



# RADIO TEST REPORT

**Test Report No. : 13274888H-F-R1**

**Applicant** : SOURCENEXT CORPORATION  
**Type of EUT** : POCKETALK S  
**Model Number of EUT** : PTS  
**FCC ID** : 2AOJA-PTS  
**Test regulation** : **FCC Part 22 Subpart H: 2017**  
**FCC Part 24 Subpart E: 2008**  
**FCC Part 27 Subpart C: 2014**  
**FCC Part 90 Subpart S: 2018**  
**Test Result** : **Complied (Refer to SECTION 3.2)**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
6. The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
7. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.
8. The information provided from the customer for this report is identified in SECTION 1.
9. This report is a revised version of 13274888H-F. 13274888H-F is replaced with this report.

**Date of test:** December 10, 2019 to April 15, 2020

**Representative test engineer:** *T. Nakagawa*  
 Tomohisa Nakagawa  
 Engineer  
 Consumer Technology Division

**Approved by:** *Takayuki S.*  
 Takayuki Shimada  
 Leader  
 Consumer Technology Division



This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation. \*As for the range of Accreditation in NVLAP, you may refer to the WEB address, [http://japan.ul.com/resources/emc\\_accredited/](http://japan.ul.com/resources/emc_accredited/)

- This report contains data that are not covered by the NVLAP accreditation.  
 There is no testing item of "Non-accreditation".

## **REVISION HISTORY**

**Original Test Report No.: 13274888H-F**

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13274888H-F	April 3, 2020	-	-
1	13274888H-F-R1	April 16, 2020	P29	Added the measurement information of LTE Band 7
1	13274888H-F-R1	April 16, 2020	P37 - 39	Measurement data is replaced for LTE band 2
1	13274888H-F-R1	April 16, 2020	P186	Added date of usage for Test instruments

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**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## Reference: Abbreviations (Including words undescribed in this report)

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

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### Ise EMC Lab.

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

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## **SECTION 1 : Customer information**

Company Name : SOURCENEXT CORPORATION  
Address : Shiodome City Center 33F, 1-5-2 Higashi Shimbashi Minato-ku, Tokyo  
105-7133, Japan  
Telephone Number : +81-50-5533-9606  
Facsimile Number : +81-3-6430-6405  
Contact Person : Yukio Aotani

The information provided from the customer is as follows;

- Applicant, Type of Equipment, Model No., 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
- SECTION 4: Operation of EUT during testing

\* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2 and 4.

## **SECTION 2 : Equipment under test (EUT)**

### **2.1 : Identification of EUT**

Type of Equipment : POCKETALK S  
Model No. : PTS  
Serial No. : Refer to SECTION 4.2  
Rating : DC 3.8 V (Lithium-ion battery)  
AC 100 V to AC 240 V (AC Adapter)  
Receipt Date of Sample : November 14, 2019  
Country of Mass-production : China  
Condition of EUT : Production prototype  
(Not for Sale: This sample is equivalent to mass-produced items.)  
Modification of EUT : No Modification by the test lab.

### **2.2 : Product Description**

Model: PTS (referred to as the EUT in this report) is a POCKETALK S.

There are 2 versions. One has eSIM and SIM slot. Another has only SIM slot. Also there are some color variations.

### **General Specification**

Operating Temperature : 0 deg. C to +40 deg. C

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**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

**Radio Specification (1/2)**

**WLAN (IEEE802.11b/g/a/n-20/n-40)**

Type of radio	IEEE802.11b	IEEE802.11g/n-20	IEEE802.11n-40	IEEE802.11a/n-20	IEEE802.11n-40
Frequency of operation	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz	2422 MHz - 2452 MHz	5180 MHz - 5240 MHz 5260 MHz - 5320 MHz 5500 MHz - 5700 MHz	5190 MHz - 5230 MHz 5270 MHz - 5310 MHz 5510 MHz - 5670 MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)		OFDM (64QAM, 16QAM, QPSK, BPSK)	
Channel spacing	5 MHz			20 MHz	40 MHz
Antenna type	Planar Inverted-F Antenna				
Antenna Gain	2.4 GHz: 1.25 dBi 5 GHz: 0.36 dBi				
Clock frequency	26 MHz				

**Bluetooth (BR/EDR, Low Energy)**

	BR/EDR	Low Energy
Frequency of operation	2402 MHz - 2480 MHz	
Type of modulation	FHSS (GFSK, $\pi/4$ DQPSK, 8DPSK)	GFSK
Channel spacing	1 MHz	2 MHz
Antenna type	Planar Inverted-F Antenna	
Antenna Gain	1.25 dBi	
Clock frequency	26 MHz	

**GNSS**

Radio Type	Receiver
Frequency of Operation	See table below.
Antenna type	Planar Inverted-F Antenna
Antenna Gain	-0.45 dBi
Clock frequency	26 MHz

**Supported GNSS and GNSS signals**

GNSS	RNSS Frequency Band / Frequency [MHz]		
	1559 to 1610	1215 to 1300	1164 to 1215
BDS	<input type="checkbox"/> B1I 1561.098	-	-
Galileo	<input type="checkbox"/> E1 1575.42	<input type="checkbox"/> E6 1278.75	<input type="checkbox"/> E5a 1176.45 <input type="checkbox"/> E5b 1207.14
GLONASS	<input checked="" type="checkbox"/> G1 1598.0625 - 1605.375	<input type="checkbox"/> G2 1242.9375 - 1248.625	-
GPS	<input checked="" type="checkbox"/> L1 1575.42	<input type="checkbox"/> L2 1227.6	<input type="checkbox"/> L5 1176.45
SBAS	<input type="checkbox"/> L1 1575.42	-	<input type="checkbox"/> L5 1176.45

- Supported GNSS signal  
 Not supported GNSS signal

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**Ise EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8999  
Facsimile : +81 596 24 8124

**Radio Specification (2/2)**

**GSM**

Equipment Type	Transceiver	
Frequency of Operation	[Up Link] PCS1900: 1850 MHz to 1910 MHz GSM850: 824 MHz to 849 MHz	[Down Link] PCS1900: 1930 MHz to 1990 MHz GSM850: 869 MHz to 894 MHz
Type of Modulation	GMSK, 8-PSK	
Multi-Slot Class	GPRS:12(4 Down/4 Up/5 Sum) EGPRS:12(4 Down/4 Up/5 Sum)	
Voice & Data communication	Data only	
Antenna Type	Planar Inverted-F Antenna	
Antenna Gain	PCS1900: 1850 MHz to 1910 MHz: -4.61 dBi GSM850 824 MHz to 849 MHz: -4.81 dBi	

**WCDMA**

Equipment Type	Transceiver	
Frequency of Operation	[Up Link] Band 2: 1850 MHz to 1910 MHz Band 5: 824 MHz to 849 MHz	[Down Link] Band 2: 1930 MHz to 1990 MHz Band 5: 869 MHz to 894 MHz
Type of Modulation	QPSK	
Voice & Data communication	Data only	
Antenna Type	Planar Inverted-F Antenna	
Antenna Gain	Band 2: 1850 MHz to 1910 MHz: -4.61 dBi Band 5 824 MHz to 849 MHz: -4.81 dBi	

**LTE**

Equipment Type	Transceiver	
Frequency of Operation	[Up Link] Band 2: 1850 MHz to 1910 MHz Band 5: 824 MHz to 849 MHz Band 7: 2500 MHz to 2570 MHz Band 26: 814 MHz to 849 MHz	[Down Link] Band 2: 1930 MHz to 1990 MHz Band 5: 869 MHz to 894 MHz Band 7: 2620 MHz to 2690 MHz Band 26: 859 MHz to 894 MHz
Type of Modulation	QPSK, 16QAM, 64QAM	
Voice & Data communication	Data only	
Antenna Gain	Band 2: 1850 MHz to 1910 MHz: -4.61 dBi Band 5: 824 MHz to 849 MHz: -4.81 dBi Band 7: 2500 MHz to 2570 MHz: -2.15 dBi Band 26: 814 MHz to 849 MHz: -4.81 dBi	

\*This test report applies to GSM, W-CDMA and LTE parts.

\* WLAN and Bluetooth do not transmit simultaneously.

## **SECTION 3 : Test specification, procedures & results**

### **3.1 : Test Specification**

Test Specification	:	FCC Part 22 Subpart H final revised on September 1, 2017
Title	:	FCC 47CFR Part 22 PUBLIC MOBILE SERVICES Subpart H Cellular Radiotelephone Service
Test Specification	:	FCC Part 24 Subpart E final revised on May 2, 2008
Title	:	FCC 47CFR Part 24 PERSONAL COMMUNICATIONS SERVICES Subpart E Broadband PCS
Test Specification	:	FCC Part 27 Subpart C final revised on August 5, 2014
Title	:	FCC 47CFR Part 27 MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES Subpart C Technical Standards
Test Specification	:	FCC Part 90 Subpart S revised on November 27, 2018
Title	:	FCC 47CFR Part 90 PRIVATE LAND MOBILE RADIO SERVICES Subpart S Regulations Governing Licensing and Use of Frequencies in the 806-824, 851-869, 896-901, and 935-940 MHz Bands

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



### 3.2 : Procedures and results

#### Part 22

Item	Test Specification & Procedure	Remarks	Deviation	Worst margin	Results
RF Output Power (Conducted) (Conducted Output Power / Effective radiated power(ERP))	FCC 2.1046 FCC 22.913(a)(2)	Conducted/ Radiated	N/A	-	Complied a)
Emission Bandwidth, 99% Occupied Bandwidth	FCC 2.1049 FCC 22.917	Conducted	N/A	-	Complied b)
Band-Edge	FCC 2.1051 FCC 2.1053 FCC 22.917	Conducted/ Radiated	N/A	-	Complied c)
Spurious Emission(Conducted)	FCC 2.1051 FCC 22.917	Conducted	N/A	-	Complied d)
Spurious Emission(Radiated)	FCC 2.1053 FCC 22.917	Radiated	N/A	<b>GSM850:</b> 8.5 dB, 1648.400 MHz, Vertical, PK	Complied e)
Frequency Stability (Temperature Variation)	FCC 2.1055(a)(1)(b) FCC 22.355	Conducted	N/A	-	Complied f)
Frequency Stability (Voltage Variation)	FCC 2.1055(d)(1)(2) FCC 22.355	Conducted	N/A	-	Complied f)

#### Part 24

Item	Test Specification & Procedure	Remarks	Deviation	Worst margin	Results
RF Output Power(Conducted/ Radiated) (Conducted Output Power / Equivalent isotropic radiated power(EIRP))	FCC 2.1046 FCC 24.232(c)	Conducted/ Radiated	N/A	-	Complied a)
Peak to Average power Ratio	FCC 24.232(d)	Conducted	N/A	-	Complied g)
Emission Bandwidth, 99% Occupied Bandwidth	FCC 2.1049 FCC 24.238	Conducted	N/A	-	Complied b)
Band-Edge	FCC 2.1051 FCC 2.1053 FCC 24.238	Conducted/ Radiated	N/A	-	Complied c)
Spurious Emission(Conducted)	FCC 2.1051 FCC 24.238	Conducted	N/A	-	Complied d)
Spurious Emission(Radiated)	FCC 2.1053 FCC 24.238	Radiated	N/A	<b>LTE Band 2:</b> 5.7 dB, 5640.000 MHz, Vertical, PK	Complied# e)
Frequency Stability (Temperature Variation)	FCC 2.1055(a)(1)(b) FCC 24.235	Conducted	N/A	-	Complied f)
Frequency Stability (Voltage Variation)	FCC 2.1055(d)(1)(2) FCC 24.235	Conducted	N/A	-	Complied f)

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

**Part 27**

Item	Test Specification & Procedure	Remarks	Deviation	Worst margin	Results
RF Output Power(Conducted) (Conducted Output Power / Equivalent isotropic radiated power(EIRP))	FCC 2.1046 FCC 27.50	Conducted/ Radiated	N/A	-	Complied a)
Peak to Average power Ratio	FCC 27.50	Conducted	N/A	-	Complied g)
Emission Bandwidth, 99 % Occupied Bandwidth	FCC 2.1049	Conducted	N/A	-	Complied b)
Band-Edge	FCC 2.1051 FCC 2.1053 FCC 27.53	Conducted/ Radiated	N/A	-	Complied c)
Spurious Emission(Conducted)	FCC 2.1051 FCC 27.53	Conducted	N/A	-	Complied d)
Spurious Emission(Radiated)	FCC 2.1053 FCC 27.53	Radiated	N/A	<b>Band 7:</b> 0.8 dB, 10140.000 MHz, Vertical, PK	Complied e)
Frequency Stability (Temperature Variation)	FCC 2.1055 FCC 27.54	Conducted	N/A	-	Complied f)
Frequency Stability (Voltage Variation)	FCC 2.1055 FCC 27.54	Conducted	N/A	-	Complied f)

**Part 90**

Item	Test Specification & Procedure	Remarks	Deviation	Worst margin	Results
RF Output Power(Conducted) (Conducted Output Power / Effective radiated power(ERP))	FCC 2.1046 FCC 90.635	Conducted/ Radiated	N/A	-	Complied a)
Peak to Average power Ratio	-	Conducted	N/A	-	Complied g)
Emission Bandwidth, 99 % Occupied Bandwidth	FCC 2.1049	Conducted	N/A	-	Complied b)
Band-Edge	FCC 2.1051 FCC 2.1053 FCC 90.691	Conducted/ Radiated	N/A	-	Complied c)
Spurious Emission(Conducted)	FCC 2.1051 FCC 90.691	Conducted	N/A	-	Complied d)
Spurious Emission(Radiated)	FCC 2.1053 FCC 90.691	Radiated	N/A	<b>Band 26:</b> 23.2 dB, 1638.000 MHz, Horizontal, PK	Complied e)
Frequency Stability (Temperature Variation)	FCC 2.1055 FCC 90.213	Conducted	N/A	-	Complied f)
Frequency Stability (Voltage Variation)	FCC 2.1055 FCC 90.213	Conducted	N/A	-	Complied f)

Since Band 26 overlaps with Band 5, the tests at the range which was not covered by FCC Part 22 were conducted by FCC Part 90.

**UL Japan, Inc.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Note: UL Japan's EMI Work Procedures No. 13-EM-W0420

\*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 v02r0" and KDB 442401.

\*These tests were performed without any deviations from test procedure except for additions or exclusions.

- a) Refer to APPENDIX 1 (RF Output Power (Conducted))
- b) Refer to APPENDIX 1 (99% and 26dB Occupied Bandwidth)
- c) Refer to APPENDIX 1 (Band Edge (Conducted))
- d) Refer to APPENDIX 1 (Spurious Emission (Conducted))
- e) Refer to APPENDIX 1 (Spurious Emission (Radiated))
- f) Refer to APPENDIX 1 (Frequency Stability(Temperature/Voltage Variation))
- g) Refer to APPENDIX 1 (Peak to Average power Ratio)

Symbols:

Complied                      The data of this test item has enough margin, more than the measurement uncertainty.

Complied#                     The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.

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**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### 3.3 : Uncertainty

There is no applicable rule of uncertainty in this applied standard. Therefore, the results are derived depending on whether or not laboratory uncertainty is applied.

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

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#### Antenna Terminal test

Test Item	Uncertainty (+/-)
20 dB Bandwidth / 99 % Occupied Bandwidth	0.96 %
Maximum Peak Output Power / Average Output Power	1.4 dB
Carrier Frequency Separation	0.42 %
Dwell time / Burst rate	0.10 %
Conducted Spurious Emission	2.6 dB

#### Radiated emission

Measurement distance	Frequency range	Uncertainty (+/-)
3 m	9 kHz to 30 MHz	3.3 dB
10 m		3.2 dB
3 m	30 MHz to 200 MHz (Horizontal) (Vertical)	4.8 dB
		5.0 dB
	200 MHz to 1000 MHz (Horizontal) (Vertical)	5.2 dB
		6.3 dB
10 m	30 MHz to 200 MHz (Horizontal) (Vertical)	4.8 dB
		4.8 dB
	200 MHz to 1000 MHz (Horizontal) (Vertical)	5.0 dB
		5.0 dB
3 m	1 GHz to 6 GHz	4.9 dB
	6 GHz to 18 GHz	5.2 dB
1 m	10 GHz to 26.5 GHz	5.5 dB
	26.5 GHz to 40 GHz	5.5 dB
10 m	1 GHz to 18 GHz	5.2 dB

### 3.4 : Test Location

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\*NVLAP Lab. code: 200572-0 / FCC Test Firm Registration Number: 199967 / ISED Lab Company Number: 2973C

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

Telephone: +81 596 24 8999, Facsimile: +81 596 24 8124

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.11 measurement room	6.2 x 4.7 x 3.0	4.8 x 4.6	-	-

\* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0 m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

### 3.5 : Test data, Test instruments, and Test set up

Refer to APPENDIX.

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## **SECTION 4 : Operation of EUT during testing**

### **4.1 : Operating Mode(s) for GSM**

#### **<GSM850>**

Test	Operating mode	Power Control	Tested frequency	Uplink Channel
RF output Power (Conducted)	Transmitting (Tx) GPRS CS-1 slot 1 through 4 Transmitting (Tx) EGPRS MCS-5 slot 1 through 4	5	824.2 MHz 836.6 MHz 848.0MHz	128 190 251
Spurious Emission (Radiated)	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	5	824.2 MHz 836.6 MHz 848.0MHz	128 190 251
Spurious Emission (Conducted), Peak to Average power Ratio (Conducted)	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	5	824.2 MHz 836.6 MHz 848.0MHz	128 190 251
Band Edge (Conducted)	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	5	824.2 MHz 848.0MHz	128 251
Emission Bandwidth, 99% Occupied bandwidth,	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	5	824.2 MHz 836.6 MHz 848.0MHz	128 190 251
Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) GPRS CS-1 slot 1	5	836.6 MHz	190

#### **<PCS1900>**

Test	Operating mode	Power Control	Tested frequency	Uplink Channel
RF output Power (Conducted)	Transmitting (Tx) GPRS CS-1 slot 1 through 4 Transmitting (Tx) EGPRS MCS-5 slot 1 through 4	0	1850.2 MHz 1880.0 MHz 1909.8 MHz	512 661 810
Spurious Emission (Radiated)	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	0	1850.2 MHz 1880.0 MHz 1909.8 MHz	512 661 810
Spurious Emission (Conducted), Peak to Average power Ratio (Conducted)	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	0	1850.2 MHz 1880.0 MHz 1909.8 MHz	512 661 810
Band Edge (Conducted)	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	0	1850.2 MHz 1909.8 MHz	512 810
Emission Bandwidth, 99% Occupied bandwidth,	Transmitting (Tx) GPRS CS-1 slot 1 Transmitting (Tx) EGPRS MCS-5 slot 1	0	1850.2 MHz 1880.0 MHz 1909.8 MHz	512 661 810
Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) GPRS CS-1 slot 1	0	1880.0 MHz	661

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

## 4.2 : Operating Mode(s) for W-CDMA

### <W-CDMA Band 2>

Test	Operating mode	Power Control	Tested frequency	Uplink Channel
RF output Power (Conducted)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1-4) Transmitting (Tx) W-CDMA (HSUPA Subtest 1-5)	See Section 4.4	1852.4 MHz 1880.0 MHz 1907.6 MHz	9262 9400 9538
Spurious Emission (Radiated)	Transmitting (Tx) W-CDMA (RMC12.2kbps)	TPC All Up bits(Max)	1852.4 MHz 1880.0 MHz 1907.6 MHz	9262 9400 9538
Spurious Emission (Conducted), Peak to Average power Ratio (Conducted)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1)	TPC All Up bits(Max)	1852.4 MHz 1880.0 MHz 1907.6 MHz	9262 9400 9538
Band Edge (Conducted)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1)	TPC All Up bits(Max)	1852.4 MHz 1907.6 MHz	9262 9538
Emission Bandwidth, 99% Occupied bandwidth, Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1)	TPC all up bits (MAX)	1880.0 MHz	9400

### <W-CDMA Band 5>

Test	Operating mode	Power Control	Tested frequency	Uplink Channel
RF output Power (Conducted)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1-4) Transmitting (Tx) W-CDMA (HSUPA Subtest 1-5)	See Section 4.4	826.4MHz 836.6MHz 846.6MHz	4132 4183 4233
Spurious Emission (Radiated)	Transmitting (Tx) W-CDMA (RMC12.2kbps)	TPC all up bits(MAX)	826.4MHz 836.6MHz 846.6MHz	4132 4183 4233
Spurious Emission (Conducted), Peak to Average power Ratio (Conducted)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1)	TPC all up bits(MAX)	826.4MHz 836.6MHz 846.6MHz	4132 4183 4233
Band Edge (Conducted/Radiated)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1)	TPC all up bits(MAX)	836.6MHz	4183
Emission Bandwidth, 99% Occupied bandwidth, Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) W-CDMA (RMC12.2kbps) Transmitting (Tx) W-CDMA (HSDPA Subtest 1)	TPC all up bits(MAX)	836.6MHz	4183

\*The W-CDMA, HSDPA, HSUPA, HSPA+ (16QAM), and DC-HSDPA modes of EUT were verified on each channel and "sub-tests" according to section 4.1.1.

(Also refer to Release-6 procedures in section 5.2 of 3GPP TS 34.121.)

\*1) The mode was used for testing as a representative, because it had the highest RF output Power (Conducted).

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### 4.3 : Operating Mode(s) for LTE

#### LTE channel plan

	Band 2			Band 5			Band 7			Band 26		
	Lch	Mch	Hch	Lch	Mch	Hch	Lch	Mch	Hch	Lch	Mch	Hch
BW[MHz]	1.4	1.4	1.4	1.4	1.4	1.4				1.4	1.4	1.4
Freq[MHz]	1850.7	1880	1909.3	824.7	836.5	848.3				814.7	819	823.3
Ch	18607	18900	19193	20407	20525	20643				26697	26740	26783
BW[MHz]	3	3	3	3	3	3				3	3	3
Freq[MHz]	1851.5	1880	1908.5	825.5	836.5	847.5				815.5	819	822.5
Ch	18615	18900	19185	20415	20525	20635				26705	26740	26775
BW[MHz]	5	5	5	5	5	5	5	5	5	5	5	5
Freq[MHz]	1852.5	1880	1907.5	826.5	836.5	846.5	2502.5	2535	2567.5	816.5	819	821.5
Ch	18625	18900	19175	20425	20525	20625	20775	21100	21425	26715	26740	26765
BW[MHz]	10	10	10	10	10	10	10	10	10			10
Freq[MHz]	1855	1880	1905	829	836.5	844	2505	2535	2565			819
Ch	18650	18900	19150	20450	20525	20600	20800	21100	21400			26740
BW[MHz]	15	15	15				15	15	15			
Freq[MHz]	1857.5	1880	1902.5				2507.5	2535	2562.5			
Ch	18675	18900	19125				20825	21100	21375			
BW[MHz]	20	20	20				20	20	20			
Freq[MHz]	1860	1880	1900				2510	2535	2560			
Ch	18700	18900	19100				20850	21100	21350			

<About Band 26>

- LTE Band 26 10MHz BW has one channel(Mch).
- LTE Band 26 (824-849MHz) is covered by LTE Band 5 tested under Part 22H since they have the same output power and supported bandwidths
- LTE Band 26 does not support 15MHz bandwidth configuration and no straddle channels that would operate within Part 22H and Part 90 authorized bands..

