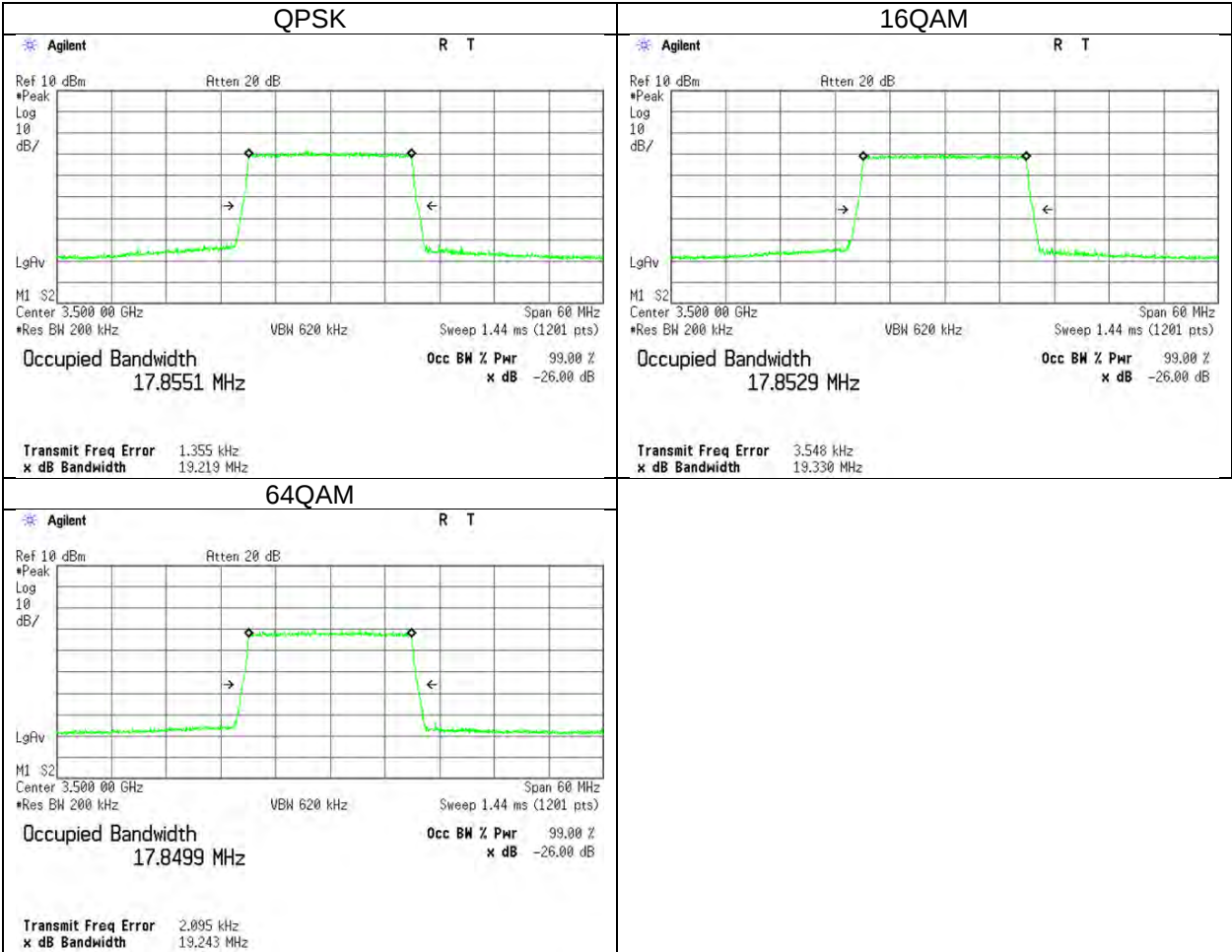
99 % Occupied Bandwidth and 26 dB Bandwidth

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 15 MHz, 3500 MHz, RB75-0



99 % Occupied Bandwidth and 26 dB Bandwidth

Test place	Ise EMC Lab.
Measurement Room	No.2
Date	April 23, 2024
Temperature / Humidity	24 deg. C / 56 % RH
Engineer	Takafumi Noguchi
Mode	LTE Band 42, BW 20 MHz, 3500 MHz, RB100-0

