



RADIO TEST REPORT

Test Report No. : 32JE0205-HO-E

Applicant : SAMSUNG ELECTRONICS CO., LTD.
Type of Equipment : GPRS850/1900, EDGE850/1900, WCDMA2,
WCDMA5, LTE4, LTE17 Tablet with 802.11bgn,
BT(EDR, LE)
Model No. : SGH-I497
Test standard : FCC Part 27 Subpart C: 2012
FCC ID : A3LSGHI497
Test Result : **Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with above regulation.
4. The test results in this report are traceable to the national or international standards.
5. 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 Federal Government.

Date of test: June 6 to June 22, 2012

**Representative
test engineer:**

Katsunori Okai
Engineer of WiSE Japan,
UL Verification Service

Approved by:

Takahiro Hatakeda
Leader of WiSE Japan,
UL Verification Service



NVLAP LAB CODE: 200572-0

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://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

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SECTION 1: Customer information

Company Name : SAMSUNG ELECTRONICS CO., LTD.
Address : 416, MAETAN 3-DONG, YEONGTONG-GU SUWON-CITY,
GYEONGGI-DO 443-742, SOUTH KOREA

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : GPRS850/1900, EDGE850/1900, WCDMA2, WCDMA5, LTE4,
LTE17 Tablet with 802.11bgn, BT(EDR, LE)
Model No. : SGH-I497
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC5.0V(USB Power Supply)
DC3.7V/7000mAh, 25.9Wh
Receipt Date of Sample : June 4, 2012
Modification of EUT : No Modification by the test lab

2.2 Product Description

Radio Specification

Bluetooth

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Type	PIFA
Antenna Gain	-4.8 dBi (MAX)

Low Energy

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	DSSS, FHSS
Bandwidth & Channel spacing	1MHz & 2MHz
Antenna Type	PIFA
Antenna Gain	-4.8 dBi (MAX)

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

Equipment Type	Transceiver
Frequency of Operation	2412-2462MHz
Type of Modulation	DSSS, OFDM
Bandwidth & Channel spacing	20MHz & 5MHz
Antenna Type	PIFA
Antenna Gain	-4.8 dBi (MAX)

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GSM

Equipment Type	Transceiver
Frequency of Operation	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz
Type of Modulation	GMSK , 8PSK
Emission Designator	GSM850: 249KGXW, 248KG7W PCS: 248KGXW, 248KG7W
Antenna Type	PIFA
Antenna Gain	GSM850: 824-849MHz: -5.73dBi (MAX) 869-894MHz: -5.83dBi (MAX) PCS: 1850-1910MHz: -5.62dBi (MAX) 1930-1990MHz: -5.51dBi (MAX)

W-CDMA

Equipment Type	Transceiver
Frequency of Operation	[Up Link] Band V: 824 – 849MHz Band II: 1850 – 1910MHz [Down Link] Band V: 869 – 894MHz Band II: 1930 – 1990MHz
Type of Modulation	QPSK
Emission Designator	Band V: 4M16F9W Band II: 4M14F9W
Antenna Type	PIFA
Antenna Gain	Band V: 824-849MHz: -5.73dBi (MAX) 869-894MHz: -5.83dBi (MAX) Band II: 1850-1910MHz: -5.62dBi (MAX) 1930-1900MHz: -5.51dBi (MAX)

LTE

Equipment Type	Transceiver
Frequency of Operation	[Up Link] Band IV: 1710 – 1755MHz Band X VII: 704 – 716MHz [Down Link] Band IV: 2110 – 2155MHz Band X VII: 734 – 746MHz
Type of Modulation	QPSK, 16QAM
Emission Designator	Band IV: 4M53G7D, 4M52W7D, 8M97G7D, 8M96W7D, 13M5G7D, 13M5W7D, 17M9G7D, 17M9W7D Band X VII: 4M53G7D, 4M51W7D, 8M96G7D, 8M98W7D
Antenna Type	PIFA
Antenna Gain	Band IV: 1710-1755MHz: -5.57dBi (MAX) 2110-2155MHz: -3.86dBi (MAX) Band X VII: 704-716MHz: -5.95dBi (MAX) 734-746MHz: -4.23dBi (MAX)