#### LTE RB configuration

Band Width	RB number	RB allocation	Band Width	RB number	RB allocation	Band Width	RB number	RB allocation
1.4MHz	1	0	5MHz	1	0	15MHz	1	0
	1	2		1	12		1	37
	1	5		1	24		1	74
	3	0		12	0		36	0
	3	1		12	6		36	16
	3	3		12	11		36	35
	6	0		25	0		75	0
	3MHz	1		0	10MHz		1	0
1	7	1	24	1		49		
1	14	1	49	1		99		
8	0	25	0	50		0		
8	4	25	12	50		24		
8	7	25	24	50		49		
15	0	50	0	100		0		

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124



Modulation	Bandwidth	UL RB Config.	Power Control	Channel	RF Output Power (Conducted)				Peak to Average Power Ratio (Conducted)				Bandwidth (Conducted)				Spurious Emission (Conducted)			
					Band				Band				Band				Band			
					2	5	7	26	2	5	7	26	2	5	7	26	2	5	7	26
QPSK 16QAM	1.4MHz	1/0	TPC All 1(MAX)	Lch	Y	Y		Y									Y	Y		Y
		1/2		Mch	Y	Y		Y												
		1/5		Hch	Y	Y		Y												
		3/0			Y	Y		Y												
		3/1			Y	Y		Y												
		3/3			Y	Y		Y												
		6/0			Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y
	3MHz	1/0	TPC All 1(MAX)	Lch	Y	Y		Y									Y	Y		Y
		1/7		Mch	Y	Y		Y												
		1/14		Hch	Y	Y		Y									Y	Y		Y
		8/0			Y	Y		Y												
		8/4			Y	Y		Y												
		8/7			Y	Y		Y												
		15/0			Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y
	5MHz	1/0	TPC All 1(MAX)	Lch	Y	Y	Y	Y									Y	Y	Y	Y
		1/12		Mch	Y	Y	Y	Y												
		1/24		Hch	Y	Y	Y	Y									Y	Y	Y	Y
		12/0			Y	Y	Y	Y												
		12/6			Y	Y	Y	Y												
		12/11			Y	Y	Y	Y												
		25/0			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	10MHz	1/0	TPC All 1(MAX)	Lch	Y	Y	Y	Y									Y	Y	Y	Y
		1/24		Mch*1)	Y	Y	Y	Y												
		1/49		Hch	Y	Y	Y	Y									Y	Y	Y	Y
		25/0			Y	Y	Y	Y												
		25/12			Y	Y	Y	Y												
		25/24			Y	Y	Y	Y												
		50/0			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	15MHz	1/0	TPC All 1(MAX)	Lch	Y		Y										Y		Y	
		1/37		Mch	Y		Y													
		1/74		Hch	Y		Y										Y		Y	
		36/0			Y		Y													
		36/16			Y		Y													
		36/35			Y		Y													
		75/0			Y		Y		Y		Y		Y		Y		Y		Y	
	20MHz	1/0	TPC All 1(MAX)	Lch	Y		Y										Y		Y	
		1/49		Mch	Y		Y													
		1/99		Hch	Y		Y										Y		Y	
		50/0			Y		Y													
		50/24			Y		Y													
		50/49			Y		Y													
		100/0			Y		Y		Y		Y		Y		Y		Y		Y	

Modulation	Bandwidth	UL RB Config.	Power Control	Channel	Band Edge (Conducted)			
					Band			
					2	5	7	26
QPSK 16QAM	1.4MHz	1/0	TPC All 1(MAX)	Lch	Y	Y		Y
		1/2		Hch				
		1/5						
		3/0						
		3/1						
		3/3						
		6/0						
	3MHz	1/0	TPC All 1(MAX)	Lch	Y	Y		Y
		1/7		Hch				
		1/14						
		8/0						
		8/4						
		8/7						
		15/0						
	5MHz	1/0	TPC All 1(MAX)	Lch	Y	Y	Y	Y
		1/12		Hch				
		1/24						
		12/0						
		12/6						
		12/11						
		25/0						
	10MHz	1/0	TPC All 1(MAX)	Lch	Y	Y	Y	Y
		1/24		Mch *2)				
		1/49		Hch				
		25/0						
		25/12						
		25/24						
		50/0			Y	Y	Y	Y
	15MHz	1/0	TPC All 1(MAX)	Lch	Y		Y	
		1/37		Hch				
		1/74						
		36/0						
		36/16						
		36/35						
		75/0						
	20MHz	1/0	TPC All 1(MAX)	Lch	Y		Y	
		1/49		Hch				
		1/99						
		50/0						
		50/24						
		50/49						
		100/0						

Modulation	Bandwidth	UL RB Config.	Power Control	Channel	Spurious Emission (Radiated)				Frequency Stability (Temperature) (Voltage Variation)			
					Band				Band			
					2	5	7	26	2	5	7	26
QPSK	Worst Bandwidth *3)	Worst power configuration	TPC All 1(MAX)	Lch Mch*1) Hch	Y	Y	Y	Y				
QPSK	Widest Bandwidth *4)	Full RB configuration	TPC All 1(MAX)	Mid					Y	Y	Y	Y

"Y" means tested

\*1) 10 MHz BW for Band 26 only has a Mch.

\*2) Band 26 is tested on Mch, other bands are tested both L and Hch not Mch,

\*3) The UL RB Configuration was used for worst case testing, because it had the highest RF output power (conducted).

\*4) The widest bandwidth was chosen for testing as a representative.

#### 4.4 : Explanation of the Rel-99 W-CDMA, Rel-6 HSPA, Rel-7 HSPA+ and Rel-8 DC-HSDPA measurement mode

3GPP defines UE Test Modes and Channel Configurations for Regulatory Testing.

- **UE Test Modes:**  
Test Mode 1(Data Loopback Test)
- **Channel Configurations:**  
R99 – 12.2kpbs Reference Measurement Channel (RMC) channel  
HSDPA – Fixed Reference Channel (FRC)  
HSUPA – New HSUPA channel configuration (HSDPA data from DL is looped back onto UL)
- **Procedure to configure UE to transmit maximum power:**

Rel99: 3GPP TS 34.121 section 5.2  
HSDPA Rel5: 3GPP TS 34.121 section 5.2A  
HSDPA Rel6: 3GPP TS 34.121 section 5.2AA  
HSUPA Rel6: 3GPP TS 34.121 section 5.2B  
HSPA+ Rel7: Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1.  
DC-HSDPA Rel8:  
Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

\* About Rel-99 and HSDPA testing, test equipment send “all up bits” forcing UE max power

#### 1) Explanation for HSDPA/HSPA Subtests

3GPP TS 34.121 defines test requirements and procedures for testing all variations of W-CDMA. 3GPP TS 34.121 defines 4 HSDPA test configurations and 5 HSPA test configurations (“Subtests”) for various RF Conformance tests. The Following table shows Release 5 HSDPA, Release 6 HSPA, Release 7 HSPA+, Release 8 DC-HSDPA Subtest Configurations per 3GPP TS 34.121.

[HSDPA and DC-HSDPA]

Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c\beta_d$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ .

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ , and  $\Delta_{CQI} = 24/15$  with  $\beta_{HS} = 24/15 * \beta_c$ .

Note 3: CM = 1 for  $\beta_c\beta_d = 12/15$ ,  $\beta_{HS}\beta_c = 24/15$ . For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

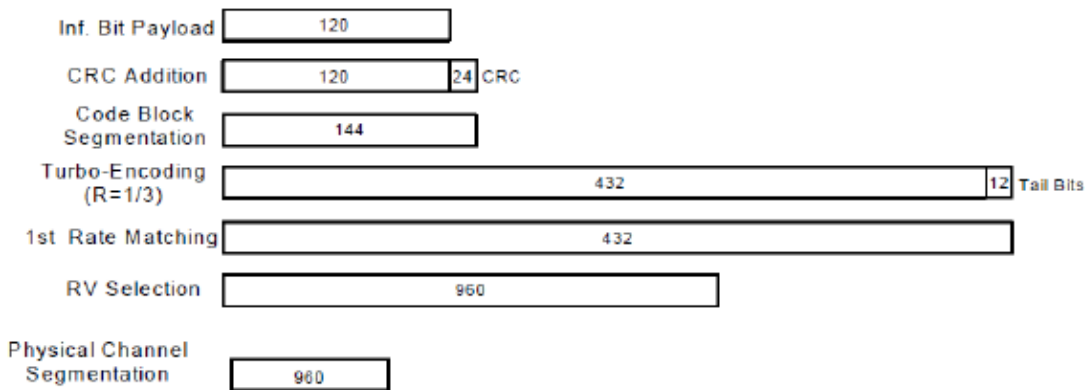
Note 4: For subtest 2 the  $\beta_c\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

\*HSDPA: H-set1, DC-HSDPA: H-set12

### C.8.1.12 Fixed Reference Channel Definition H-Set 12

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload ( $N_{INF}$ )	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
<p>Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.</p> <p>Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.</p>		



**Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)**

[HSUPA]

Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note1)	$\beta_{ec}$	$\beta_{ed}$ (Note 5) (Note 6)	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: For subtest 5 the  $\beta_c/\beta_d$  ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6:  $\beta_{ed}$  can not be set directly, it is set by Absolute Grant Value.

[HSPA+]

Table C.11.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	$\beta_c$ (Note3)	$\beta_d$	$\beta_{HS}$ (Note1)	$\beta_{ec}$	$\beta_{ed}$ (2xSF2) (Note 4)	$\beta_{ed}$ (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed1}$ : 30/15 $\beta_{ed2}$ : 30/15	$\beta_{ed3}$ : 24/15 $\beta_{ed4}$ : 24/15	3.5	2.5	14	105	105

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.

Note 4:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

2) Maximum Output Power Verification

[HSDPA]

Maximum output power was verified on High, Middle and Low channels according to the Release 5 procedures described in section 5.2 of 3GPP TS 34.121, using an FRC with H-set 1 and 12.2kbps RMC with TPC (transmit power control) set to all "1's". Output power was measured according requirements for HS-DPCCH Sub-test 1-4.

[HSUPA]

Maximum output power was verified on the High, Middle and Low channels according to Release 6 procedures in section 5.2 of 3GPP TS 34.121, using the appropriate RMC, FRC and E-DCH configurations. When E-DCH was active, inner loop power control with power control algorithm 2 was used to maintain E-TFCI requirements. Output power for the applicable HSPA modes was measured for E-DCH Sub-test 1-5.

[HSPA+]

Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1.

[DC-HSDPA]

Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

### 3) Test Equipment Setting Summary Table

The following table is the key parameters that was configured in test equipment.

Subtest	Mode	Loopback Mode	Rel99 RMC	HSDPA FRC	HSUPA Test	Common Setting		$\beta c/\beta d$	MPR	Power Class 3 limit
						$\beta c$	$\beta d$			
	Rel99	Test Mode 1	12.2kbps RMC	-	-	-	-	8/15	-	24(+1.7/-3.7dB)
1	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	-	2/15	15/15	2/15	0	24(+1.7/-3.7dB)
2	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	-	12/15	15/15	12/15	0	24(+1.7/-3.7dB)
3	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	-	15/15	8/15	15/8	0.5	23.5(+2.2/-3.7dB)
4	Rel6 HSDPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	-	15/15	4/15	15/4	0.5	23.5(+2.2/-3.7dB)
1	Rel6 HSUPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	HSUPA Loopback	11/15	15/15	11/15	0	24(+1.7/-3.7dB)
2	Rel6 HSUPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	HSUPA Loopback	6/15	15/15	6/15	2	22(+3.7/-3.7dB)
3	Rel6 HSUPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	HSUPA Loopback	15/15	9/15	15/9	1	23(+2.7/-3.7dB)
4	Rel6 HSUPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	HSUPA Loopback	2/15	15/15	2/15	2	22(+3.7/-3.7dB)
5	Rel6 HSUPA	Test Mode 1	12.2kbps RMC	H-Set 1 (QPSK)	HSUPA Loopback	15/15	15/15	15/15	0	24(+1.7/-3.7dB)

Subtest	HSDPA Specific Settings						
	$\Delta ACK$	$\Delta NACK$	$\Delta CQI$	Ack-Nack repetition factor	CQI Feedback	CQI Repetition Factor	$Ahs=\beta hs/\beta c$
Rel 6 HSDPA							
1	8	8	8	3	4ms	2	30/15
2	8	8	8	3	4ms	2	30/15
3	8	8	8	3	4ms	2	30/15
4	8	8	8	3	4ms	2	30/15

Subtest	HSDPA Specific Settings							HSUPA Specific Settings			HSUPA Additional Info	
	$\Delta ACK$	$\Delta NACK$	$\Delta CQI$	Ack-Nack repetition factor	CQI Feedback	CQI Repetition Factor	$Ahs=\beta hs/\beta c$	$\Delta E-DPCC H$	$\Delta HAR Q$	AG Index	ETFCI (form TS34.121 Table C.11.1.3)	Associated Max UL Data Rate kbps
Rel 6 HSPA												
1	8	8	8	3	4ms	2	30/15	6	0	20	75	242.1
2	8	8	8	3	4ms	2	30/15	8	0	12	67	174.9
3	8	8	8	3	4ms	2	30/15	8	0	15	92	482.8
4	8	8	8	3	4ms	2	30/15	5	0	17	71	205.8
5	8	8	8	3	4ms	2	30/15	7	0	21	81	308.9

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

HSUPA Reference E-TFCI Parameters  
[Subtest 1,2,4,5]

Information Element	Value/Remark
E-DCH info	Uplink DPCH info
- E-DPDCH info	
- Reference E-TFCIs	5 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	4
- Reference E-TFCI	67
- Reference E-TFCI PO	18
- Reference E-TFCI	71
- Reference E-TFCI PO	23
- Reference E-TFCI	75
- Reference E-TFCI PO	26
- Reference E-TFCI	81
- Reference E-TFCI PO	27

[Subtest 3]

Information Element	Value/Remark
E-DCH info	Uplink DPCH info
- E-DPDCH info	
- Reference E-TFCIs	2 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	4
- Reference E-TFCI	92
- Reference E-TFCI PO	18

\*Power of the EUT was set by the software as follows;

Software: 1.1.4

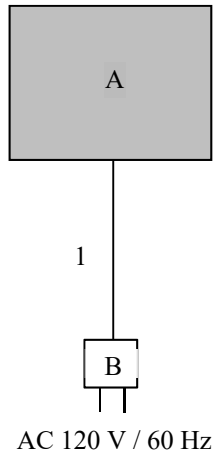
\*This setting of software is the worst case.

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.



#### 4.5 : 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	POCKETALK S	PTS	868792030075926 For RE* ----- 868792030072428 For AT* (except for the test items that were tested on S/N868792030071644 and S/N868792030071628) ----- 868792030071644 For AT* (This sample is used for LTE band2/5/26 PAPR, OBW measurement.) ----- 868792030071628 For AT* This sample is used for all of GSM measurement)	SOURCENEXT CORPORATION	EUT
B	AC Adaptor	UB305-0510	K10-11264779	UNI FIVE	-

#### List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Cable	1.0	Shielded	Shielded	-

\*AT: Antenna Terminal Conducted Tests, RE: Radiated Spurious Emission test

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## **RF Output Power and Spurious Emission (Conducted)**

### **Test Procedure**

[Conducted: Conducted Output Power]

The RF output power (conducted) was measured with a Wireless Communication Test Set and an attenuator at the antenna port.

§ 22.913 Effective radiated power limits.

(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

§ 24.232 Power and antenna height limits.

(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

§ 27.50 Power limits and duty cycle.

(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

§ 90.635 Limitations on power and antenna height.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

Sample calculations

Below 1GHz :  $\text{dBm[erp]} = \text{Reading[dBm]} + \text{Ant gain[dBd]}$

Above 1GHz :  $\text{dBm[eirp]} = \text{Reading[dBm]} + \text{Ant gain[dBi]}$

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

**Test data** : **APPENDIX**  
**Test result** : **Pass**

[Conducted Spurious Emission]

The Spurious Emission and Band-Edge was measured with a spectrum analyzer and attenuator connected to the antenna port.

§ 22.917 Emission limitations for cellular equipment.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

§ 24.238 Emission limitations for Broadband PCS equipment.

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

§ 27.53 Emission limits.

(h) AWS emission limits -

(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.

§ 90.669 Emission limits.

(a) On any frequency in an MTA licensee's spectrum block that is adjacent to a non-MTA frequency, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 plus  $10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation.

Setting of the display limit : -13dBm

Setting of the spectrum analyzer : below 1GHz RBW 100kHz VBW 300Hzk above 1GHz RBW 1MHz VBW 3MHz, in this test report above 1GHz setting is used for worst case.

Sample calculations : dBm = Reading[dBm]

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

**Test data** : **APPENDIX**  
**Test result** : **Pass**

## **SECTION 6 : CCDF**

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 20MHz for LTE 20MHz band width)

For burst transmissions(e.g. GSM), 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 : 13dB

Result : value of the 0.1%

**Test data** : **APPENDIX**

**Test result** : **Pass**

## **SECTION 7 : OBW**

Function of OBW of the spectrum analyzer is used.

Setting of the spectrum analyzer : RBW at least one percent of the span, VBW  $\geq 3 * RBW$

Limit : not specified

Result : 99% and -26dB bandwidth value.

**Test data** : **APPENDIX**

**Test result** : **Only reported**

## **SECTION 8 : Band-Edge (Conducted)**

[Band-Edge]

§ 22.917 Emission limitations for cellular equipment.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

§ 24.238 Emission limitations for Broadband PCS equipment.

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

§ 27.53 Emission limits.

(m)(4) For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log(P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log(P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). 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. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

For LTE band 7, narrower resolution bandwidth and integrated measurement function are used to demonstrate the compliance.

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**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

§ 90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{ Log}_{10}(f/6.1)$  decibels or  $50 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

Setting of the spectrum analyzer : RBW: >1% of emission bandwidth / VBW: >3\*RBW

For Section 90.691(a) compliance testing, use RBW = 300 Hz for offsets less than 37.5 kHz from a channel edge; RBW = 100 kHz for offsets greater than 37.5 kHz is allowed based on KDB 971168 D02.

Sample calculations : dBm = Reading[dBm]

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

**Test data** : **APPENDIX**  
**Test result** : **Pass**

## **SECTION 9 : Spurious Emission (Radiated)**

[Radiated : Spurious Emission]

[For below 1 GHz]

EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 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.

[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 Test Receiver, or the Spectrum Analyzer.

### **Test Antennas are used as below;**

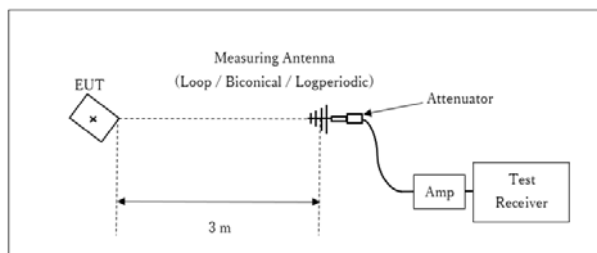
Frequency	Below 30 MHz	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Loop	Biconical	Logperiodic	Horn

- 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 : below 1GHz RBW 100kHz VBW 300Hz above 1GHz RBW 1MHz VBW 3MHz

**Figure 2: Test Setup**

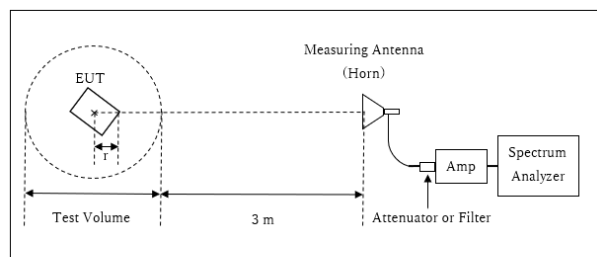
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz - 10 GHz



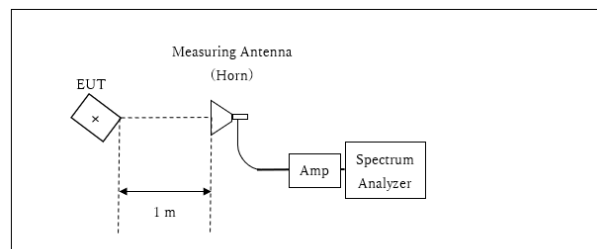
r : Radius of an outer periphery of EUT  
× : Center of turn table

Distance Factor:  $20 \times \log(3.75 \text{ m} / 3.0 \text{ m}) = 1.94 \text{ dB}$   
\* Test Distance:  $(3 + \text{Test Volume} / 2) - r = 3.75 \text{ m}$

Test Volume : 1.5 m  
(Test Volume has been calibrated based on CISPR 16-1-4.)  
r = 0.0 m

\* The test was performed with r = 0.0 m since EUT is small and it was the rather conservative condition.

10 GHz – 26.5 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 to one decimal place, so some differences might be observed.

**Measurement range** : 30 MHz - 26.5 GHz  
**Test data** : APPENDIX  
**Test result** : Pass



## **SECTION 10 : Frequency Stability(Temperature/Voltage Variation)**

### **Test Procedure**

The Frequency Stability was measured with a Wireless Communication Test Set and attenuator connected to the antenna port. The Frequency Drift was measured with the 10 deg. C. steps from -30 deg. C. to 50 deg. C., and it is presented as the ppm unit. The Frequency Drift was measured with the normal temperature (20 deg. C.) and Voltage tolerance, and it is presented as the ppm unit.

Temperature : -30deg.C to +50deg.C (10 deg. C. step)  
(EUT doesn't work at -30deg.C)  
Voltage : Vnom:DC3.8V, Vmin:DC3.23V, Vmax:DC4.37V (Battery Output)

Frequency Stability test was performed under the above condition.