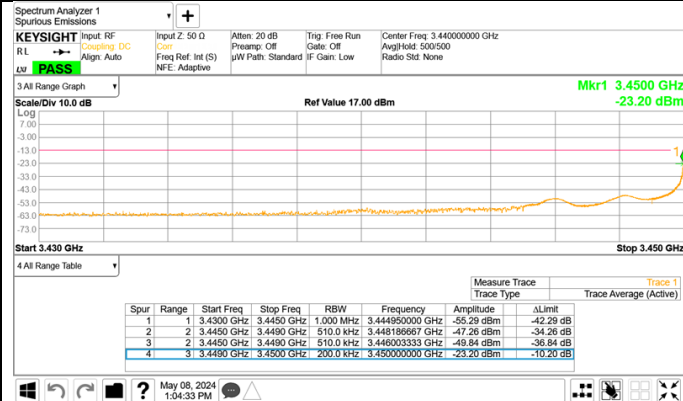


Out of Band Emission

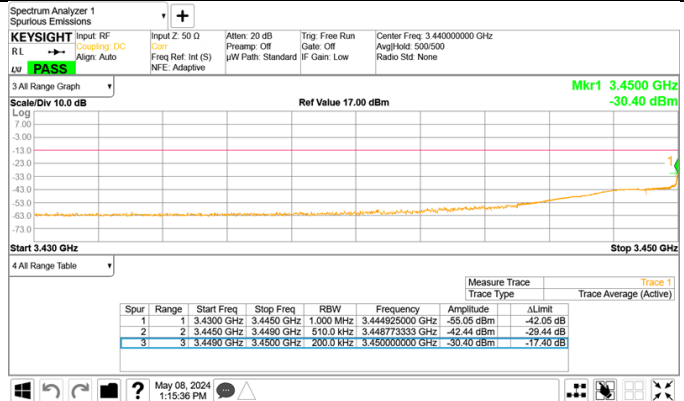
Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.8
May 8, 2024
24 deg. C / 49 % RH
Takafumi Noguchi
LTE Band 42, BW 5 MHz, 3452.5 MHz