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 27 Subpart C: 2010, final revised on January 26, 2012

Title : FCC 47CFR Part 27 Subpart C Technical Standards
MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

3.2 Procedures and results

Item	Test Specification & Procedure	Remarks	Deviation	Worst margin	Results
RF Output Power(Conducted/ Radiated) (Conducted Output Power / Effective radiated power(ERP)(Band 17)/Equivalent isotropic radiated power(EIRP)(Band 4))	FCC 2.1046 FCC 27.50	Conducted/ Radiated	N/A	-	Complied
Peak to Average power Ratio	FCC 27.50	Conducted	N/A	-	Complied
Emission Bandwidth, 99% Occupied Bandwidth	FCC 2.1049	Conducted	N/A	-	Complied
Band-Edge	FCC 2.1051 FCC 2.1053 FCC 27.53	Conducted/ Radiated	N/A	Band 4 [Conducted] 1.13dB 1710.0000MHz [Radiated] 1.8dB 1755.00MHz, Horizontal Band 17 [Conducted] 0.17dB 704.0000MHz [Radiated] 10.7dB 704.00MHz, Vertical	Complied
Spurious Emission(Conducted)	FCC 2.1051 FCC 27.53	Conducted	N/A	-	Complied
Spurious Emission(Radiated)	FCC 2.1053 FCC 27.53	Radiated	N/A	Band 4 17.8dB 17235.90MHz, Vertical Band 17 33.8dB 2818.36MHz, Vertical	Complied
Frequency Stability (Temperature Variation/ Voltage Variation)	FCC 2.1055 FCC 27.54	Conducted	N/A	-	Complied

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

*These tests were also referred to ANSI/TIA 603-C-2004 "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards."

*These tests were also referred to KDB 971168 D01 "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems"

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

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3.3 Uncertainty

EMI

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

Radiated Emission (EUT height: 0.8m) (+dB)	
Measurement Distance 3m	
30MHz-300MHz	5.5dB
300MHz-1000MHz	4.2dB
1GHz-12.75GHz	4.6dB

Power meter (+dB)	
Below 1GHz	Above 1GHz
1.0dB	1.0dB

Antenna terminal conducted emission and Power density (+dB)			Antenna terminal conducted emission (+dB)		Channel power (+dB)
Below 1GHz	1GHz-3GHz	3GHz-18GHz	18GHz-26.5GHz	26.5GHz-40GHz	
1.0dB	1.1dB	2.7dB	3.2dB	3.3dB	1.5dB

Antenna Terminal Conducted emission test

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Radiated emission test(3m)

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

3.4 Test Location

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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.75 x 5.4 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	-	8.0 x 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

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

3.5 Test set up, Test instruments and Data of EMI

Refer to APPENDIX.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

<LTE Band 4>

Test	Operating mode	BW	UL RB Allocation/Start	Channel
RF output Power(Conducted)	Transmitting (Tx) LTE (QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz, 15MHz, 20MHz	100% RB allocation, 50% RB allocation, 1 RB/lower 1 RB/upper	Low Mid High
RF output Power (Radiated),	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz, 15MHz, 20MHz	1 RB*1)	Low Mid High
Spurious Emission(Radiated)	Transmitting (Tx) LTE(QPSK)	20MHz	1 RB*1)	Low Mid High
Spurious Emission(Conducted)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	20MHz	1 RB*1)	Low Mid High
Band Edge (Conducted)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz *2)	100% RB allocation, 1 RB/lower 1 RB/upper	Low High
	Transmitting (Tx) LTE(QPSK)	10MHz, 15MHz, 20MHz	1 RB/lower 1 RB/upper	
Band Edge (Radiated)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz *2)	100% RB allocation, 1 RB/lower 1 RB/upper	Low High
Peak to Average power Ratio (Conducted)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz, 15MHz, 20MHz	100% RB allocation,	Mid
Emission Bandwidth, 99% Occupied bandwidth,	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz, 15MHz, 20MHz	100% RB allocation, 50% RB allocation, 1 RB/lower 1 RB/upper	Mid
Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) LTE(QPSK)	20MHz	100% RB allocation	Mid

*1) 1 RB which had the highest power was tested as a representative.