### **Limit**

- § 22.355 Frequency tolerance.
- § 24.235 Frequency stability.
- § 27.54 Frequency stability.
- § 90.213 Frequency stability.

**Test data** : **APPENDIX**  
**Test result** : **Pass**

**APPENDIX 1: Test data**

**RF Output Power (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date March 31, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Yutaka Yoshida  
Mode GSM

GSM850

Ant gain	-4.81 dBi	-6.96 dBd
Limit	7.00 W	38.45 dBm

Mode	Coding Scheme	Time Slots	Ch No.	Freq (MHz)	RF Output Power(dBm)	
					Burst Pwr (Conducted)	Burst Pwr (erp)
GPRS/EGPRS (GMSK)	CS1	1	128	824.2	<b>26.77</b>	19.81
			190	836.6	<b>26.93</b>	19.97
			251	848.6	<b>26.99</b>	20.03
		2	128	824.2	26.25	19.29
			190	836.6	26.39	19.43
			251	848.6	26.47	19.51
		3	128	824.2	24.73	17.77
			190	836.6	24.89	17.93
			251	848.6	24.98	18.02
		4	128	824.2	23.65	16.69
			190	836.6	23.81	16.85
			251	848.6	23.92	16.96
EGPRS (8PSK)	MCS5	1	128	824.2	<b>27.49</b>	20.53
			190	836.6	<b>27.06</b>	20.10
			251	848.6	<b>27.21</b>	20.25
		2	128	824.2	26.47	19.51
			190	836.6	26.22	19.26
			251	848.6	26.35	19.39
		3	128	824.2	24.60	17.64
			190	836.6	24.49	17.53
			251	848.6	24.59	17.63
		4	128	824.2	23.54	16.58
			190	836.6	23.43	16.47
			251	848.6	23.68	16.72

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**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date March 31, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Yutaka Yoshida

Mode GSM

PCS1900

Ant gain	-4.61 dBi	-6.76 dBd
Limit	2.00 W	33.01 dBm

Mode	Coding Scheme	Time Slots	Ch No.	Freq (MHz)	RF Output Power(dBm)	
					Measured	
					Burst Pwr (Conducted)	Burst Pwr (eirp)
GPRS/EGPRS (GMSK)	CS1	1	512	1850.2	<b>26.10</b>	21.49
			661	1880	<b>26.22</b>	21.61
			810	1909.8	<b>26.29</b>	21.68
		2	512	1850.2	25.62	21.01
			661	1880	25.75	21.14
			810	1909.8	25.85	21.24
		3	512	1850.2	24.29	19.68
			661	1880	24.23	19.62
			810	1909.8	24.37	19.76
		4	512	1850.2	23.21	18.60
			661	1880	23.28	18.67
			810	1909.8	23.26	18.65
EGPRS (8PSK)	MCS5	1	512	1850.2	<b>26.95</b>	22.34
			661	1880	<b>26.96</b>	22.35
			810	1909.8	<b>26.96</b>	22.35
		2	512	1850.2	26.11	21.50
			661	1880	26.11	21.50
			810	1909.8	26.14	21.53
		3	512	1850.2	24.32	19.71
			661	1880	24.34	19.73
			810	1909.8	24.28	19.67
		4	512	1850.2	23.19	18.58
			661	1880	23.24	18.63
			810	1909.8	23.30	18.69

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

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Facsimile : +81 596 24 8124

## RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 23, 2020      March 5, 2020  
Temperature / Humidity 23 deg. C / 47 % RH      24 deg. C / 49 % RH  
Engineer Tomohisa Nakagawa      Yutaka Yoshida

Mode W-CDMA

WCDMA Band5

Ant gain	-4.81 dBi	-6.96 dBd
Limit	7.00 W	38.45 dBm

WCDMA Band2

Ant gain	-4.61 dBi	-6.76 dBd
Limit	2.00 W	33.01 dBm

Mode	ch	Avg Power (dBm)	Avg Power (dBm erp)
RMC 12.2k	Lch	21.24	<b>14.28</b>
	Mch	21.30	<b>14.34</b>
	Hch	21.14	<b>14.18</b>
HSDPA	Subtest1	Lch	20.20      13.24
		Mch	20.13      13.17
		Hch	20.15      13.19
	Subtest2	Lch	20.15      13.19
		Mch	20.09      13.13
		Hch	20.09      13.13
	Subtest3	Lch	19.81      12.85
		Mch	19.67      12.71
		Hch	19.65      12.69
	Subtest4	Lch	19.88      12.92
		Mch	19.61      12.65
		Hch	19.69      12.73
HSUPA	Subtest1	Lch	18.35      11.39
		Mch	18.17      11.21
		Hch	18.29      11.33
	Subtest2	Lch	18.33      11.37
		Mch	18.16      11.20
		Hch	18.20      11.24
	Subtest3	Lch	19.42      12.46
		Mch	19.21      12.25
		Hch	19.21      12.25
	Subtest4	Lch	17.88      10.92
		Mch	17.62      10.66
		Hch	17.72      10.76
	Subtest5	Lch	18.83      11.87
		Mch	18.68      11.72
		Hch	18.80      11.84

Mode	ch	Avg Power (dBm)	Avg Power (dBm eirp)
RMC 12.2k	Lch	14.50	<b>9.89</b>
	Mch	14.26	<b>9.65</b>
	Hch	14.10	<b>9.49</b>
HSDPA	Subtest1	Lch	13.72      9.11
		Mch	13.65      9.04
		Hch	13.69      9.08
	Subtest2	Lch	13.72      9.11
		Mch	13.66      9.05
		Hch	13.62      9.01
	Subtest3	Lch	13.23      8.62
		Mch	13.12      8.51
		Hch	13.12      8.51
	Subtest4	Lch	13.17      8.56
		Mch	13.09      8.48
		Hch	13.12      8.51
HSUPA	Subtest1	Lch	11.74      7.13
		Mch	11.71      7.10
		Hch	11.74      7.13
	Subtest2	Lch	11.83      7.22
		Mch	11.74      7.13
		Hch	11.74      7.13
	Subtest3	Lch	12.74      8.13
		Mch	12.68      8.07
		Hch	12.69      8.08
	Subtest4	Lch	11.30      6.69
		Mch	11.20      6.59
		Hch	11.22      6.61
	Subtest5	Lch	12.64      8.03
		Mch	12.54      7.93
		Hch	12.54      7.93

### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date April 15, 2020  
Temperature / Humidity 24 deg. C / 51 % RH  
Engineer Yutaka Yoshida

Mode LTE

LTE	Band2	
Ant gain	-4.61 dBi	-6.76 dBd
Limit	2.00 W	33.01 dBmeirp

1.4MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	18.06	17.88	17.85	13.45	13.27	13.24
QPSK	1	2	<b>18.22</b>	<b>18.06</b>	<b>17.96</b>	<b>13.61</b>	<b>13.45</b>	<b>13.35</b>
QPSK	1	5	18.11	17.87	17.87	13.50	13.26	13.26
QPSK	3	0	17.91	17.61	17.52	13.30	13.00	12.91
QPSK	3	1	17.95	17.63	17.59	13.34	13.02	12.98
QPSK	3	3	17.91	17.62	17.53	13.30	13.01	12.92
QPSK	6	0	16.90	16.59	16.47	12.29	11.98	11.86
16QAM	1	0	16.92	16.87	16.77	12.31	12.26	12.16
16QAM	1	2	17.09	17.02	16.94	12.48	12.41	12.33
16QAM	1	5	16.97	16.91	16.76	12.36	12.30	12.15
16QAM	3	0	16.96	16.80	16.71	12.35	12.19	12.10
16QAM	3	1	17.02	16.85	16.76	12.41	12.24	12.15
16QAM	3	3	16.99	16.80	16.70	12.38	12.19	12.09
16QAM	6	0	16.09	15.55	15.46	11.48	10.94	10.85

3MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	17.97	17.81	17.86	13.36	13.20	13.25
QPSK	1	7	<b>18.13</b>	<b>17.93</b>	<b>18.01</b>	<b>13.52</b>	<b>13.32</b>	<b>13.40</b>
QPSK	1	14	17.95	17.80	17.84	13.34	13.19	13.23
QPSK	7	0	16.80	16.48	16.41	12.19	11.87	11.80
QPSK	7	4	16.83	16.52	16.47	12.22	11.91	11.86
QPSK	7	7	16.79	16.49	16.44	12.18	11.88	11.83
QPSK	15	0	16.78	16.46	16.42	12.17	11.85	11.81
16QAM	1	0	16.73	16.87	16.82	12.12	12.26	12.21
16QAM	1	7	16.92	17.06	16.90	12.31	12.45	12.29
16QAM	1	14	16.73	16.93	16.83	12.12	12.32	12.22
16QAM	7	0	15.98	15.63	15.55	11.37	11.02	10.94
16QAM	7	4	15.99	15.66	15.63	11.38	11.05	11.02
16QAM	7	7	15.94	15.61	15.57	11.33	11.00	10.96
16QAM	15	0	15.91	15.56	15.49	11.30	10.95	10.88

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date April 15, 2020  
Temperature / Humidity 24 deg. C / 51 % RH  
Engineer Yutaka Yoshida

Mode LTE

LTE Band2

Ant gain	-4.61 dBi	-6.76 dBd
Limit	2.00 W	33.01 dBmeirp

5MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	17.65	17.44	17.85	13.04	12.83	13.24
QPSK	1	12	<b>17.92</b>	<b>17.73</b>	<b>17.98</b>	<b>13.31</b>	<b>13.12</b>	<b>13.37</b>
QPSK	1	24	17.66	17.43	17.83	13.05	12.82	13.22
QPSK	12	0	16.77	16.43	16.30	12.16	11.82	11.69
QPSK	12	6	16.82	16.50	16.43	12.21	11.89	11.82
QPSK	12	11	16.78	16.46	16.43	12.17	11.85	11.82
QPSK	25	0	16.81	16.39	16.38	12.20	11.78	11.77
16QAM	1	0	16.87	16.86	16.82	12.26	12.25	12.21
16QAM	1	12	17.16	17.17	17.04	12.55	12.56	12.43
16QAM	1	24	16.90	16.84	16.85	12.29	12.23	12.24
16QAM	12	0	15.95	15.65	15.55	11.34	11.04	10.94
16QAM	12	6	16.04	15.71	15.62	11.43	11.10	11.01
16QAM	12	11	15.99	15.65	15.63	11.38	11.04	11.02
16QAM	25	0	15.81	15.50	15.46	11.20	10.89	10.85

10MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	17.73	17.47	17.39	13.12	12.86	12.78
QPSK	1	24	<b>17.87</b>	<b>17.58</b>	<b>17.57</b>	<b>13.26</b>	<b>12.97</b>	<b>12.96</b>
QPSK	1	49	17.72	17.46	17.44	13.11	12.85	12.83
QPSK	25	0	16.76	16.53	16.37	12.15	11.92	11.76
QPSK	25	12	16.80	16.50	16.44	12.19	11.89	11.83
QPSK	25	24	16.78	16.40	16.49	12.17	11.79	11.88
QPSK	50	0	16.79	16.42	16.40	12.18	11.81	11.79
16QAM	1	0	16.70	16.87	16.79	12.09	12.26	12.18
16QAM	1	24	16.87	17.02	16.97	12.26	12.41	12.36
16QAM	1	49	16.68	16.83	16.82	12.07	12.22	12.21
16QAM	25	0	15.85	15.59	15.44	11.24	10.98	10.83
16QAM	25	12	15.89	15.57	15.50	11.28	10.96	10.89
16QAM	25	24	15.89	15.47	15.55	11.28	10.86	10.94
16QAM	50	0	15.82	15.49	15.46	11.21	10.88	10.85

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### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date April 15, 2020  
Temperature / Humidity 24 deg. C / 51 % RH  
Engineer Yutaka Yoshida  
  
Mode LTE

LTE Band2	
Ant gain	-4.61 dBi
Limit	2.00 W
	-6.76 dBd
	33.01 dBm

15MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	18.12	17.85	17.75	13.51	13.24	13.14
QPSK	1	37	<b>18.34</b>	<b>18.01</b>	<b>17.97</b>	<b>13.73</b>	<b>13.40</b>	<b>13.36</b>
QPSK	1	74	18.05	17.75	17.72	13.44	13.14	13.11
QPSK	36	0	17.24	16.51	16.35	12.63	11.90	11.74
QPSK	36	19	17.27	17.01	16.40	12.66	12.40	11.79
QPSK	36	39	17.29	16.91	16.44	12.68	12.30	11.83
QPSK	75	0	17.29	16.94	16.37	12.68	12.33	11.76
16QAM	1	0	17.22	16.86	16.70	12.61	12.25	12.09
16QAM	1	37	17.32	17.01	16.98	12.71	12.40	12.37
16QAM	1	74	17.13	16.74	16.72	12.52	12.13	12.11
16QAM	36	0	16.25	16.01	15.47	11.64	11.40	10.86
16QAM	36	19	16.26	15.99	15.52	11.65	11.38	10.91
16QAM	36	39	16.28	15.93	15.53	11.67	11.32	10.92
16QAM	75	0	16.22	15.75	15.44	11.61	11.14	10.83

20MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	17.96	17.71	17.55	13.35	13.10	12.94
QPSK	1	49	<b>18.41</b>	<b>17.96</b>	<b>17.97</b>	<b>13.80</b>	<b>13.35</b>	<b>13.36</b>
QPSK	1	99	17.84	17.61	17.56	13.23	13.00	12.95
QPSK	50	0	17.16	17.00	16.96	12.55	12.39	12.35
QPSK	50	24	17.17	16.96	16.89	12.56	12.35	12.28
QPSK	50	49	17.27	16.79	16.99	12.66	12.18	12.38
QPSK	100	0	17.20	16.90	16.99	12.59	12.29	12.38
16QAM	1	0	17.45	17.27	17.14	12.84	12.66	12.53
16QAM	1	49	17.79	17.54	17.51	13.18	12.93	12.90
16QAM	1	99	17.29	17.24	17.12	12.68	12.63	12.51
16QAM	50	0	16.16	15.97	16.02	11.55	11.36	11.41
16QAM	50	24	16.18	15.88	15.93	11.57	11.27	11.32
16QAM	50	49	16.26	15.74	15.96	11.65	11.13	11.35
16QAM	100	0	16.19	15.80	15.93	11.58	11.19	11.32

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4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8999  
Facsimile : +81 596 24 8124

### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 23, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Tomohisa Nakagawa  
  
Mode LTE

LTE Band5

Ant gain	-4.81 dBi	-6.96 dBd
Limit	7.00 W	38.45 dBmerp

1.4MHz Band width			dBm			dBmerp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	18.79	18.85	18.93	11.83	11.89	11.97
QPSK	1	2	<b>18.87</b>	<b>18.95</b>	<b>19.01</b>	<b>11.91</b>	<b>11.99</b>	<b>12.05</b>
QPSK	1	5	18.80	18.84	18.86	11.84	11.88	11.90
QPSK	3	0	18.84	18.88	18.94	11.88	11.92	11.98
QPSK	3	1	18.85	18.92	18.96	11.89	11.96	12.00
QPSK	3	3	18.83	18.88	18.92	11.87	11.92	11.96
QPSK	6	0	17.92	17.95	18.05	10.96	10.99	11.09
16QAM	1	0	18.08	18.23	18.26	11.12	11.27	11.30
16QAM	1	3	18.20	18.38	18.32	11.24	11.42	11.36
16QAM	1	5	18.21	18.25	18.19	11.25	11.29	11.23
16QAM	3	0	17.95	17.95	18.07	10.99	10.99	11.11
16QAM	3	1	18.01	18.05	18.07	11.05	11.09	11.11
16QAM	3	3	17.93	17.96	18.06	10.97	11.00	11.10
16QAM	6	0	16.99	17.03	17.06	10.03	10.07	10.10

3MHz Band width			dBm			dBmerp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	<b>18.88</b>	<b>18.89</b>	<b>18.99</b>	<b>11.92</b>	<b>11.93</b>	<b>12.03</b>
QPSK	1	7	18.87	18.88	18.95	11.91	11.92	11.99
QPSK	1	14	18.86	18.88	18.93	11.90	11.92	11.97
QPSK	8	0	17.94	17.94	18.06	10.98	10.98	11.10
QPSK	8	4	17.98	17.99	18.07	11.02	11.03	11.11
QPSK	8	7	17.95	17.95	18.01	10.99	10.99	11.05
QPSK	15	0	17.93	17.96	18.03	10.97	11.00	11.07
16QAM	1	0	18.26	18.28	18.32	11.30	11.32	11.36
16QAM	1	7	18.21	18.29	18.25	11.25	11.33	11.29
16QAM	1	14	18.20	18.25	18.27	11.24	11.29	11.31
16QAM	8	0	16.99	17.00	17.12	10.03	10.04	10.16
16QAM	8	4	17.01	17.03	17.11	10.05	10.07	10.15
16QAM	8	7	16.95	17.00	17.02	9.99	10.04	10.06
16QAM	15	0	16.92	16.94	17.03	9.96	9.98	10.07

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124



### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 23, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Tomohisa Nakagawa

Mode LTE

LTE Band5	
Ant gain	-4.81 dBi
Limit	7.00 W
	-6.96 dBd
	38.45 dBmerp

5MHz Band width			dBm			dBmerp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	18.78	18.80	18.93	11.82	11.84	11.97
QPSK	1	12	<b>18.87</b>	<b>18.90</b>	<b>18.99</b>	<b>11.91</b>	<b>11.94</b>	<b>12.03</b>
QPSK	1	24	18.80	18.81	18.82	11.84	11.85	11.86
QPSK	12	0	17.85	17.93	18.09	10.89	10.97	11.13
QPSK	12	6	17.96	17.99	18.04	11.00	11.03	11.08
QPSK	12	11	17.88	17.92	17.95	10.92	10.96	10.99
QPSK	25	0	17.90	17.93	18.01	10.94	10.97	11.05
16QAM	1	0	18.16	18.17	18.29	11.20	11.21	11.33
16QAM	1	12	18.27	18.18	18.28	11.31	11.22	11.32
16QAM	1	24	18.15	18.10	18.16	11.19	11.14	11.20
16QAM	12	0	16.87	16.94	17.09	9.91	9.98	10.13
16QAM	12	6	16.98	17.00	17.10	10.02	10.04	10.14
16QAM	12	11	16.89	16.92	16.98	9.93	9.96	10.02
16QAM	25	0	16.87	16.91	17.00	9.91	9.95	10.04

10MHz Band width			dBm			dBmerp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	18.85	18.86	18.92	11.89	11.90	11.96
QPSK	1	25	<b>19.01</b>	<b>19.02</b>	<b>19.11</b>	<b>12.05</b>	<b>12.06</b>	<b>12.15</b>
QPSK	1	49	18.90	18.95	18.90	11.94	11.99	11.94
QPSK	25	0	18.00	18.08	18.18	11.04	11.12	11.22
QPSK	25	12	18.01	18.02	18.17	11.05	11.06	11.21
QPSK	25	25	18.03	18.00	18.06	11.07	11.04	11.10
QPSK	50	0	18.00	18.04	18.12	11.04	11.08	11.16
16QAM	1	0	18.09	18.16	18.36	11.13	11.20	11.40
16QAM	1	25	18.37	18.28	18.44	11.41	11.32	11.48
16QAM	1	49	18.28	18.31	18.30	11.32	11.35	11.34
16QAM	25	0	16.98	17.08	17.18	10.02	10.12	10.22
16QAM	25	12	17.01	17.01	17.14	10.05	10.05	10.18
16QAM	25	25	17.03	17.00	17.05	10.07	10.04	10.09
16QAM	50	0	16.97	17.03	17.10	10.01	10.07	10.14

### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 23, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Tomohisa Nakagawa

Mode LTE

LTE Band7

Ant gain	-2.15 dBi	-4.3 dBd
Limit	2.00 W	33.01 dBmeirp

5MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	<b>20.31</b>	<b>20.52</b>	<b>20.09</b>	<b>18.16</b>	<b>18.37</b>	<b>17.94</b>
QPSK	1	12	20.23	20.42	19.94	18.08	18.27	17.79
QPSK	1	24	20.21	20.24	19.65	18.06	18.09	17.50
QPSK	12	0	19.25	19.38	18.78	17.10	17.23	16.63
QPSK	12	6	19.45	19.48	18.81	17.30	17.33	16.66
QPSK	12	11	19.35	19.32	18.77	17.20	17.17	16.62
QPSK	25	0	19.49	19.50	18.88	17.34	17.35	16.73
16QAM	1	0	19.50	19.70	18.82	17.35	17.55	16.67
16QAM	1	12	19.71	19.65	18.94	17.56	17.50	16.79
16QAM	1	24	19.27	19.25	18.77	17.12	17.10	16.62
16QAM	12	0	18.27	18.45	17.76	16.12	16.30	15.61
16QAM	12	6	18.54	18.62	17.84	16.39	16.47	15.69
16QAM	12	11	18.52	18.58	17.70	16.37	16.43	15.55
16QAM	25	0	18.46	18.45	17.81	16.31	16.30	15.66

10MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	<b>20.40</b>	<b>20.63</b>	<b>20.28</b>	<b>18.25</b>	<b>18.48</b>	<b>18.13</b>
QPSK	1	24	20.39	20.34	19.89	18.24	18.19	17.74
QPSK	1	49	20.30	20.30	19.73	18.15	18.15	17.58
QPSK	25	0	19.24	19.39	18.96	17.09	17.24	16.81
QPSK	25	12	19.47	19.51	18.87	17.32	17.36	16.72
QPSK	25	24	19.50	19.39	18.85	17.35	17.24	16.70
QPSK	50	0	19.64	19.45	18.93	17.49	17.30	16.78
16QAM	1	0	19.62	19.80	19.17	17.47	17.65	17.02
16QAM	1	24	19.45	19.55	19.09	17.30	17.40	16.94
16QAM	1	49	19.56	19.46	18.88	17.41	17.31	16.73
16QAM	25	0	18.21	18.44	17.89	16.06	16.29	15.74
16QAM	25	12	18.59	18.51	17.83	16.44	16.36	15.68
16QAM	25	24	18.66	18.61	17.96	16.51	16.46	15.81
16QAM	50	0	18.46	18.51	17.91	16.31	16.36	15.76

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4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
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### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 23, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Tomohisa Nakagawa  
  