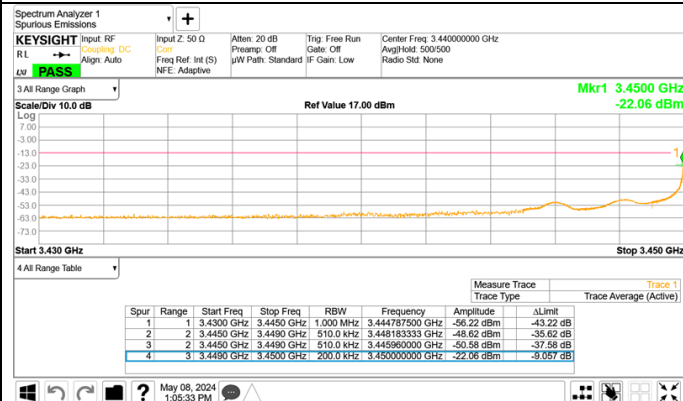
RB1-0 QPSK



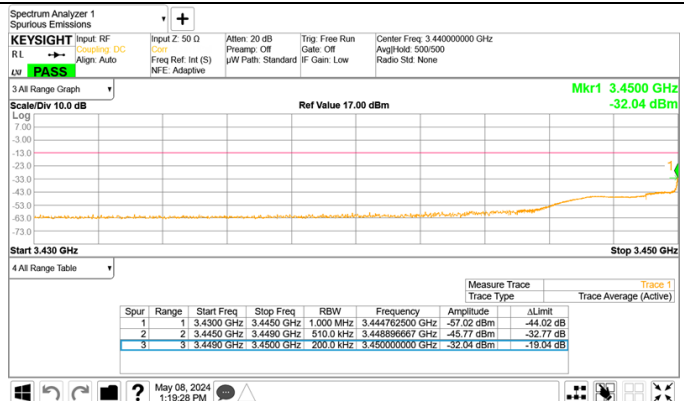
RB25-0 QPSK



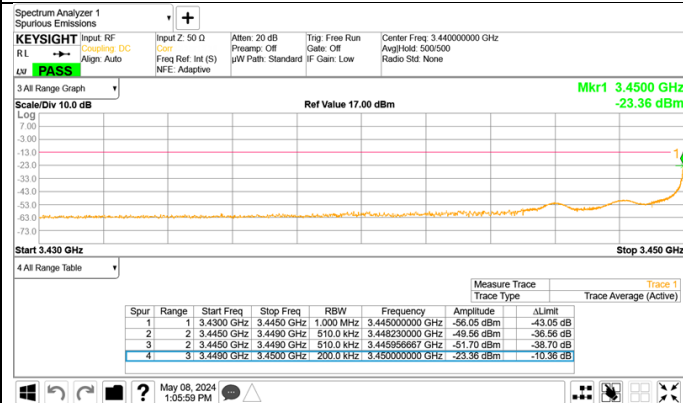
16QAM



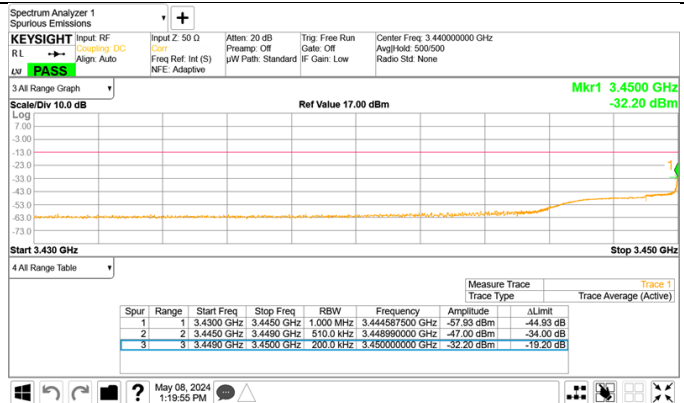
16QAM



64QAM



64QAM



Out of Band Emission

Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.8
May 8, 2024
24 deg. C / 49 % RH
Takafumi Noguchi
LTE Band 42, BW 5 MHz, 3547.5 MHz



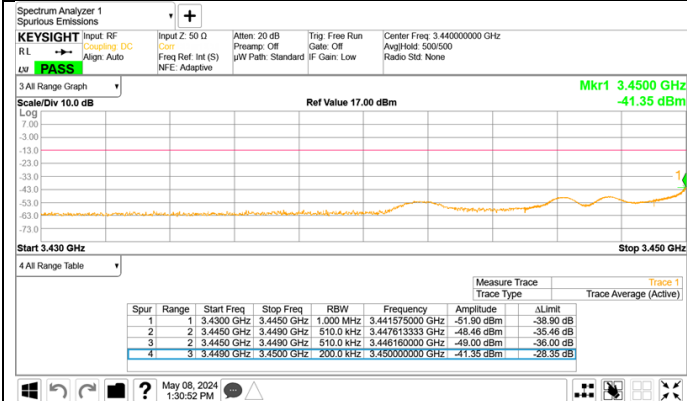
Out of Band Emission

Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.8
May 8, 2024
24 deg. C / 49 % RH
Takafumi Noguchi
LTE Band 42, BW 10 MHz, 3455 MHz

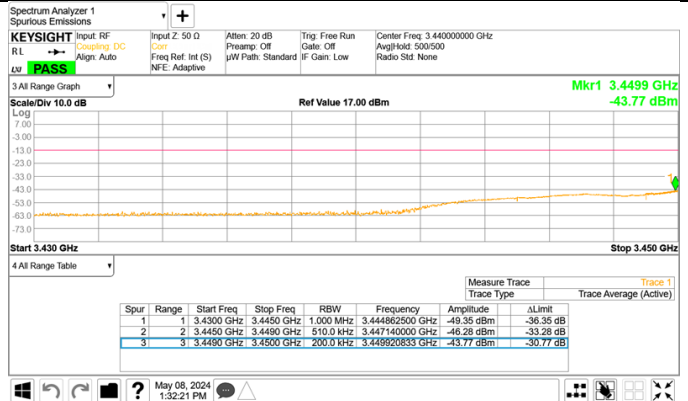
RB1-0

QPSK

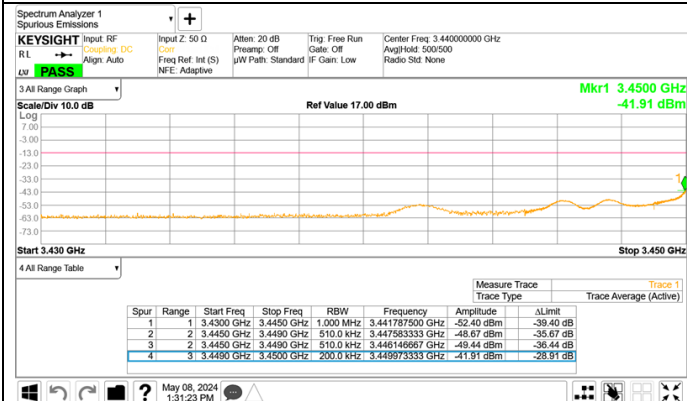


RB50-0

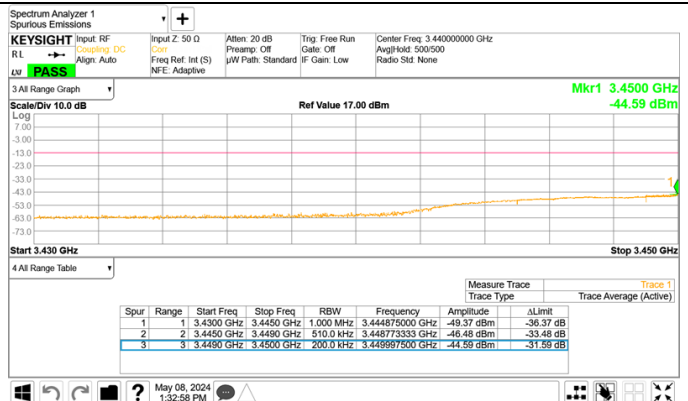
QPSK



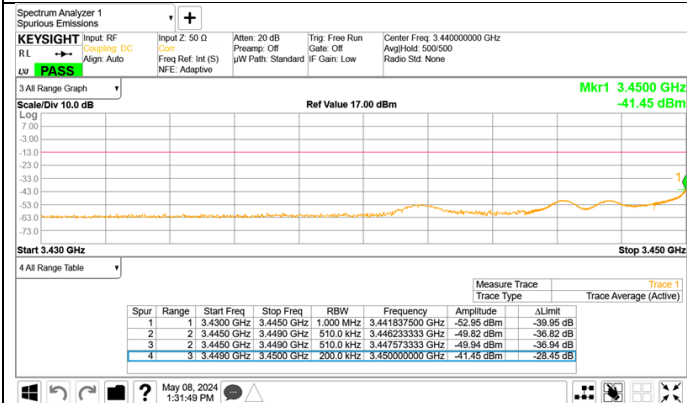
16QAM



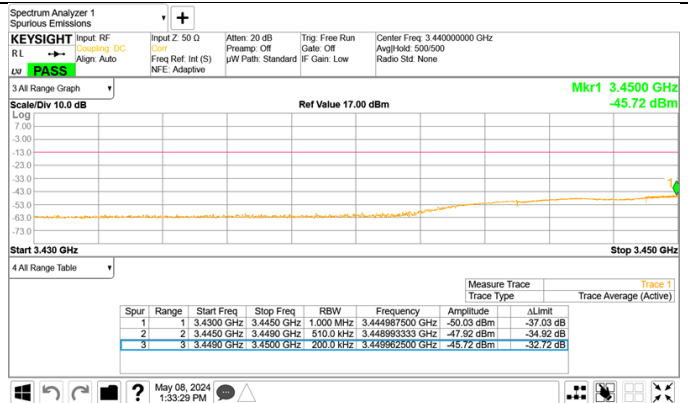
16QAM



64QAM



64QAM



Out of Band Emission

Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.8
May 8, 2024
24 deg. C / 49 % RH
Takafumi Noguchi
LTE Band 42, BW 10 MHz, 3545 MHz