Mode LTE

LTE Band7

Ant gain	-2.15 dBi	-4.3 dBd
Limit	2.00 W	33.01 dBmeirp

15MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	<b>20.59</b>	<b>20.59</b>	<b>20.22</b>	<b>18.44</b>	<b>18.44</b>	<b>18.07</b>
QPSK	1	37	20.57	20.53	19.91	18.42	18.38	17.76
QPSK	1	74	20.36	20.32	19.65	18.21	18.17	17.50
QPSK	36	0	19.56	19.63	18.92	17.41	17.48	16.77
QPSK	36	16	19.68	19.59	19.00	17.53	17.44	16.85
QPSK	36	35	19.73	19.47	18.78	17.58	17.32	16.63
QPSK	75	0	19.67	19.59	18.93	17.52	17.44	16.78
16QAM	1	0	19.62	19.79	19.12	17.47	17.64	16.97
16QAM	1	37	19.86	19.70	19.02	17.71	17.55	16.87
16QAM	1	74	19.85	19.45	18.82	17.70	17.30	16.67
16QAM	36	0	18.50	18.64	17.87	16.35	16.49	15.72
16QAM	36	16	18.66	18.59	18.09	16.51	16.44	15.94
16QAM	36	35	18.69	18.53	17.92	16.54	16.38	15.77
16QAM	75	0	18.63	18.60	17.86	16.48	16.45	15.71

20MHz Band width			dBm			dBmeirp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	20.19	20.42	20.12	18.04	18.27	17.97
QPSK	1	49	<b>20.73</b>	<b>20.66</b>	<b>20.31</b>	<b>18.58</b>	<b>18.51</b>	<b>18.16</b>
QPSK	1	99	20.38	20.14	19.88	18.23	17.99	17.73
QPSK	50	0	19.57	19.64	19.46	17.42	17.49	17.31
QPSK	50	24	19.75	19.60	19.38	17.60	17.45	17.23
QPSK	50	49	19.83	19.51	19.20	17.68	17.36	17.05
QPSK	100	0	19.66	19.56	19.32	17.51	17.41	17.17
16QAM	1	0	19.42	19.66	19.46	17.27	17.51	17.31
16QAM	1	49	20.05	19.94	19.51	17.90	17.79	17.36
16QAM	1	99	19.67	19.39	19.08	17.52	17.24	16.93
16QAM	50	0	18.54	18.63	18.39	16.39	16.48	16.24
16QAM	50	24	18.68	18.60	18.32	16.53	16.45	16.17
16QAM	50	49	18.77	18.51	18.12	16.62	16.36	15.97
16QAM	100	0	18.61	18.55	18.25	16.46	16.40	16.10

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 23, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Tomohisa Nakagawa

Mode LTE

LTE Band26

Ant gain	-4.81 dBi	-6.96 dBd
Limit	100.00 W	50.00 dBmerp

1.4MHz Band width			dBm			dBmerp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	18.92	18.84	18.85	11.96	11.88	11.89
QPSK	1	2	<b>18.99</b>	<b>18.97</b>	<b>18.99</b>	<b>12.03</b>	<b>12.01</b>	<b>12.03</b>
QPSK	1	5	18.87	18.83	18.84	11.91	11.87	11.88
QPSK	3	0	18.96	18.91	18.92	12.00	11.95	11.96
QPSK	3	1	18.96	18.92	18.91	12.00	11.96	11.95
QPSK	3	3	18.93	18.91	18.90	11.97	11.95	11.94
QPSK	6	0	18.01	17.95	17.99	11.05	10.99	11.03
16QAM	1	0	18.23	18.24	18.25	11.27	11.28	11.29
16QAM	1	3	18.35	18.43	18.28	11.39	11.47	11.32
16QAM	1	5	18.17	18.26	18.18	11.21	11.30	11.22
16QAM	3	0	17.99	18.02	18.04	11.03	11.06	11.08
16QAM	3	1	18.05	18.07	18.03	11.09	11.11	11.07
16QAM	3	3	18.04	17.98	17.98	11.08	11.02	11.02
16QAM	6	0	17.09	17.06	17.07	10.13	10.10	10.11

3MHz Band width			dBm			dBmerp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	<b>19.02</b>	<b>18.95</b>	<b>18.95</b>	<b>12.06</b>	<b>11.99</b>	<b>11.99</b>
QPSK	1	7	18.98	18.93	18.90	12.02	11.97	11.94
QPSK	1	14	19.01	18.88	18.94	12.05	11.92	11.98
QPSK	8	0	18.01	17.99	17.96	11.05	11.03	11.00
QPSK	8	4	18.01	18.02	18.00	11.05	11.06	11.04
QPSK	8	7	18.00	18.00	17.97	11.04	11.04	11.01
QPSK	15	0	18.01	17.97	17.95	11.05	11.01	10.99
16QAM	1	0	18.30	18.34	18.30	11.34	11.38	11.34
16QAM	1	7	18.39	18.23	18.29	11.43	11.27	11.33
16QAM	1	14	18.33	18.32	18.35	11.37	11.36	11.39
16QAM	8	0	17.06	17.06	17.03	10.10	10.10	10.07
16QAM	8	4	17.09	17.08	17.08	10.13	10.12	10.12
16QAM	8	7	17.06	17.06	17.04	10.10	10.10	10.08
16QAM	15	0	17.00	16.97	16.97	10.04	10.01	10.01

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### RF Output Power (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 23, 2020  
Temperature / Humidity 23 deg. C / 47 % RH  
Engineer Tomohisa Nakagawa

Mode LTE

LTE Band26

Ant gain	-4.81 dBi	-6.96 dBd
Limit	100.00 W	50.00 dBmerp

5MHz Band width			dBm			dBmerp		
Mod	RB number	RB allocation	Lch	Mch	Hch	Lch	Mch	Hch
QPSK	1	0	18.93	18.91	18.82	11.97	11.95	11.86
QPSK	1	12	<b>19.02</b>	<b>18.96</b>	<b>18.94</b>	<b>12.06</b>	<b>12.00</b>	<b>11.98</b>
QPSK	1	24	18.87	18.84	18.81	11.91	11.88	11.85
QPSK	12	0	17.94	17.93	17.98	10.98	10.97	11.02
QPSK	12	6	18.01	18.01	18.04	11.05	11.05	11.08
QPSK	12	11	17.98	17.96	18.00	11.02	11.00	11.04
QPSK	25	0	17.96	17.95	18.02	11.00	10.99	11.06
16QAM	1	0	18.22	18.21	18.25	11.26	11.25	11.29
16QAM	1	12	18.35	18.37	18.29	11.39	11.41	11.33
16QAM	1	24	18.26	18.16	18.27	11.30	11.20	11.31
16QAM	12	0	16.98	16.96	17.02	10.02	10.00	10.06
16QAM	12	6	17.05	17.03	17.08	10.09	10.07	10.12
16QAM	12	11	17.03	16.96	17.04	10.07	10.00	10.08
16QAM	25	0	16.97	16.98	17.03	10.01	10.02	10.07

10MHz Band width			dBm	dBmerp
Mod	RB number	RB allocation	Mch	Mch
QPSK	1	0	19.01	12.05
QPSK	1	25	<b>19.06</b>	<b>12.10</b>
QPSK	1	49	18.94	11.98
QPSK	25	0	17.97	11.01
QPSK	25	12	18.03	11.07
QPSK	25	25	18.04	11.08
QPSK	50	0	18.03	11.07
16QAM	1	0	18.31	11.35
16QAM	1	25	18.52	11.56
16QAM	1	49	18.37	11.41
16QAM	25	0	16.97	10.01
16QAM	25	12	17.04	10.08
16QAM	25	25	17.06	10.10
16QAM	50	0	17.01	10.05

### Peak to Average power Ratio (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6 No.6 No.5  
Date January 16, 2020 January 17, 2020 April 1, 2020  
Temperature / Humidity 22 deg. C / 45 % RH 22 deg. C / 43 % RH 22 deg. C / 38 % RH  
Engineer Tomohisa Nakagawa Tomohisa Nakagawa Yutaka Yoshida

Mode GSM / W-CDMA

#### GSM

Mode	Channel	Peak to Average Power Ratio [dB]	Limit [dB]
GSM850	128	0.19	13
	GPRS 190	0.19	13
	CS-1 251	0.19	13
GSM850	128	2.99	13
	EGPRS 190	2.98	13
	MCS-5 251	2.95	13
PCS1900	512	0.20	13
	GPRS 661	0.19	13
	CS-1 810	0.20	13
PCS1900	512	2.60	13
	EGPRS 661	2.57	13
	MCS-5 810	2.53	13

#### WCDMA

##### RMC 12.2k

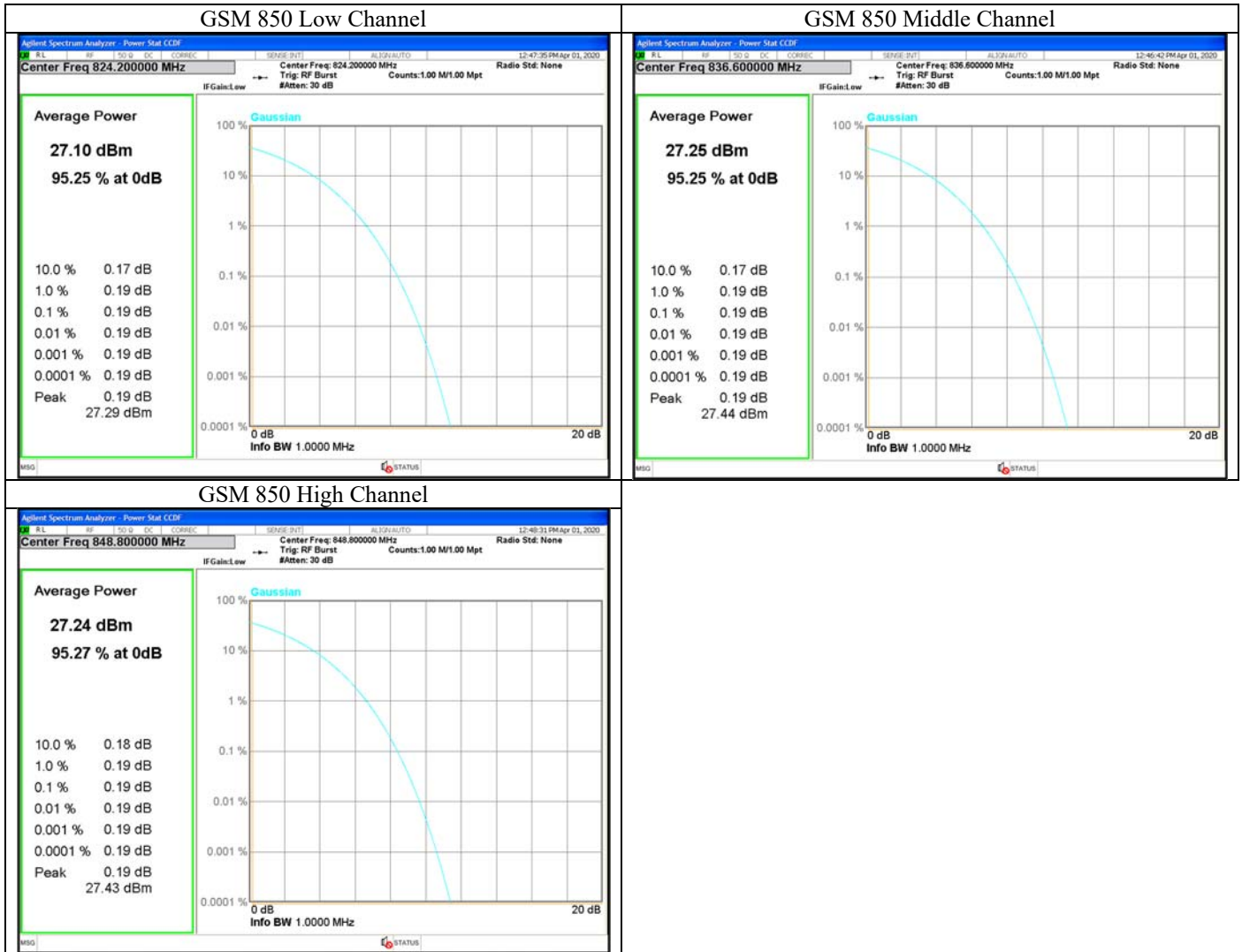
Mode	Channel	Frequency [MHz]	Peak to Average Power Ratio [dB]	Limit [dB]
W-CDMA Band 2	9262	1852.4	2.83	13
	9400	1880.0	2.85	13
	9538	1907.6	2.87	13
W-CDMA Band 5	4132	826.4	3.02	13
	4183	836.6	3.06	13
	4233	846.6	3.08	13

##### HSDPA

Mode	Channel	Frequency [MHz]	Peak to Average Power Ratio [dB]	Limit [dB]
W-CDMA Band 2	9262	1852.4	2.87	13
	9400	1880.0	2.86	13
	9538	1907.6	2.88	13
W-CDMA Band 5	4132	826.4	3.16	13
	4183	836.6	3.15	13
	4233	846.6	3.19	13

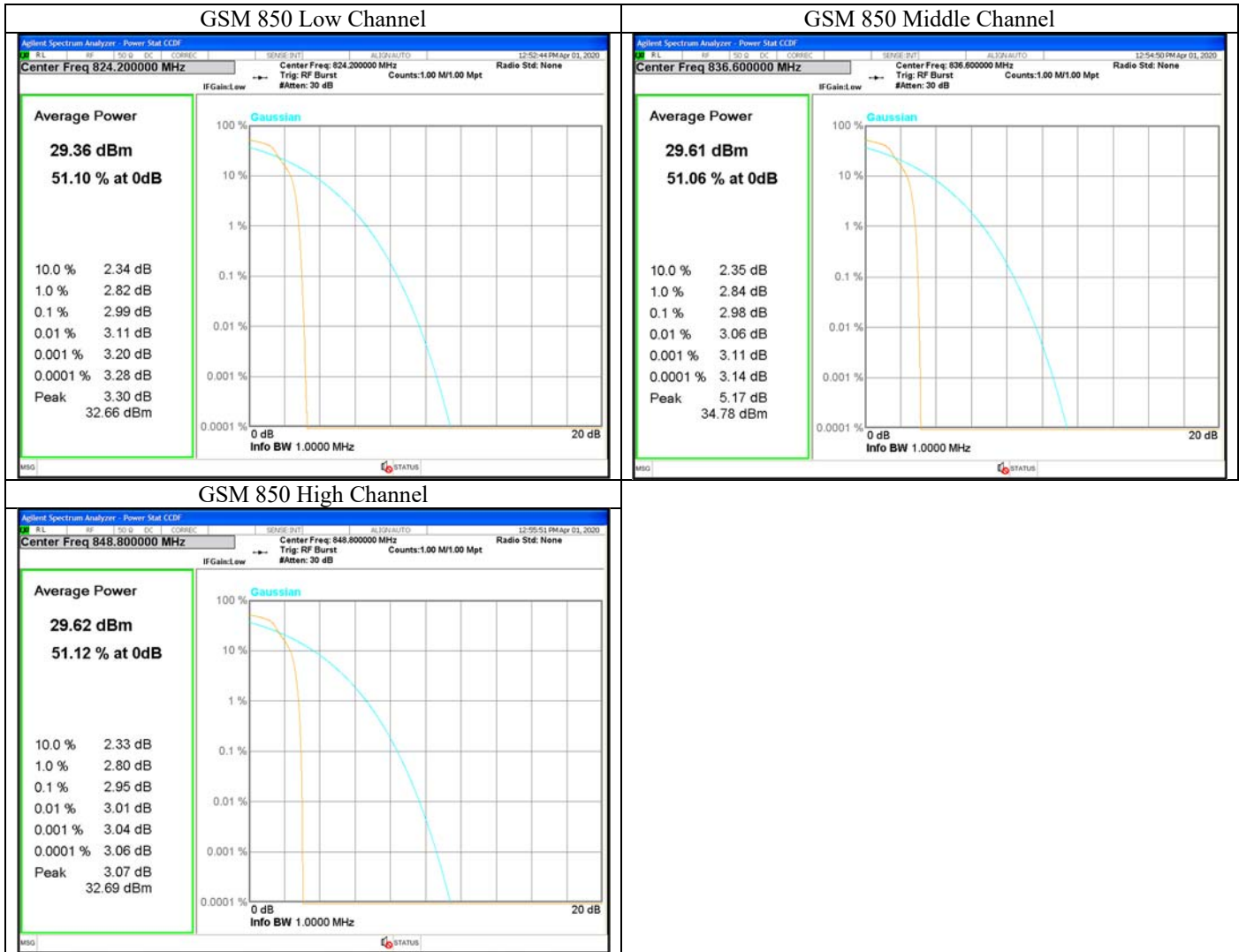
### Peak to Average power Ratio (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.5  
Date April 1, 2020  
Temperature / Humidity 22 deg. C / 38 % RH  
Engineer Yutaka Yoshida  
  
Mode GSM850 GPRS



**Peak to Average power Ratio (Conducted)**

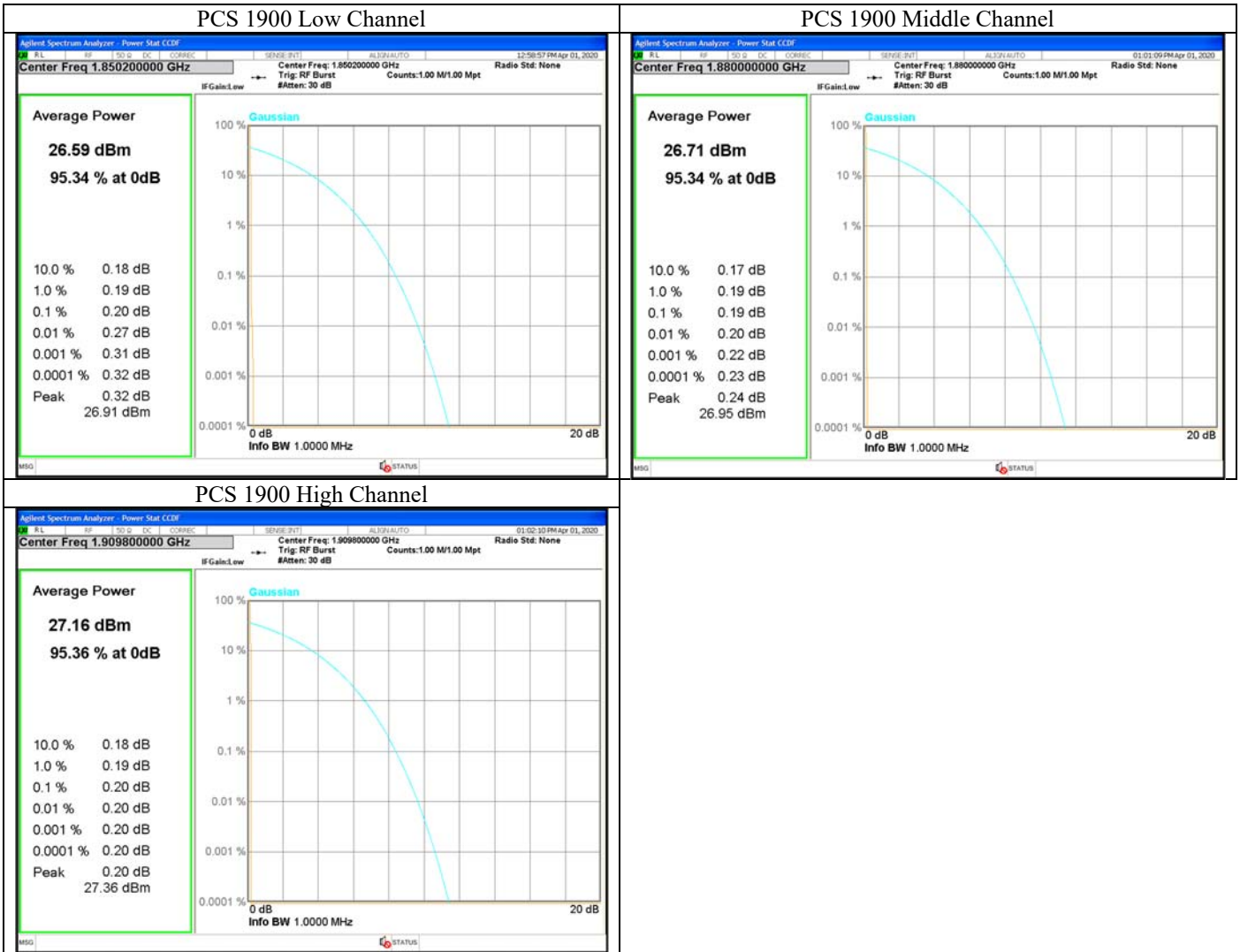
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 Test place Ise EMC Lab.  
 Shielded Room No.5  
 Date April 1, 2020  
 Temperature / Humidity 22 deg. C / 38 % RH  
 Engineer Yutaka Yoshida  
 Mode GSM850 EGPRS





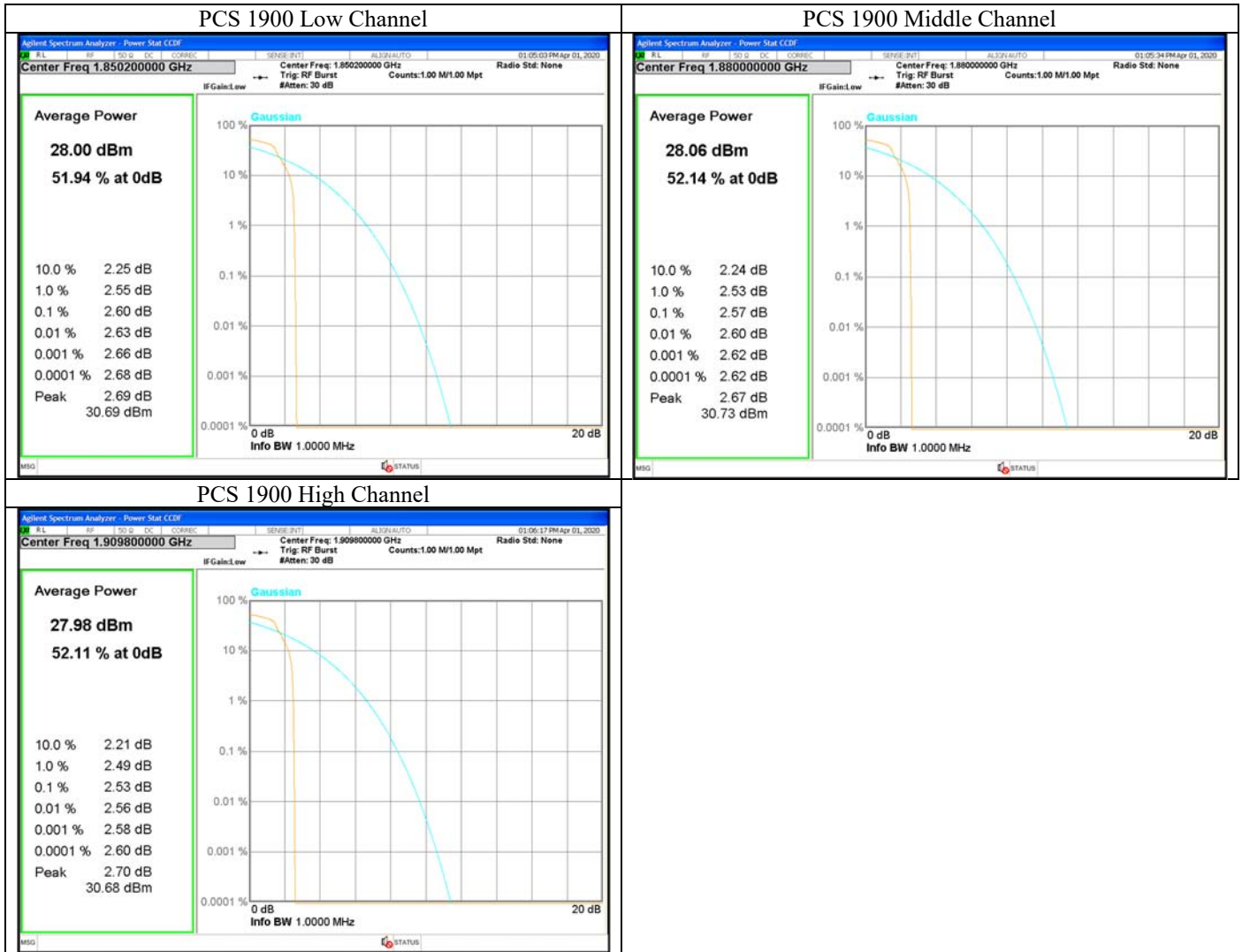
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.5  
Date April 1, 2020  
Temperature / Humidity 22 deg. C / 38 % RH  
Engineer Yutaka Yoshida  
Mode PCS1900 GPRS



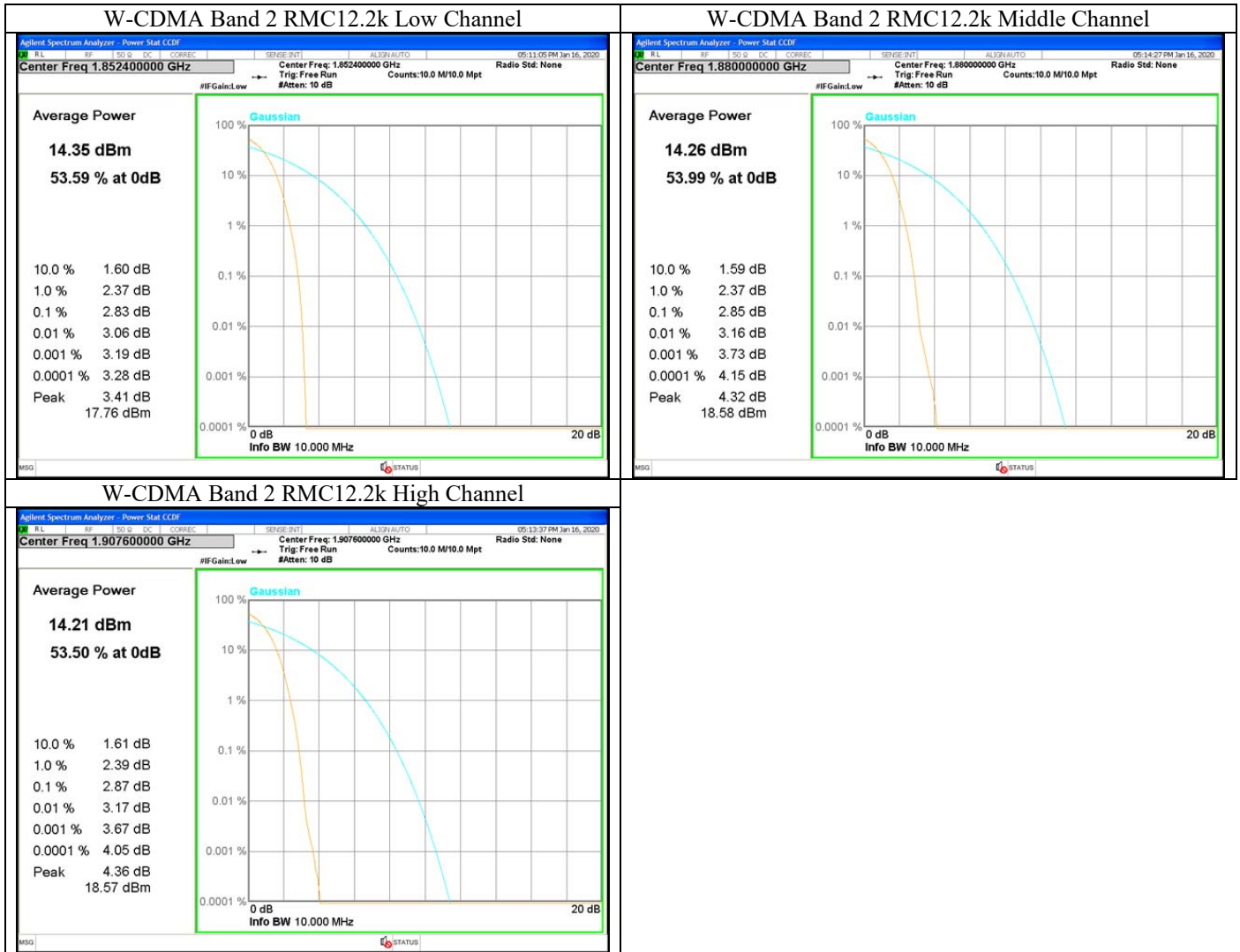
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.5  
Date April 1, 2020  
Temperature / Humidity 22 deg. C / 38 % RH  
Engineer Yutaka Yoshida  
Mode PCS1900 EGPRS



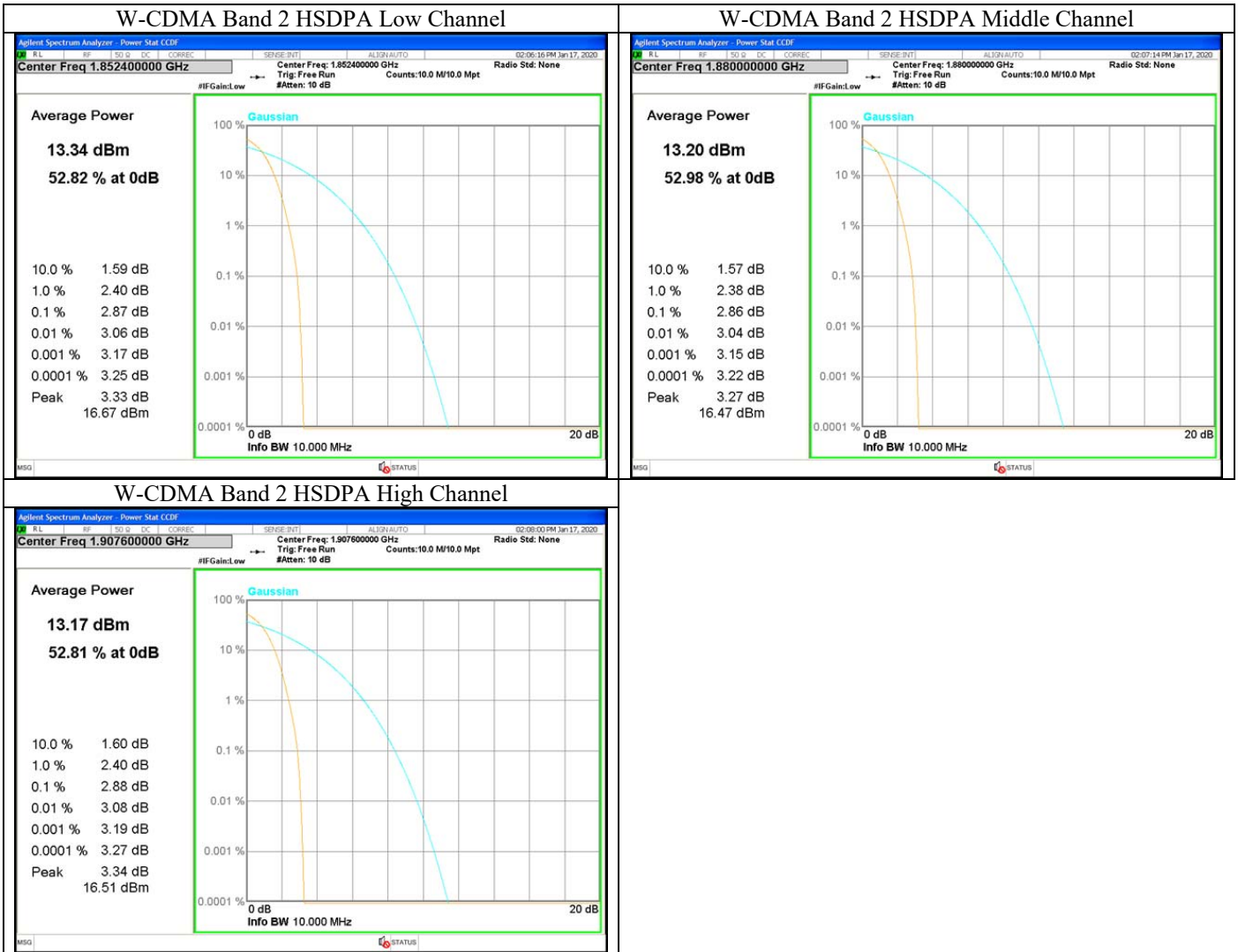
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 16, 2020  
Temperature / Humidity 22 deg. C / 45 % RH  
Engineer Tomohisa Nakagawa  
Mode W-CDMA



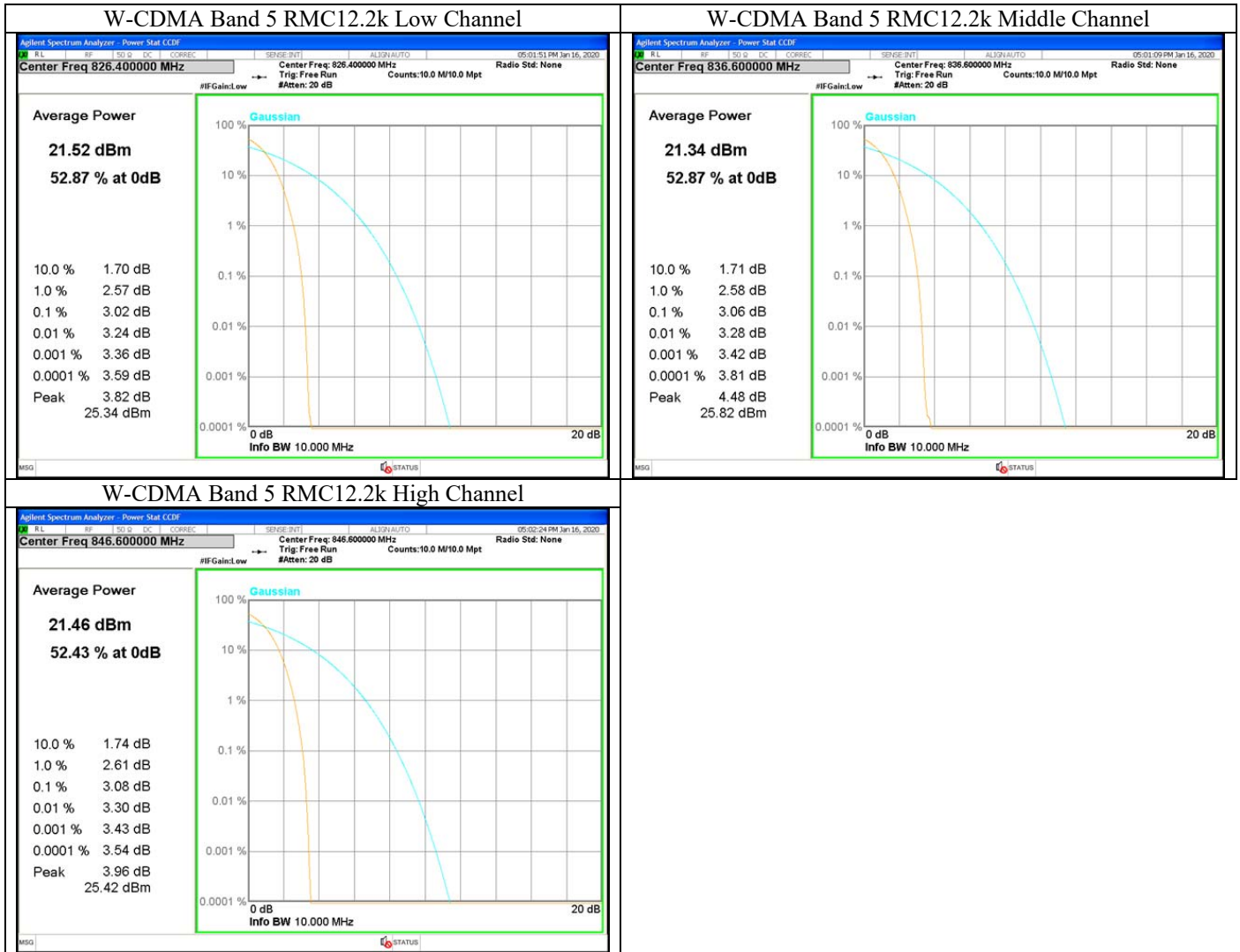
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 17, 2020  
Temperature / Humidity 22 deg. C / 43 % RH  
Engineer Tomohisa Nakagawa  
Mode W-CDMA



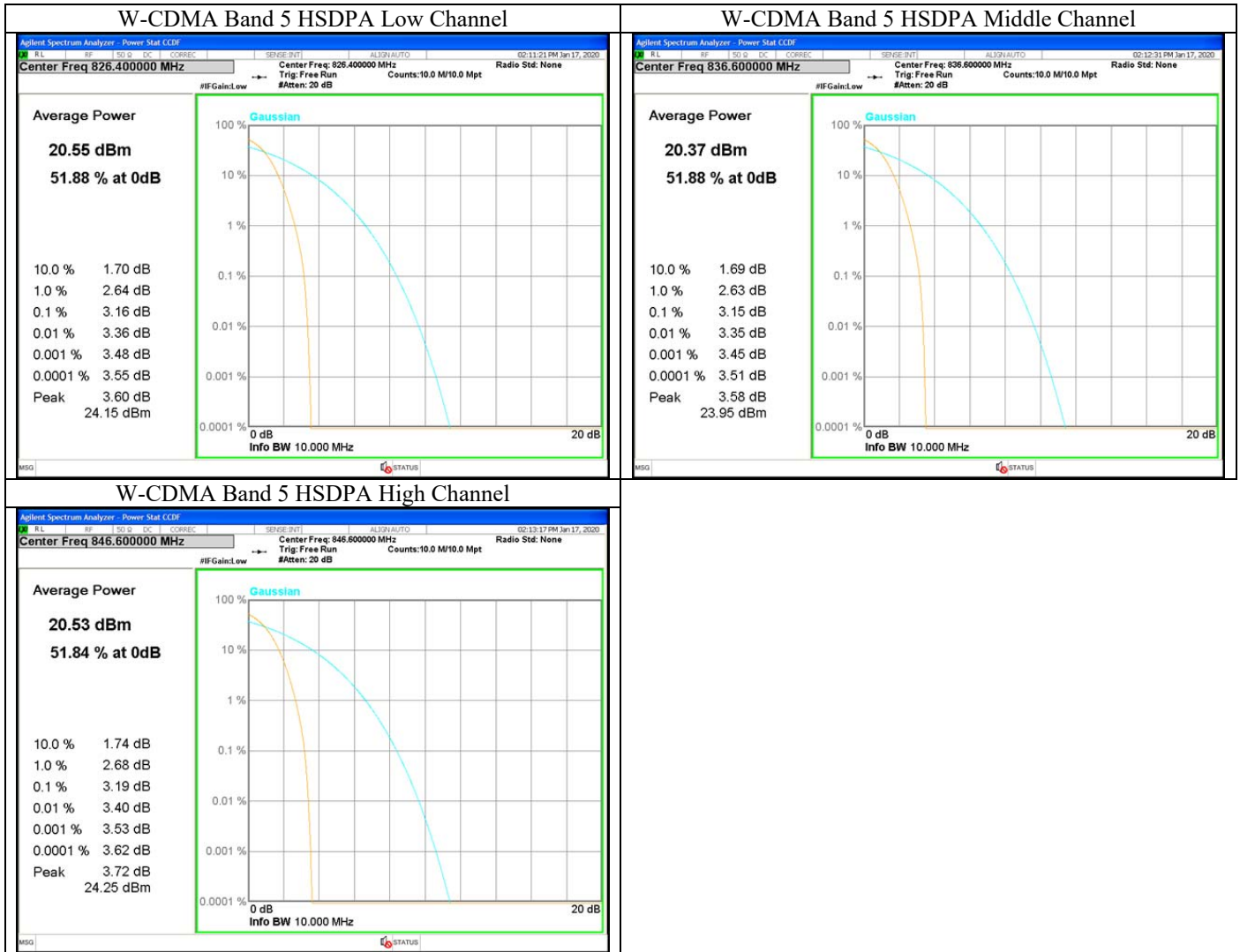
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 16, 2020  
Temperature / Humidity 22 deg. C / 45 % RH  
Engineer Tomohisa Nakagawa  
Mode W-CDMA



**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 17, 2020  
Temperature / Humidity 22 deg. C / 43 % RH  
Engineer Tomohisa Nakagawa  
Mode W-CDMA



**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6 No.6  
Date January 9, 2020 January 20, 2020  
Temperature / Humidity 22 deg. C / 53 % RH 22 deg. C / 45 % RH  
Engineer Yutaka Yoshida Tomohisa Nakagawa

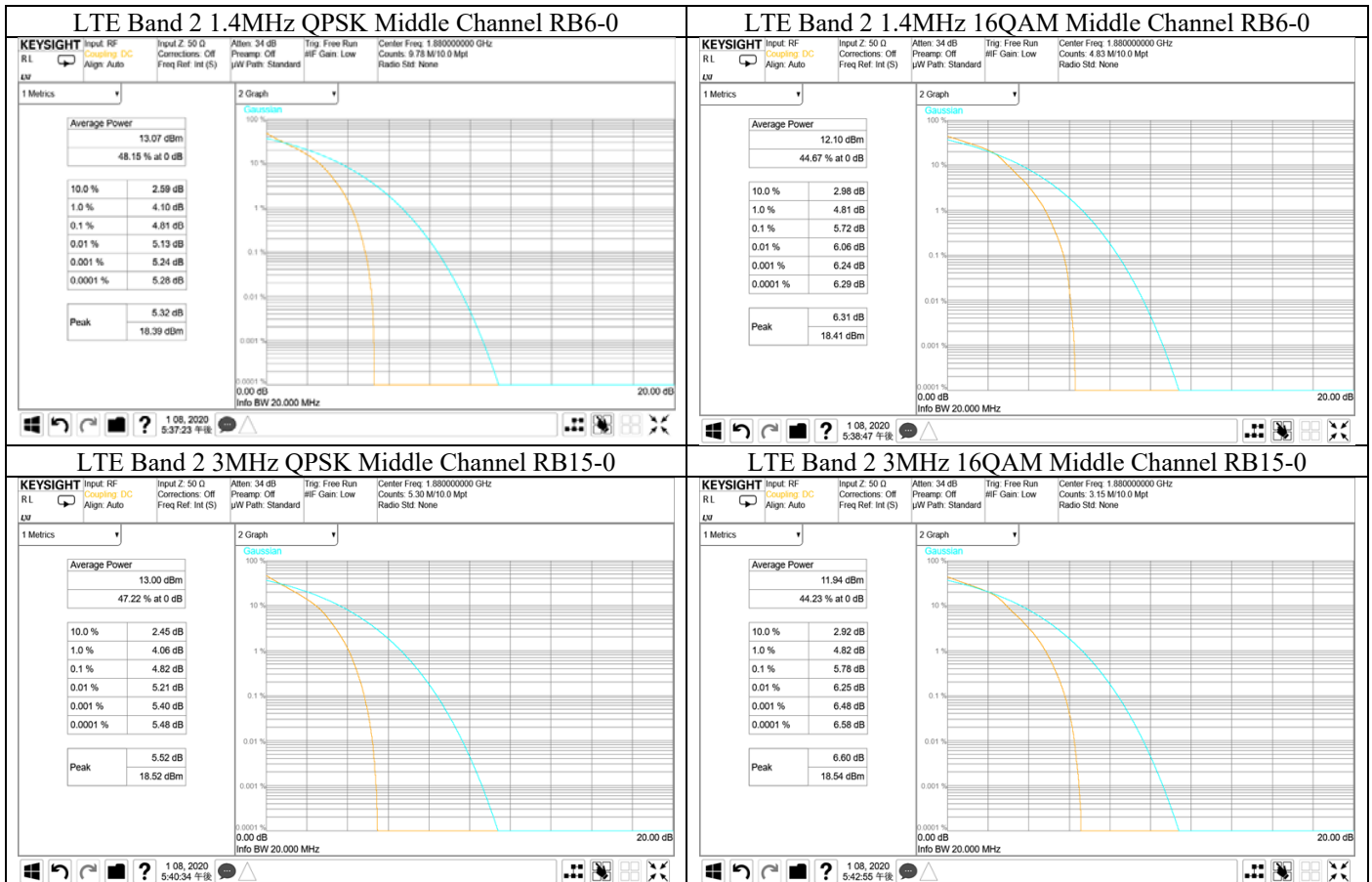
Mode LTE

Mode	BW [MHz]	Channel	Resource Block		Frequency [MHz]	Peak to Average Power Ratio [dB]	Limit [dB]
			Num	start			
LTE Band 2 QPSK	1.4	18900	6	0	1880.00	4.81	13
	3	18900	15	0	1880.00	4.82	13
	5	18900	25	0	1880.00	4.83	13
	10	18900	50	0	1880.00	4.82	13
	15	18900	75	0	1880.00	5.20	13
	20	18900	100	0	1880.00	5.21	13
LTE Band 2 16QAM	1.4	18900	6	0	1880.00	5.72	13
	3	18900	15	0	1880.00	5.78	13
	5	18900	25	0	1880.00	5.64	13
	10	18900	50	0	1880.00	5.66	13
	15	18900	75	0	1880.00	5.86	13
	20	18900	100	0	1880.00	5.95	13
LTE Band 5 QPSK	1.4	20525	6	0	836.50	4.38	13
	3	20525	15	0	836.50	4.43	13
	5	20525	25	0	836.50	4.36	13
	10	20525	50	0	836.50	4.38	13
LTE Band 5 16QAM	1.4	20525	6	0	836.50	5.31	13
	3	20525	15	0	836.50	5.37	13
	5	20525	25	0	836.50	5.19	13
	10	20525	50	0	836.50	5.20	13
LTE Band 7 QPSK	5	21100	25	0	2535.00	5.90	13
	10	21100	50	0	2535.00	5.39	13
	15	21100	75	0	2535.00	5.71	13
	20	21100	100	0	2535.00	5.56	13
LTE Band 7 16QAM	5	21100	25	0	2535.00	4.93	13
	10	21100	50	0	2535.00	6.08	13
	15	21100	75	0	2535.00	6.25	13
	20	21100	100	0	2535.00	6.20	13
LTE Band 26 QPSK	1.4	26740	6	0	819.00	5.02	13
	3	26740	15	0	819.00	5.08	13
	5	26740	25	0	819.00	5.08	13
	10	26740	50	0	819.00	5.02	13
LTE Band 26 16QAM	1.4	26740	6	0	819.00	5.96	13
	3	26740	15	0	819.00	6.07	13
	5	26740	25	0	819.00	5.91	13
	10	26740	50	0	819.00	5.85	13