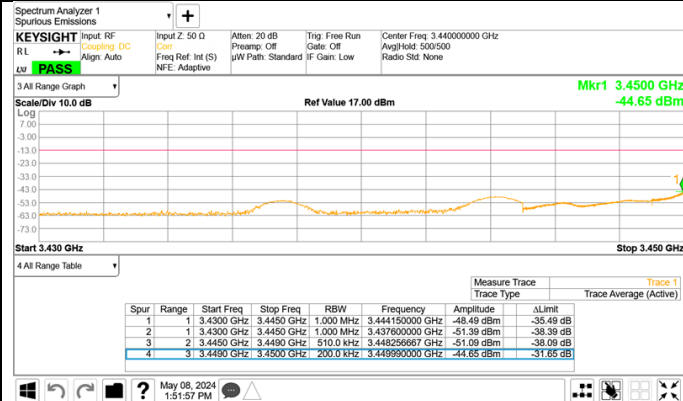


Out of Band Emission

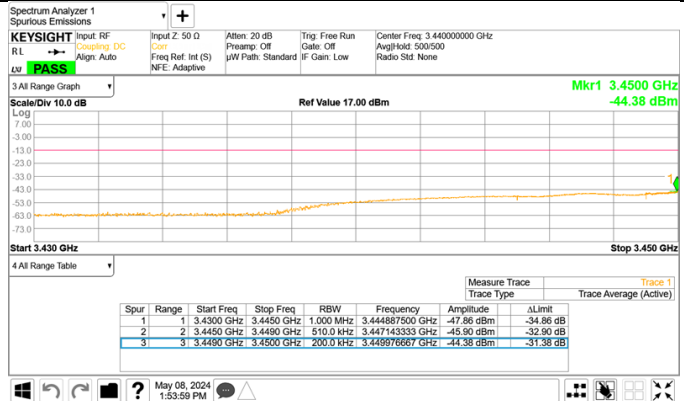
Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.8
May 8, 2024
24 deg. C / 49 % RH
Takafumi Noguchi
LTE Band 42, BW 15 MHz, 3457.5 MHz