**Peak to Average power Ratio (Conducted)**

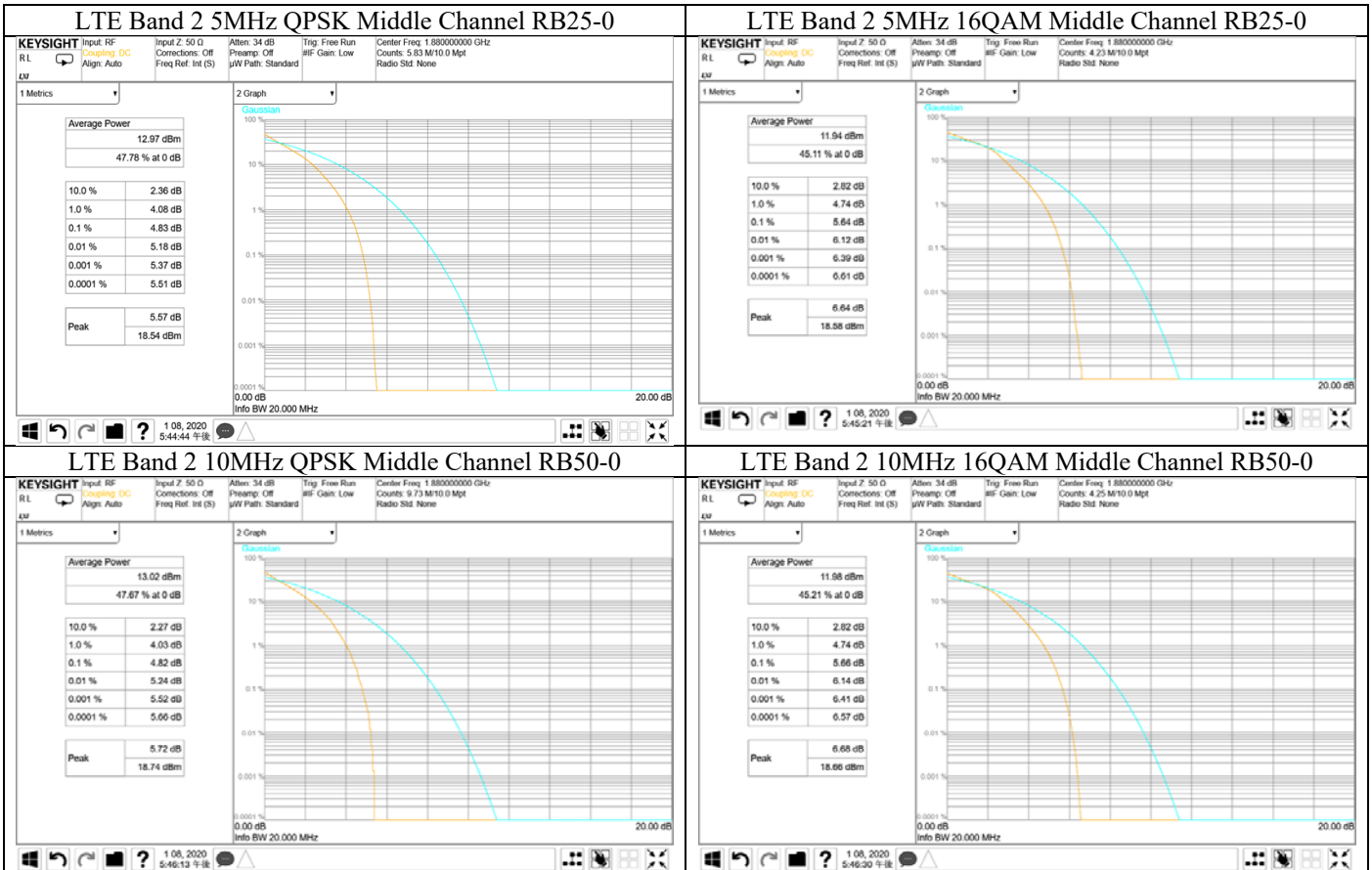
Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 9, 2020  
 Temperature / Humidity 22 deg. C / 53 % RH  
 Engineer Yutaka Yoshida  
 Mode LTE





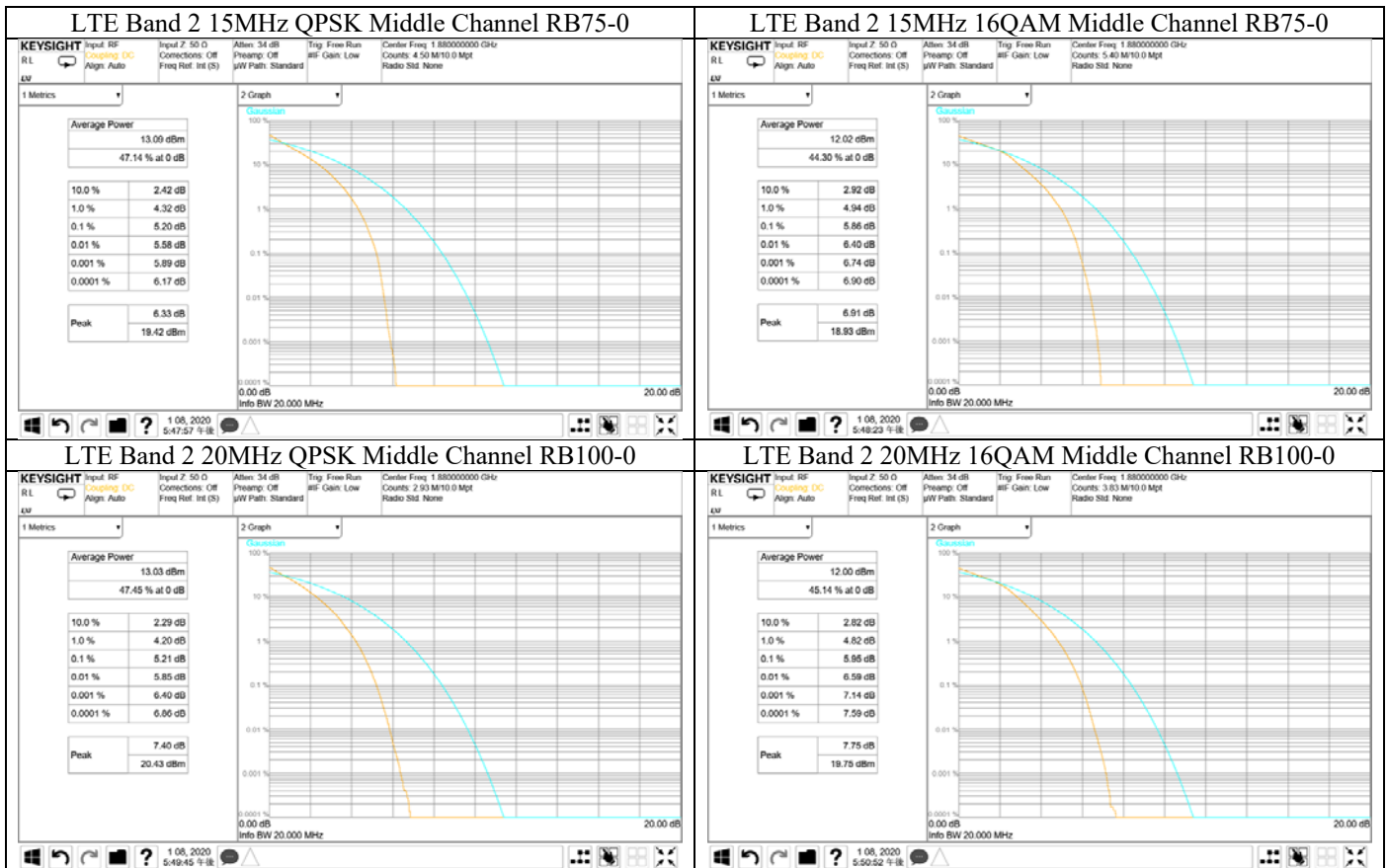
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 9, 2020  
 Temperature / Humidity 22 deg. C / 53 % RH  
 Engineer Yutaka Yoshida  
 Mode LTE



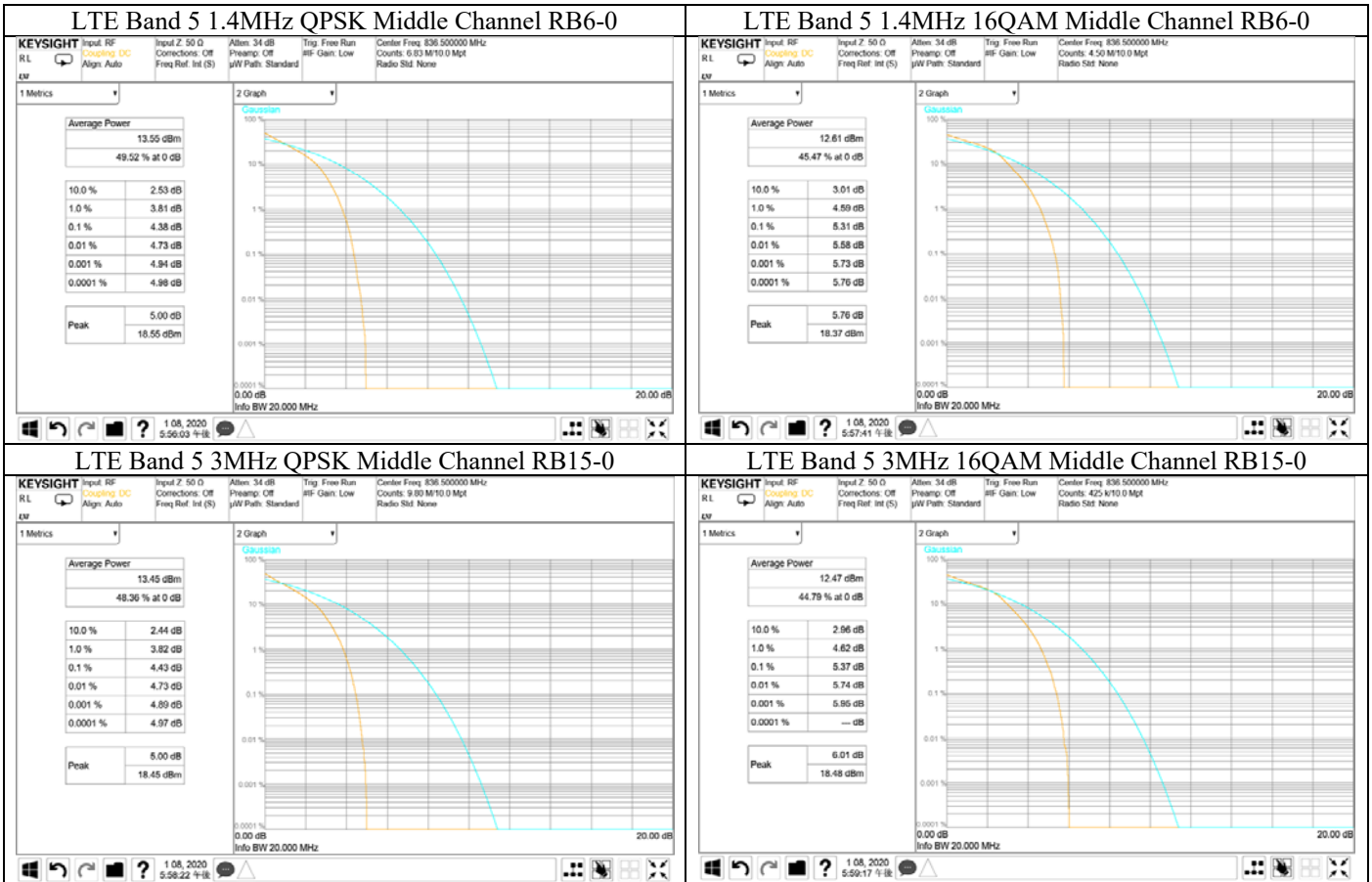
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 9, 2020  
 Temperature / Humidity 22 deg. C / 53 % RH  
 Engineer Yutaka Yoshida  
 Mode LTE



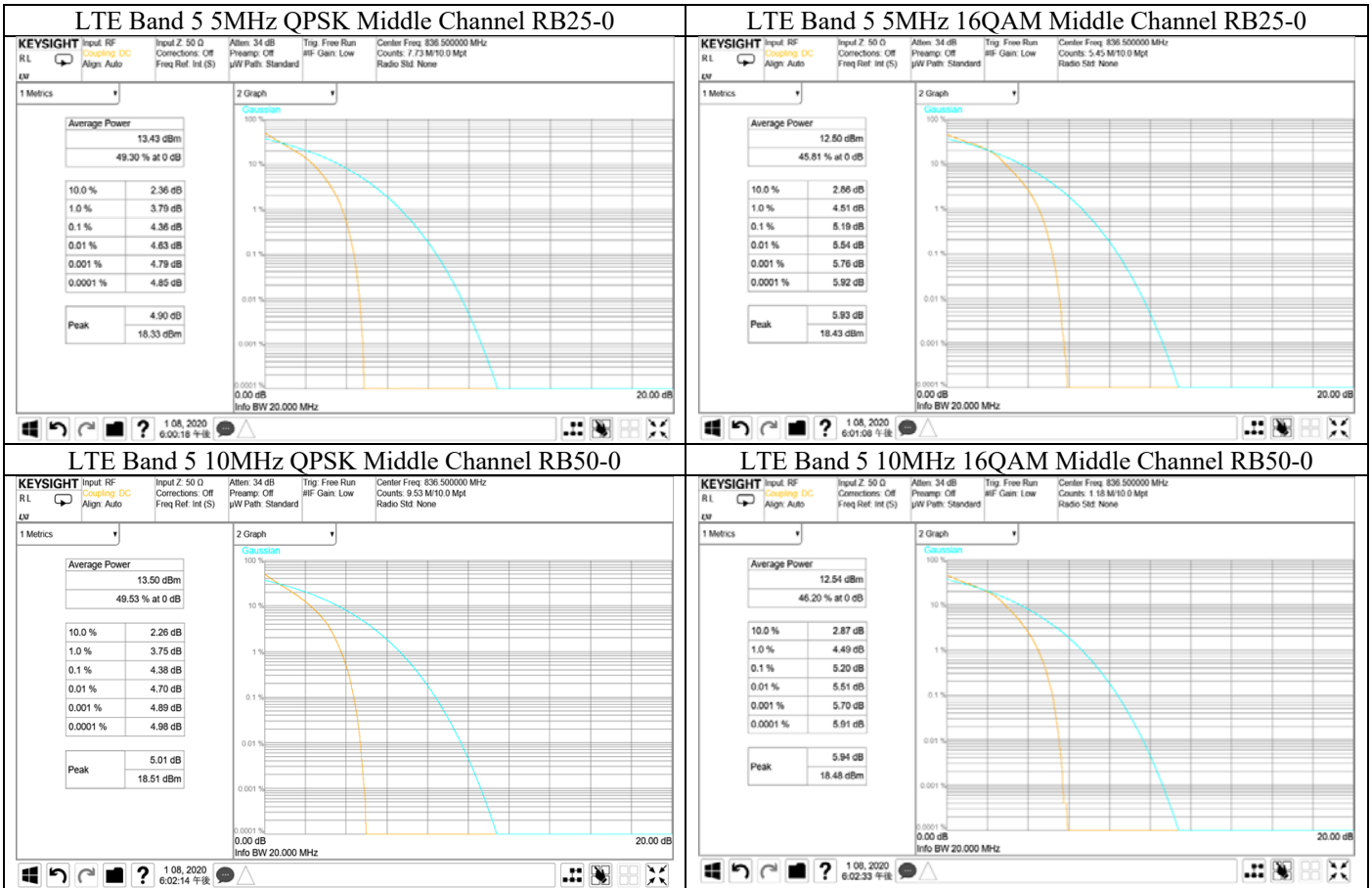
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 9, 2020  
 Temperature / Humidity 22 deg. C / 53 % RH  
 Engineer Yutaka Yoshida  
 Mode LTE



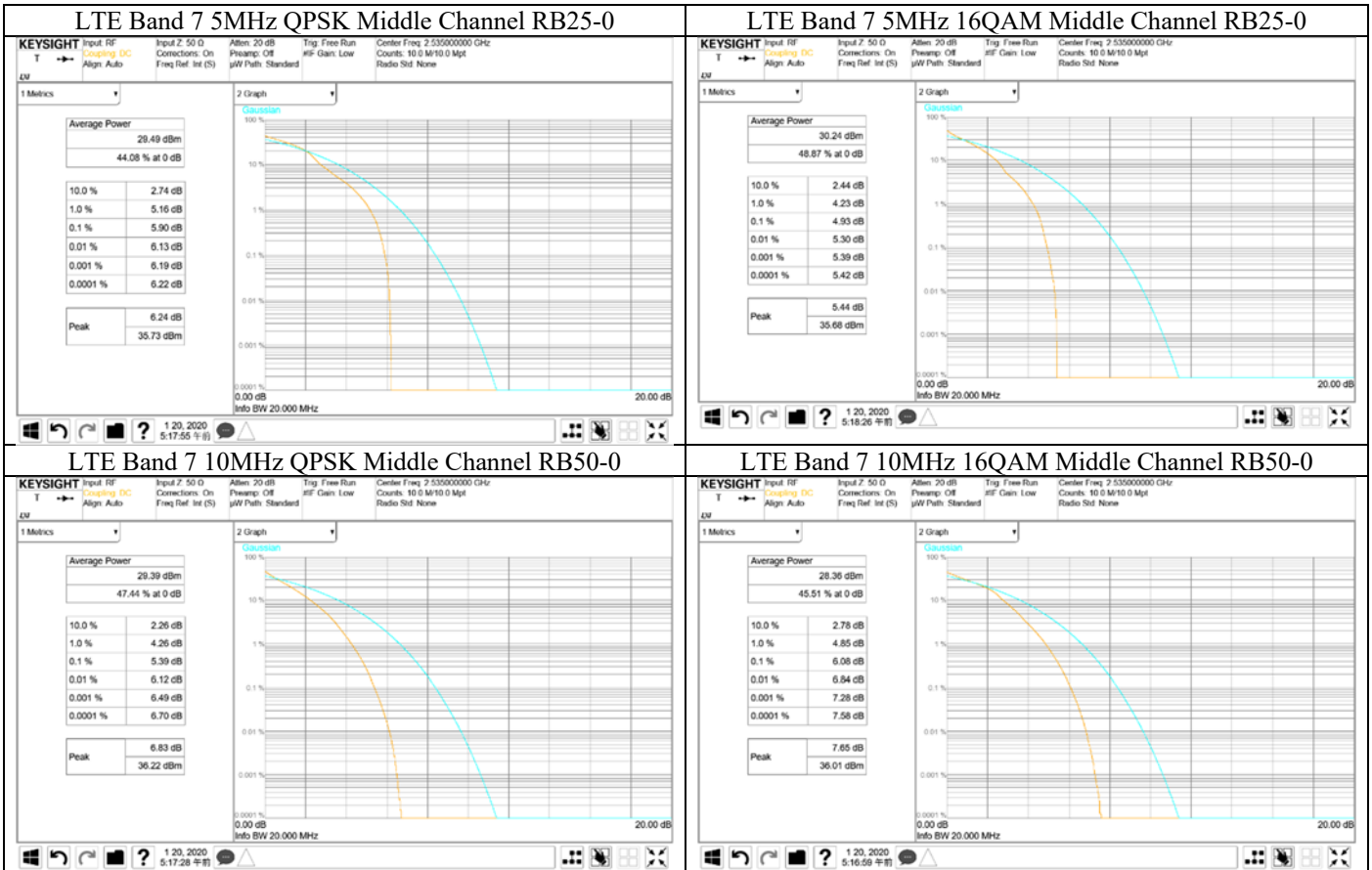
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 9, 2020  
 Temperature / Humidity 22 deg. C / 53 % RH  
 Engineer Yutaka Yoshida  
 Mode LTE