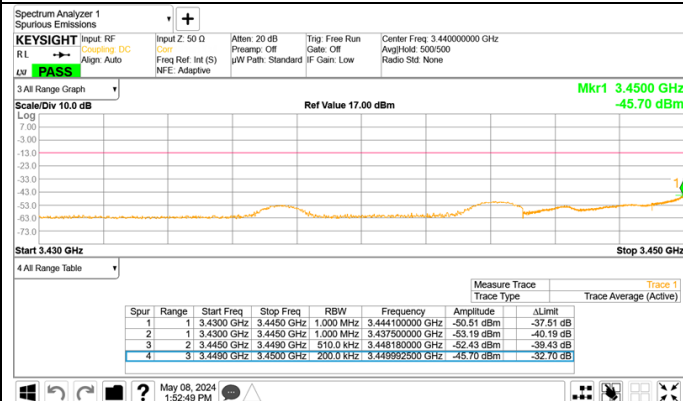
RB1-0 QPSK



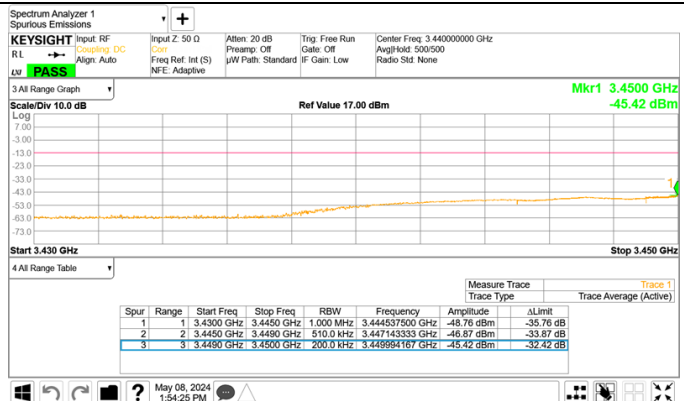
RB75-0 QPSK



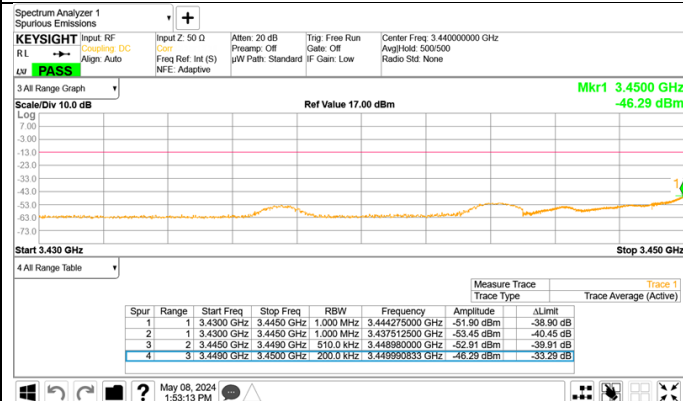
16QAM



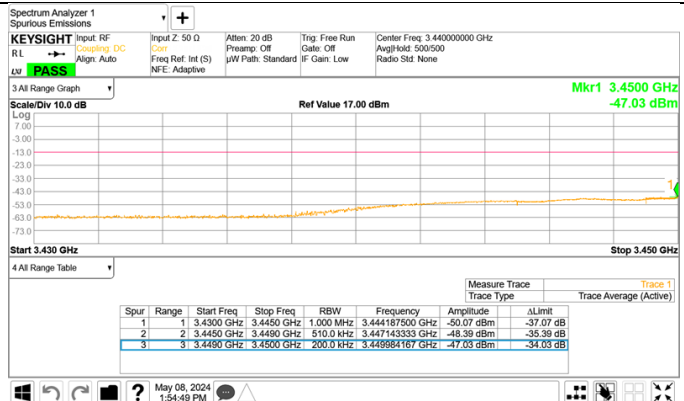
16QAM



64QAM



64QAM

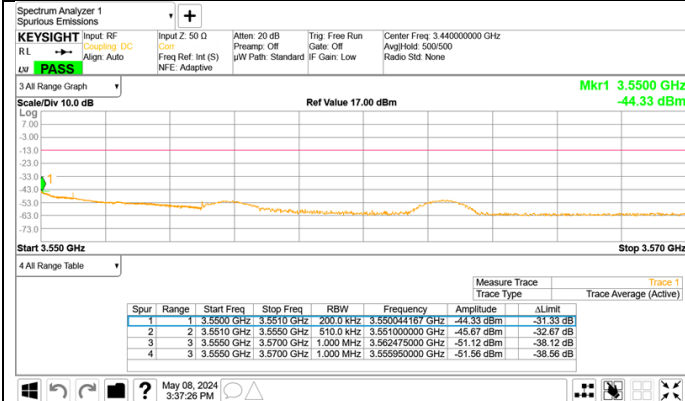


Out of Band Emission

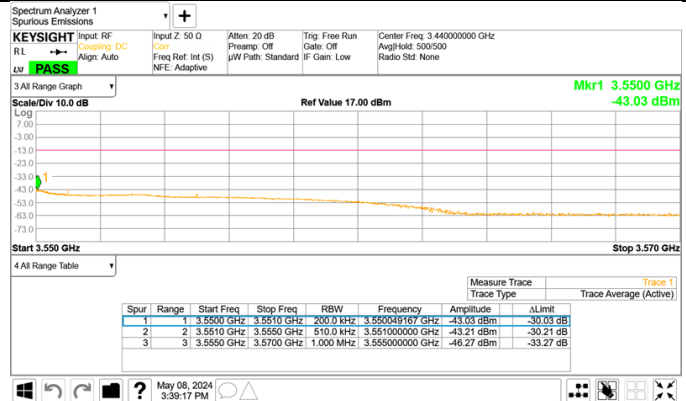
Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.8
May 8, 2024
24 deg. C / 49 % RH
Takafumi Noguchi
LTE Band 42, BW 15 MHz, 3542.5 MHz