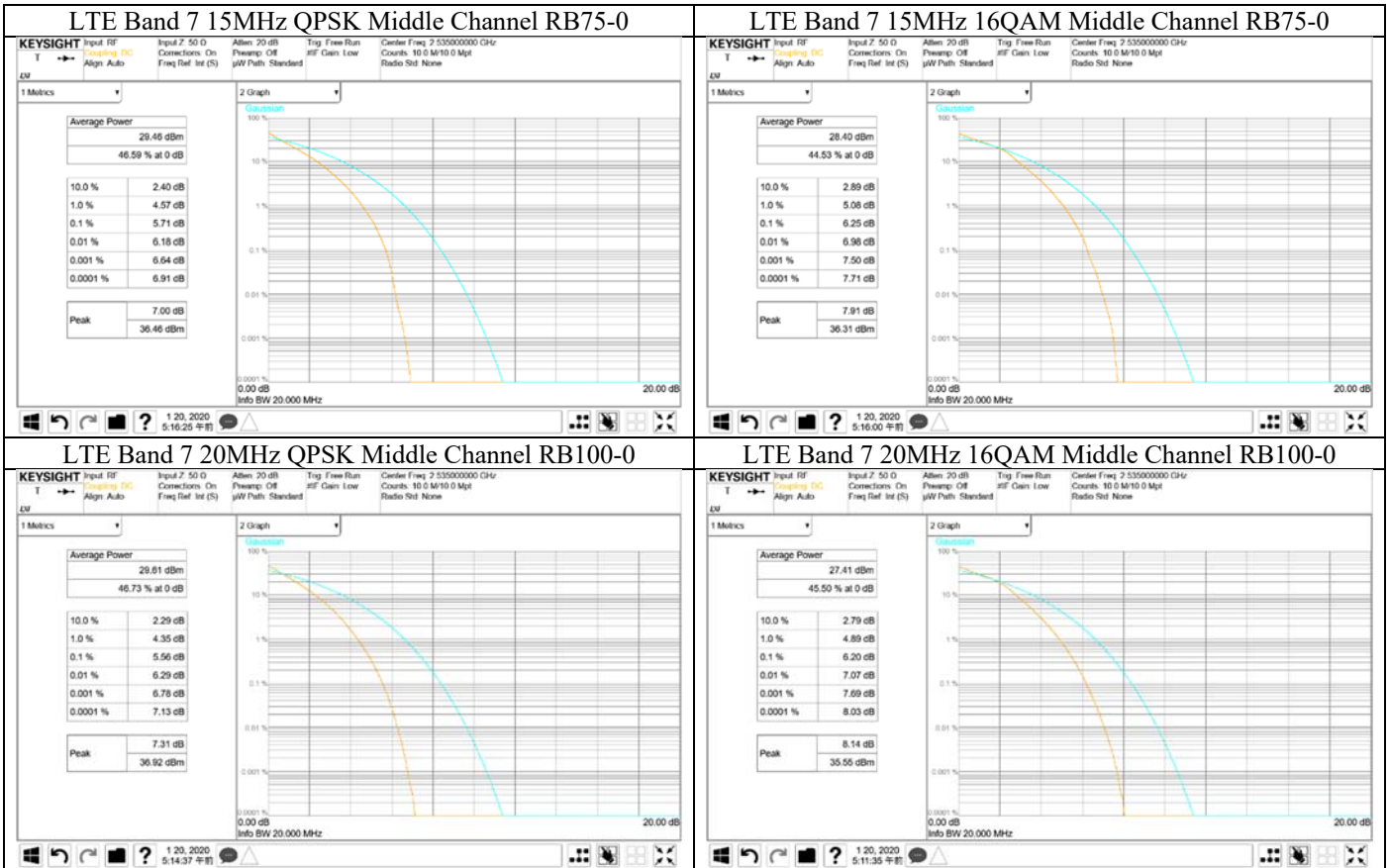
### Peak to Average power Ratio (Conducted)

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 20, 2020  
Temperature / Humidity 22 deg. C / 45 % RH  
Engineer Tomohisa Nakagawa  
Mode LTE



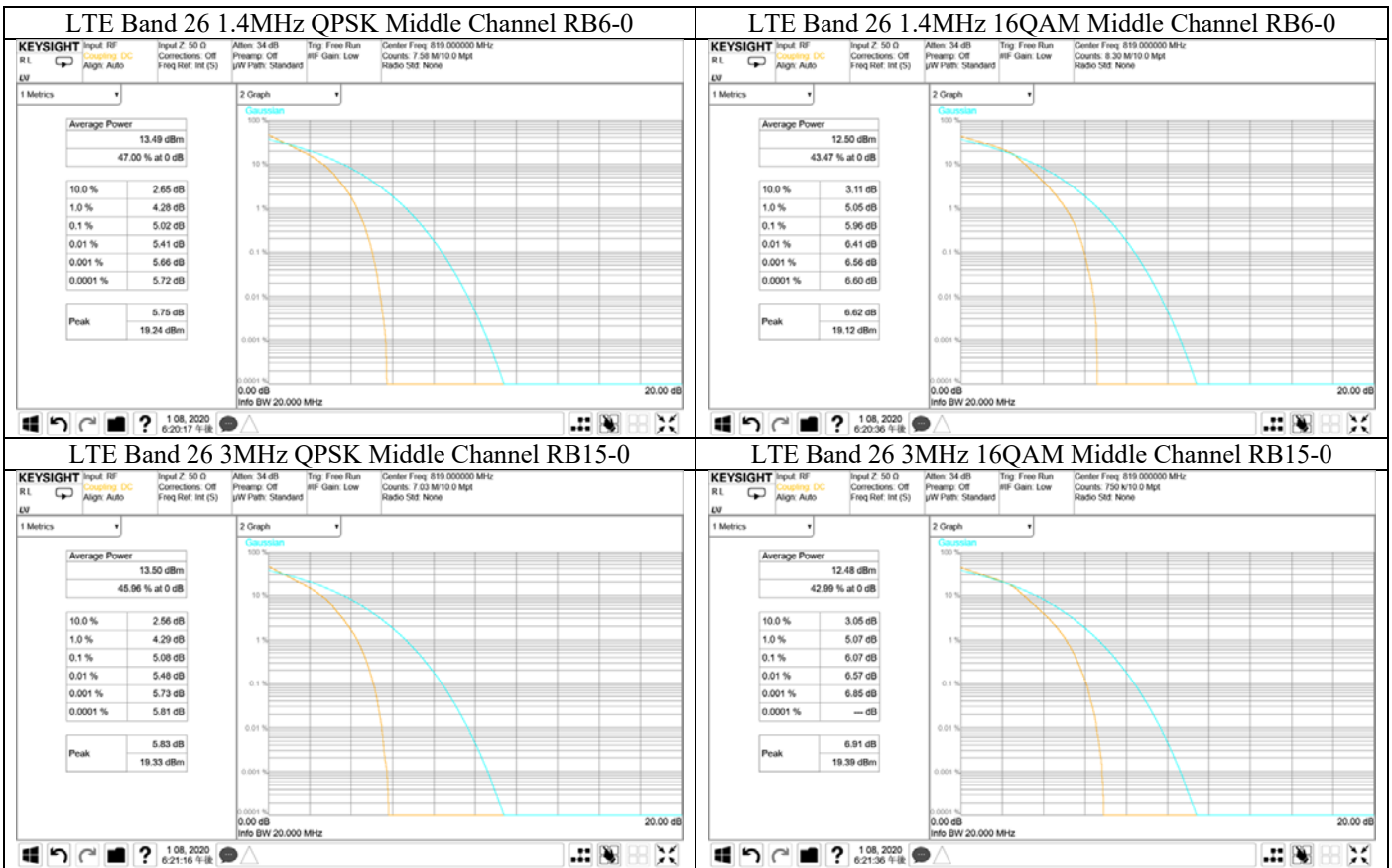
**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 20, 2020  
 Temperature / Humidity 22 deg. C / 45 % RH  
 Engineer Tomohisa Nakagawa  
 Mode LTE



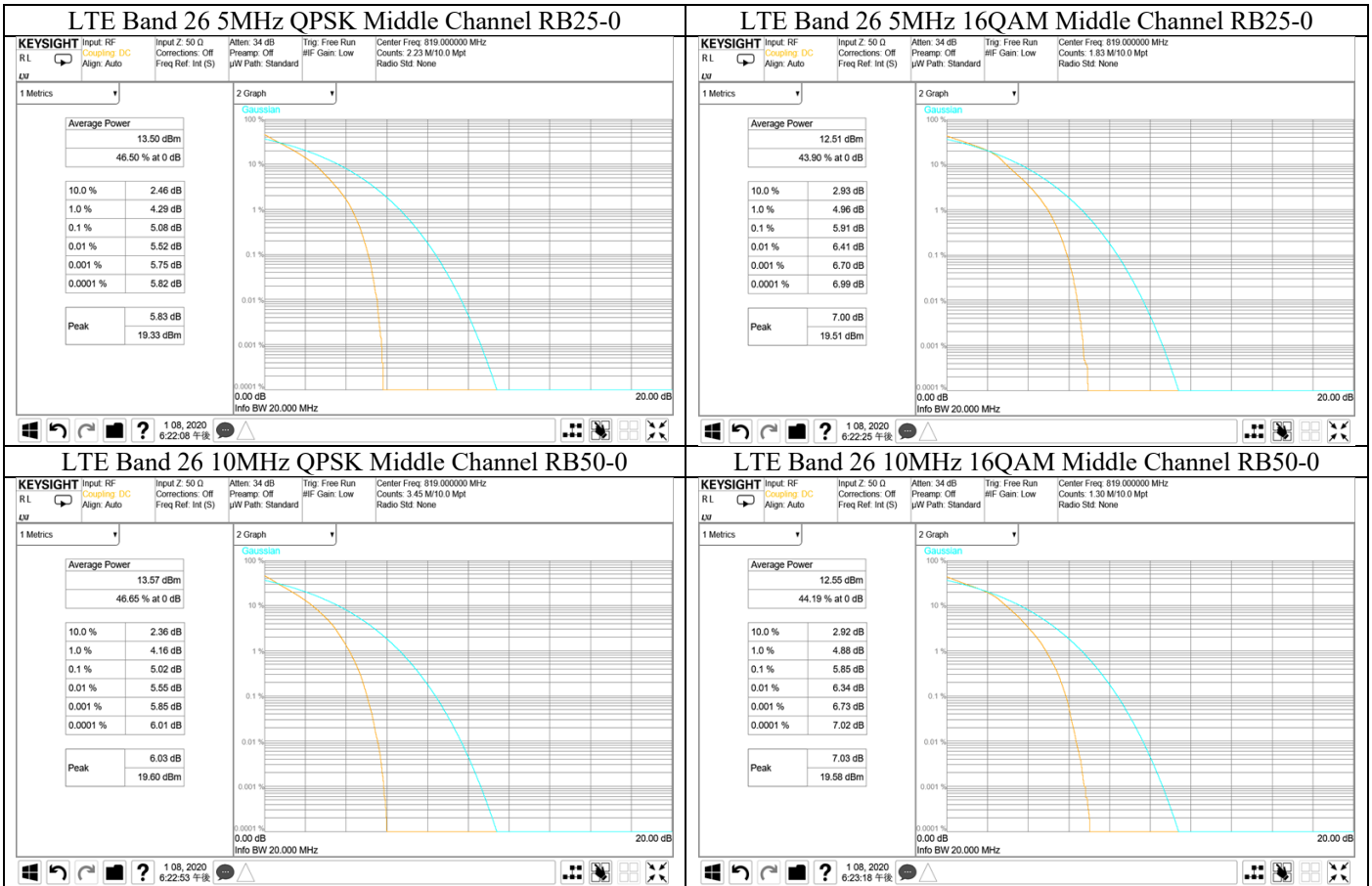
### Peak to Average power Ratio (Conducted)

Report No.	13274888H
Test place	Ise EMC Lab.
Shielded Room	No.6
Date	January 9, 2020
Temperature / Humidity	22 deg. C / 53 % RH
Engineer	Yutaka Yoshida
Mode	LTE



**Peak to Average power Ratio (Conducted)**

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 9, 2020  
 Temperature / Humidity 22 deg. C / 53 % RH  
 Engineer Yutaka Yoshida  
 Mode LTE





### 99% and 26dB Occupied Bandwidth

Report No.	13274888H		
Test place	Ise EMC Lab.		
Shielded Room	No.6	No.6	No.5
Date	January 16, 2020	January 17, 2020	March 15, 2020
Temperature / Humidity	22 deg. C / 45 % RH	22 deg. C / 43 % RH	22 deg. C / 38 % RH
Engineer	Tomohisa Nakagawa	Tomohisa Nakagawa	Tomohisa Nakagawa
Mode	GSM W-CDMA		

No limitation

Band	Ch	99%OBW [kHz]	26dB Bandwidth [kHz]	Emission Designator
GSM 850 GPRS	Mid	243.98	319.1	244KGXW
GSM 850 EGPRS	Mid	246.93	314.1	247KG7W
GSM 1900 GPRS	Mid	243.88	319.9	244KGXW
GSM 1900 EGPRS	Mid	247.72	316.3	248KG7W

Mode	Band	Ch	99%OBW [MHz]	26dB Bandwidth [MHz]	Emission Designator
RMC 12.2k	2	Mid	4.1664	4.702	4M16F9W
HSDPA	2	Mid	4.1804	4.693	4M18F9W
RMC 12.2k	5	Mid	4.1547	4.678	4M15F9W
HSDPA	5	Mid	4.1637	4.666	4M16F9W

### 99% and 26dB Occupied Bandwidth

Report No.	13274888H		
Test place	Ise EMC Lab.		
Shielded Room	No.6	No.6	No.6
Date	January 6, 2020	January 7, 2020	January 20, 2020
Temperature / Humidity	23 deg. C / 68 % RH	22 deg. C / 52 % RH	22 deg. C / 45 % RH
Engineer	Yutaka Yoshida	Yutaka Yoshida	Tomohisa Nakagawa
Mode	LTE		

No limitation

Band / BW / Mode / Ch / RB num-allocation	99% BW[MHz]	26dBBW[MHz]	Emission Designator
LTE Band 2 1.4MHz QPSK Middle Channel RB6-0	1.0888	1.274	1M09G7W
LTE Band 2 1.4MHz 16QAM Middle Channel RB6-0	1.0911	1.294	1M09D7W
LTE Band 2 3MHz QPSK Middle Channel RB15-0	2.6807	2.902	2M68G7W
LTE Band 2 3MHz 16QAM Middle Channel RB15-0	2.6849	2.914	2M68D7W
LTE Band 2 5MHz QPSK Middle Channel RB25-0	4.5226	5.198	4M52G7W
LTE Band 2 5MHz 16QAM Middle Channel RB25-0	4.4999	5.108	4M50D7W
LTE Band 2 10MHz QPSK Middle Channel RB50-0	8.9726	10.06	8M97G7W
LTE Band 2 10MHz 16QAM Middle Channel RB50-0	8.9878	10.10	8M99D7W
LTE Band 2 15MHz QPSK Middle Channel RB75-0	13.428	14.77	13M4G7W
LTE Band 2 15MHz 16QAM Middle Channel RB75-0	13.449	14.80	13M4D7W
LTE Band 2 20MHz QPSK Middle Channel RB100-0	17.909	19.53	17M9G7W
LTE Band 2 20MHz 16QAM Middle Channel RB100-0	17.884	19.42	17M9D7W
LTE Band 5 1.4MHz QPSK Middle Channel RB6-0	1.0925	1.292	1M09G7W
LTE Band 5 1.4MHz 16QAM Middle Channel RB6-0	1.0834	1.300	1M08D7W
LTE Band 5 3MHz QPSK Middle Channel RB15-0	2.6849	2.898	2M68G7W
LTE Band 5 3MHz 16QAM Middle Channel RB15-0	2.6860	2.909	2M69D7W
LTE Band 5 5MHz QPSK Middle Channel RB25-0	4.5136	5.811	4M51G7W
LTE Band 5 5MHz 16QAM Middle Channel RB25-0	4.5104	6.485	4M51D7W
LTE Band 5 10MHz QPSK Middle Channel RB50-0	8.9956	14.14	9M00G7W
LTE Band 5 10MHz 16QAM Middle Channel RB50-0	8.9837	10.08	8M98D7W
LTE Band 7 5MHz QPSK Middle Channel RB25-0	4.4724	4.847	4M47G7W
LTE Band 7 5MHz 16QAM Middle Channel RB25-0	4.4616	4.840	4M46D7W
LTE Band 7 10MHz QPSK Middle Channel RB50-0	8.9344	9.418	8M93G7W
LTE Band 7 10MHz 16QAM Middle Channel RB50-0	8.9507	9.424	8M95D7W
LTE Band 7 15MHz QPSK Middle Channel RB75-0	13.415	14.08	13M4G7W
LTE Band 7 15MHz 16QAM Middle Channel RB75-0	13.424	14.05	13M4D7W
LTE Band 7 20MHz QPSK Middle Channel RB100-0	17.868	18.70	17M9G7W
LTE Band 7 20MHz 16QAM Middle Channel RB100-0	17.871	18.68	17M9D7W
LTE Band 26 1.4MHz QPSK Middle Channel RB6-0	1.0776	1.264	1M08G7W
LTE Band 26 1.4MHz 16QAM Middle Channel RB6-0	1.0829	1.270	1M08D7W
LTE Band 26 3MHz QPSK Middle Channel RB15-0	2.6796	2.915	2M68G7W
LTE Band 26 3MHz 16QAM Middle Channel RB15-0	2.6849	2.898	2M68D7W
LTE Band 26 5MHz QPSK Middle Channel RB25-0	4.5178	5.149	4M52G7W
LTE Band 26 5MHz 16QAM Middle Channel RB25-0	4.5022	5.152	4M50D7W
LTE Band 26 10MHz QPSK Middle Channel RB50-0	8.9781	10.13	8M98G7W
LTE Band 26 10MHz 16QAM Middle Channel RB50-0	8.9899	9.995	8M99D7W

**UL Japan, Inc.**

**Ise EMC Lab.**

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

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

### 99% and 26dB Occupied Bandwidth

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.5  
Date March 15, 2020  
Temperature / Humidity 22 deg. C / 38 % RH  
Engineer Tomohisa Nakagawa  
Mode GSM



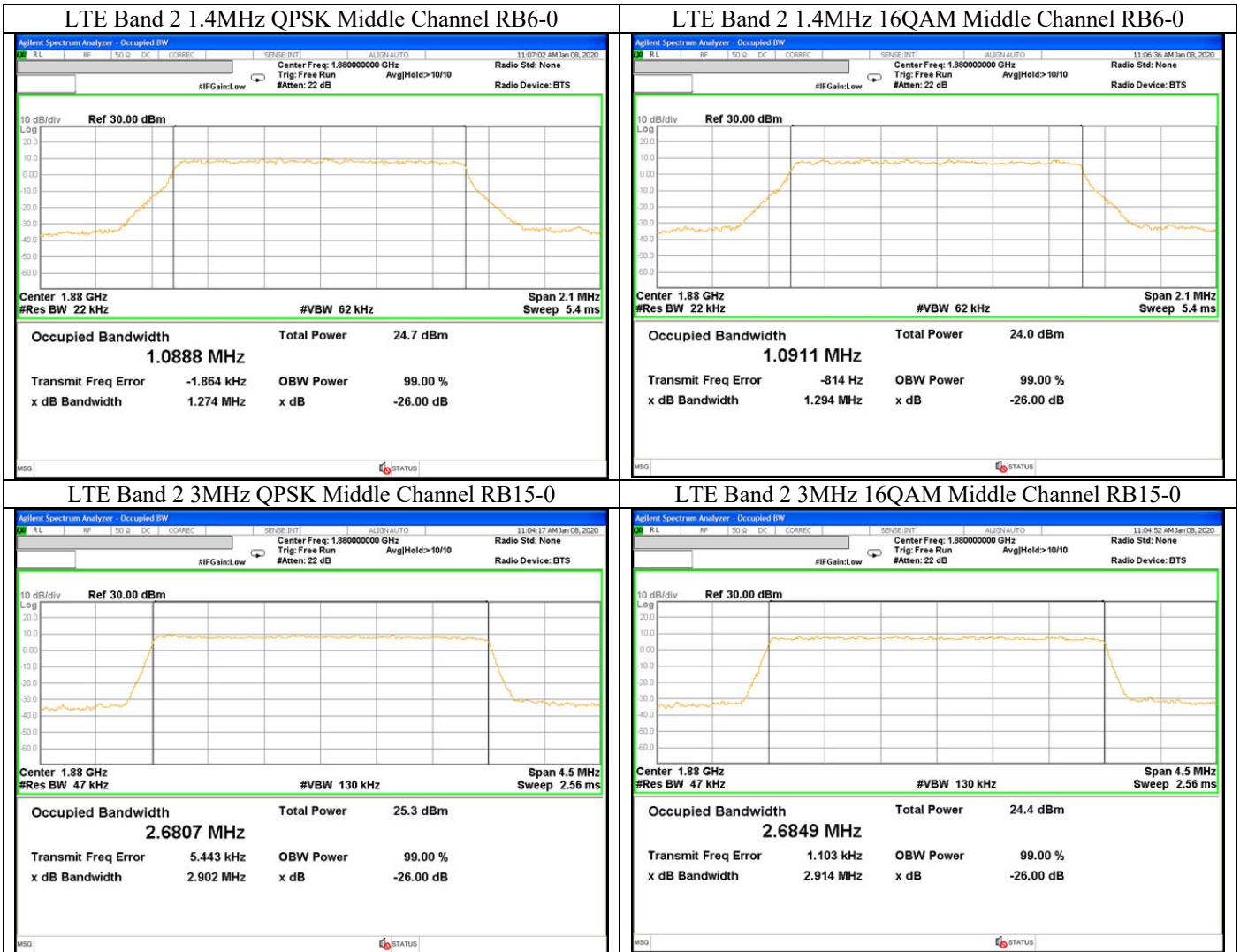
## 99% and 26dB Occupied Bandwidth

Report No.	13274888H	No.6
Test place	Ise EMC Lab.	No.6
Shielded Room	No.6	No.6
Date	January 16, 2020	January 17, 2020
Temperature / Humidity	22 deg. C / 45 % RH	22 deg. C / 43 % RH
Engineer	Tomohisa Nakagawa	Tomohisa Nakagawa
Mode	W-CDMA	