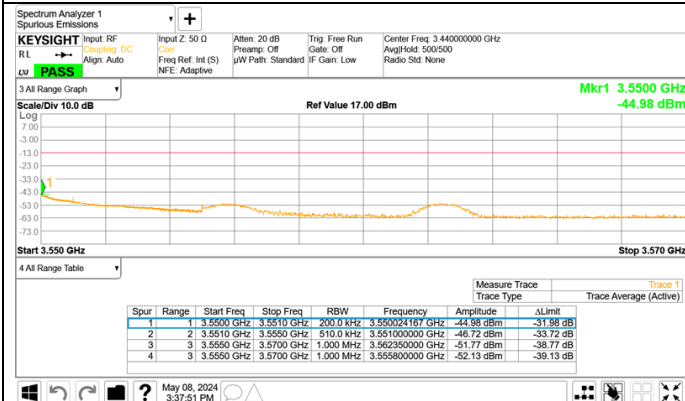
RB1-74 QPSK



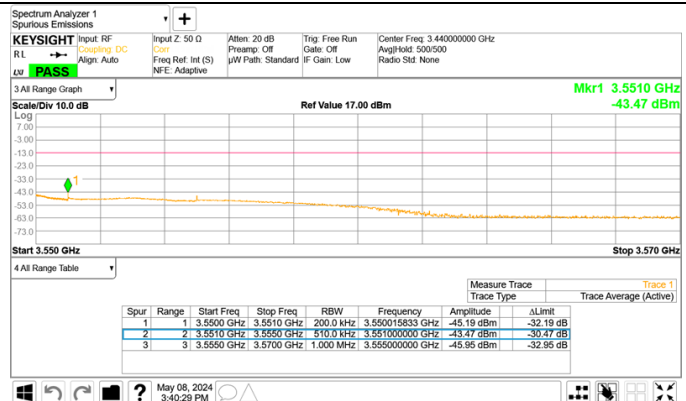
RB75-0 QPSK



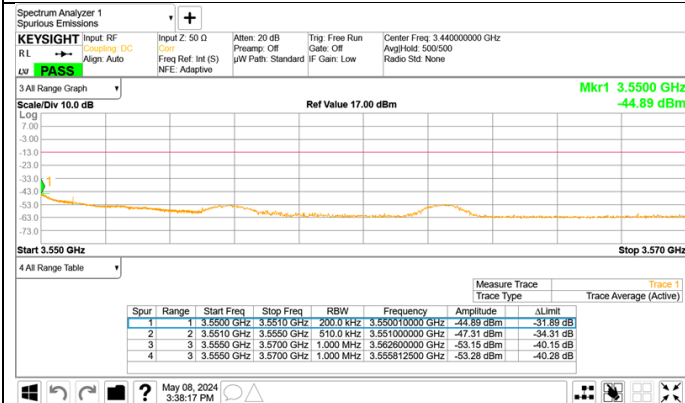
16QAM



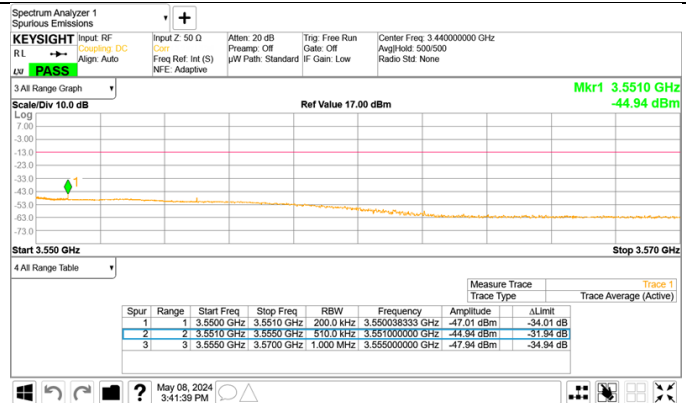
16QAM



64QAM



64QAM



Out of Band Emission

Test place
Measurement Room
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab.
No.8
May 8, 2024
24 deg. C / 49 % RH
Takafumi Noguchi
LTE Band 42, BW 20 MHz, 3460 MHz