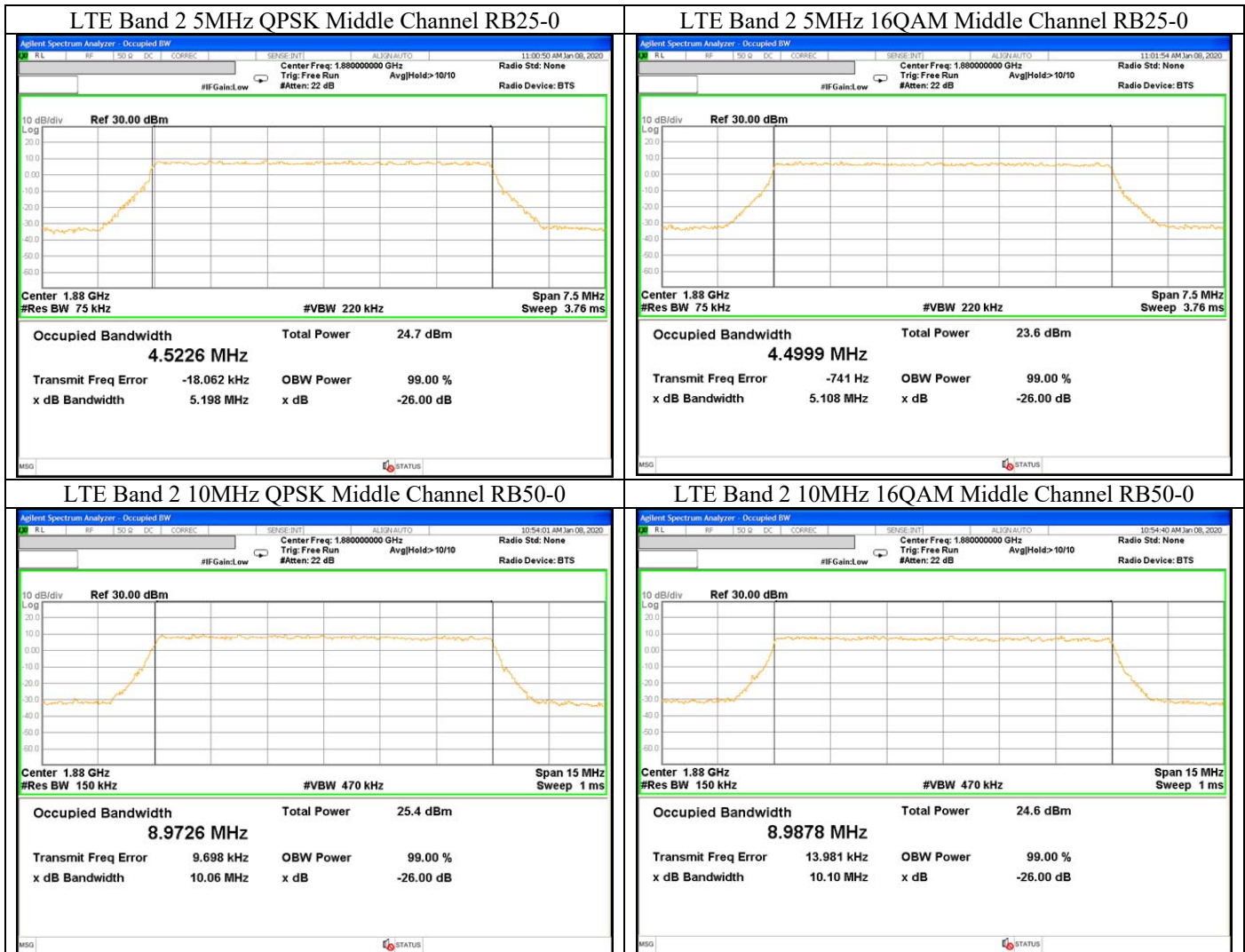
## 99% and 26dB Occupied Bandwidth

Report No.	13274888H
Test place	Ise EMC Lab.
Shielded Room	No.6
Date	January 7, 2020
Temperature / Humidity	22 deg. C / 52 % RH
Engineer	Yutaka Yoshida
Mode	LTE



### 99% and 26dB Occupied Bandwidth

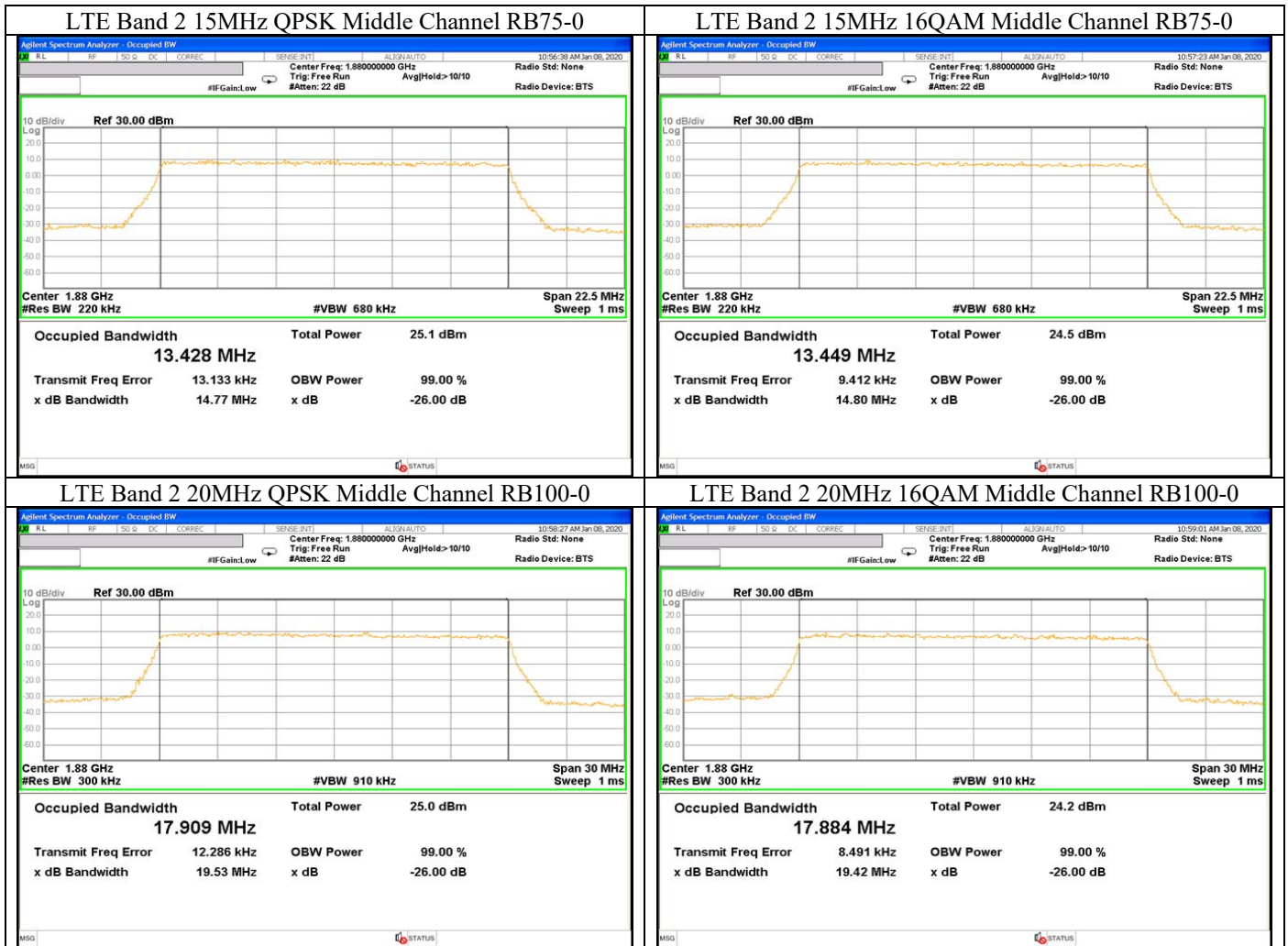
Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 7, 2020  
Temperature / Humidity 22 deg. C / 52 % RH  
Engineer Yutaka Yoshida  
  
Mode LTE





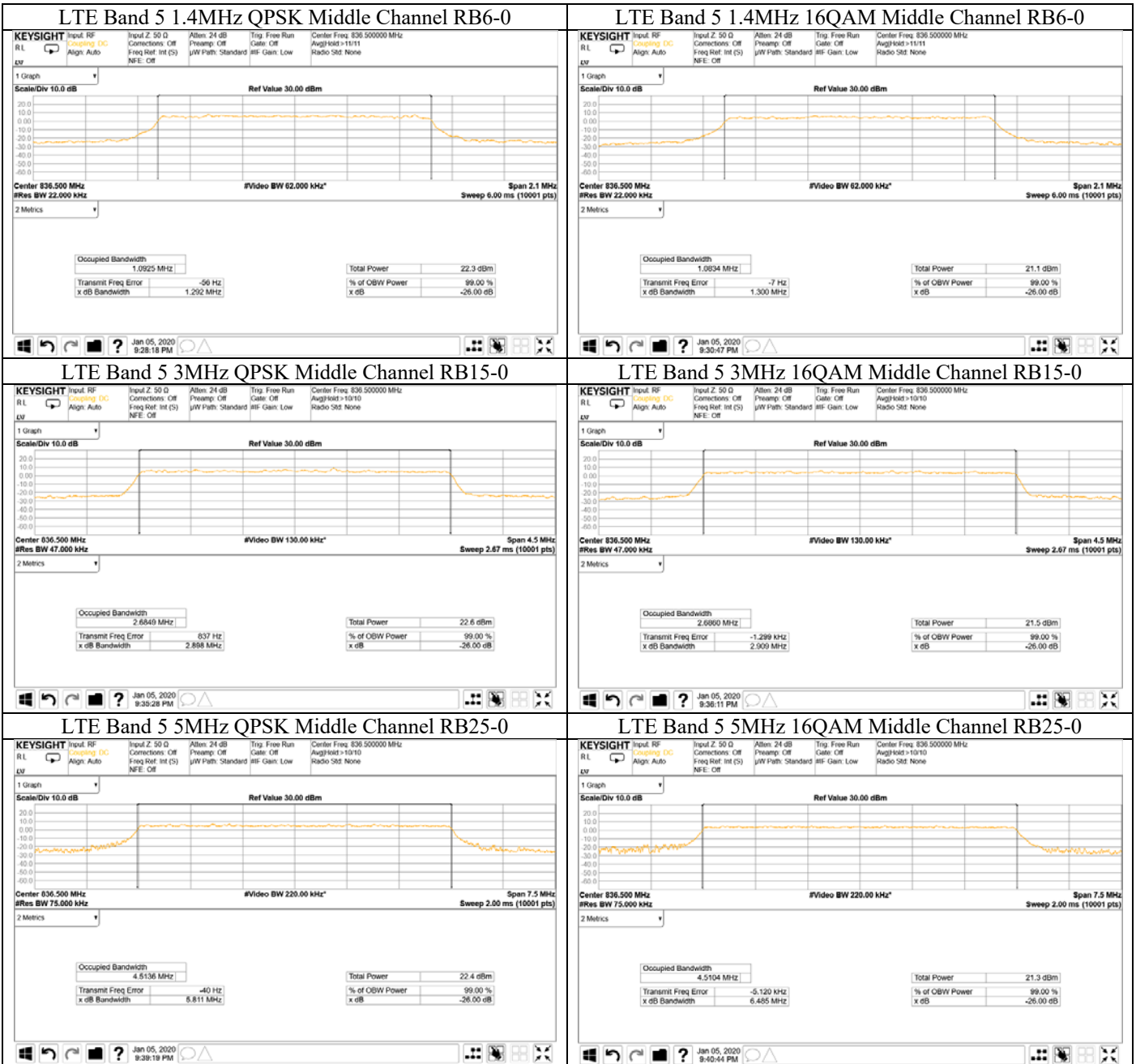
### 99% and 26dB Occupied Bandwidth

Report No. 13274888H  
Test place Ise EMC Lab.  
Shielded Room No.6  
Date January 7, 2020  
Temperature / Humidity 22 deg. C / 52 % RH  
Engineer Yutaka Yoshida  
  
Mode LTE



### 99% and 26dB Occupied Bandwidth

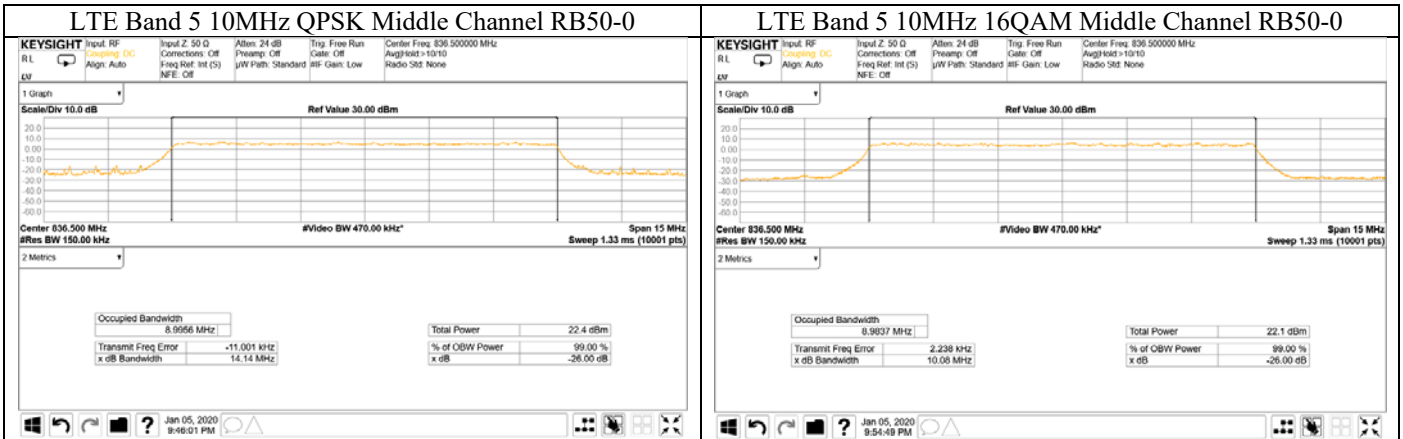
Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 6, 2020  
 Temperature / Humidity 23 deg. C / 68 % RH  
 Engineer Yutaka Yoshida  
 Mode LTE





## 99% and 26dB Occupied Bandwidth

Report No.	13274888H
Test place	Ise EMC Lab.
Shielded Room	No.6
Date	January 6, 2020
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Yutaka Yoshida
Mode	LTE



### 99% and 26dB Occupied Bandwidth

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 20, 2020  
 Temperature / Humidity 22 deg. C / 45 % RH  
 Engineer Tomohisa Nakagawa  
 Mode LTE



### 99% and 26dB Occupied Bandwidth

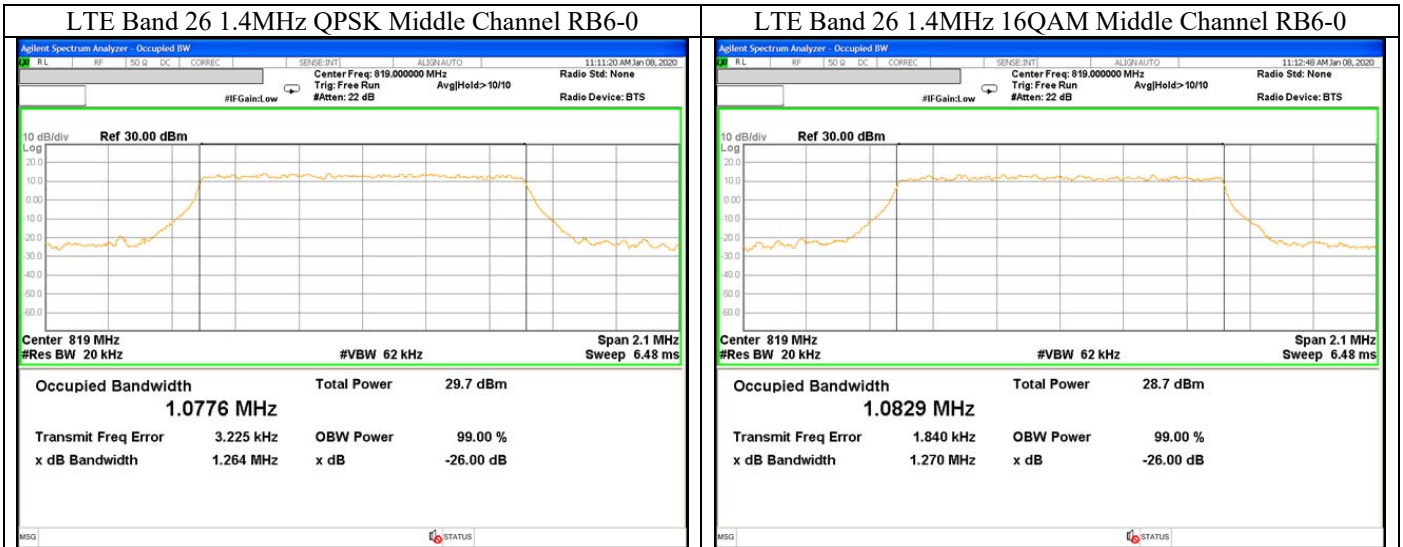
Report No.	13274888H
Test place	Ise EMC Lab.
Shielded Room	No.6
Date	January 20, 2020
Temperature / Humidity	22 deg. C / 45 % RH
Engineer	Tomohisa Nakagawa
Mode	LTE



### 99% and 26dB Occupied Bandwidth

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 7, 2020  
 Temperature / Humidity 22 deg. C / 52 % RH  
 Engineer Yutaka Yoshida

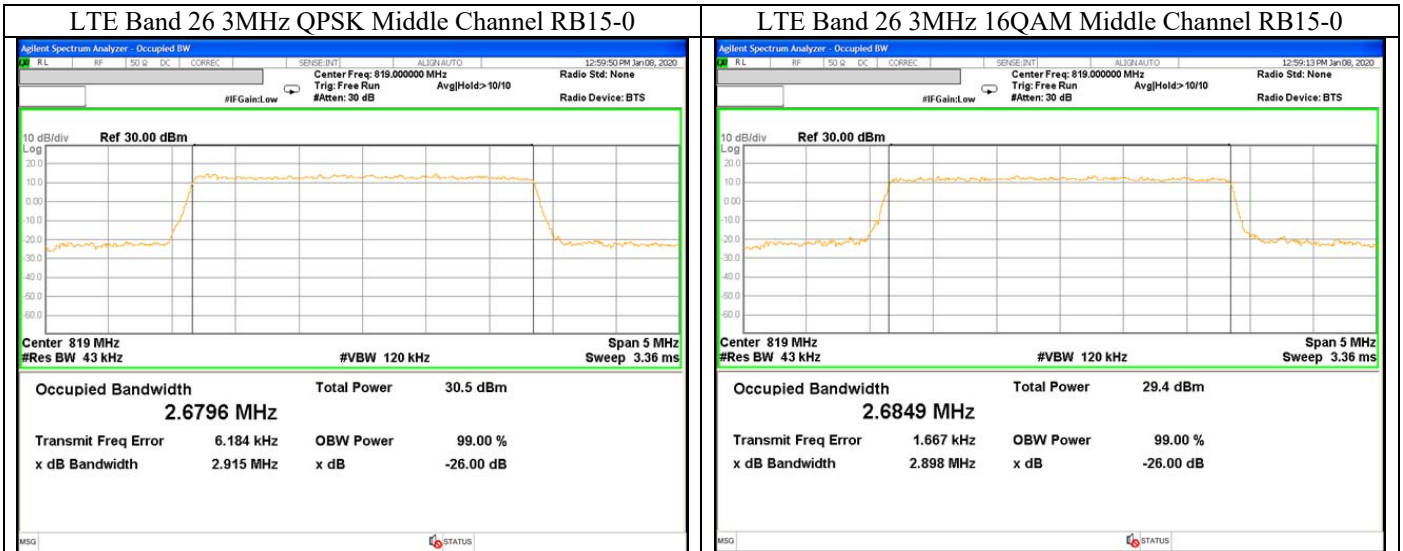
Mode LTE



### 99% and 26dB Occupied Bandwidth

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 7, 2020  
 Temperature / Humidity 22 deg. C / 52 % RH  
 Engineer Yutaka Yoshida

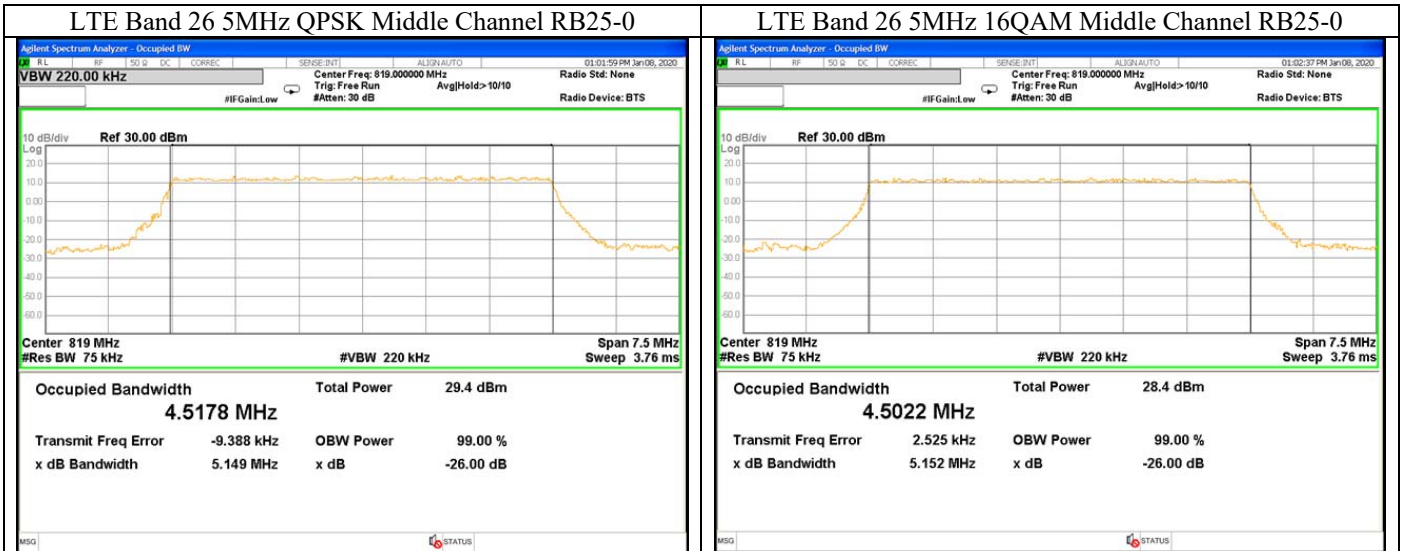
Mode LTE



### 99% and 26dB Occupied Bandwidth

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 7, 2020  
 Temperature / Humidity 22 deg. C / 52 % RH  
 Engineer Yutaka Yoshida

Mode LTE



### 99% and 26dB Occupied Bandwidth

Report No. 13274888H  
 Test place Ise EMC Lab.  
 Shielded Room No.6  
 Date January 7, 2020  
 Temperature / Humidity 22 deg. C / 52 % RH  
 Engineer Yutaka Yoshida

Mode LTE