*2) Test was performed with BW:5MHz as a representative as it had the highest result at Band edge (conducted) test under the condition of 1RB and QPSK modulation.

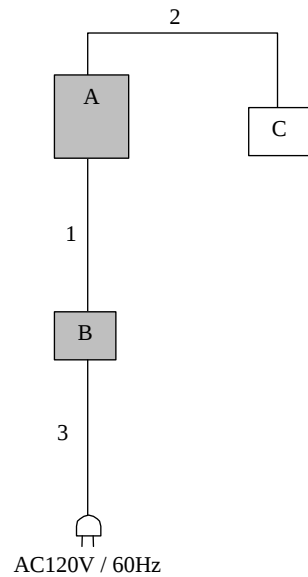
<LTE Band 17>

Test	Operating mode	BW	UL RB Allocation/Start	Channel
RF output Power(Conducted)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz	100% RB allocation, 50% RB allocation, 1 RB/lower 1 RB/upper	Low Mid High
RF output Power (Radiated),	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz	1 RB*	Low Mid High
Spurious Emission(Radiated)	Transmitting (Tx) LTE(QPSK)	10MHz	1 RB*	Low Mid High
Spurious Emission(Conducted)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	10MHz	1 RB*	Low Mid High
Band Edge (Conducted)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz *2)	100% RB allocation, 1 RB/lower 1 RB/upper	Low High
	Transmitting (Tx) LTE(QPSK)	10MHz	1 RB/lower 1 RB/upper	
Band Edge (Radiated)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz *2)	100% RB allocation, 1 RB/lower 1 RB/upper	Low High
Peak to Average power Ratio (Conducted)	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz	100% RB allocation,	Mid
Emission Bandwidth, 99% Occupied bandwidth,	Transmitting (Tx) LTE(QPSK) Transmitting (Tx) LTE (16QAM)	5MHz, 10MHz	100% RB allocation, 50% RB allocation, 1 RB/lower 1 RB/upper	Mid
Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) LTE(QPSK)	10MHz	100% RB allocation	Mid

*1)1 RB which had the highest power was tested as a representative.

*2) Test was performed with BW:5MHz as a representative as it had the highest result at Band edge (conducted) test under the condition of 1RB and QPSK modulation.

4.2 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	GPRS850/1900, EDGE850/1900, WCDMA2, WCDMA5, LTE4, LTE17 Tablet with 802.11bgn, BT(EDR, LE)	SGH-I497	R31C50X3QJH	SAMSUNG	EUT
B	AC Adapter	ETA-P11X	-	SAMSUNG	EUT
C	Ear phone	-	-	SAMSUNG	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Cable	1.0	Shielded	Shielded	-
2	Ear phone Cable	1.2	Unshielded	Unshielded	-
3	AC Cable	0.9	Unshielded	Unshielded	-

SECTION 5: RF Output Power (Conducted/Radiated)

[Conducted: Conducted Output Power]

Test Procedure

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

[Radiated : Effective radiated power(ERP)/ Equivalent isotropic radiated power(EIRP)]

Test Procedure

- 1) EUT was placed on a platform of nominal size, 0.5 m by 1.0m, raised 80cm above the conducting ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The Radiated Electric Field Strength intensity has been measured in a semi anechoic chamber with a ground plane and at a distance of 3m.
The measuring antenna height varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
 - 2) Exchanged the EUT to the Substitution Antenna, the antenna was set for the same height as EUT on the table. Half wave dipole antenna was used as a substitution antenna for testing at the frequency below 1GHz, which is harmonized with the measured frequency in 1).
Horn antenna calibrated with the Half wave dipole antenna was used as a substitution antenna for testing at the frequency above 1GHz, which is harmonized with the measured frequency in 1).
The Substitution Antenna was connected with the Signal Generator, and the polarized electromagnetic radiation of the Substitution Antenna was matched with the one of the measuring Antenna, which was set with the Signal Generator to the measured frequency in 1). Then, we set with the Output power (CW) of the Signal Generator where the measuring electromagnetic field is equal to the measured value in 1).
The measuring antenna height varied between 1 and 4m to obtain the maximum receiving level.
Its Output power of Signal Generator was recorded.
 - 3) Effective radiated power(ERP) and Equivalent isotropic radiated power(EIRP) were calculated by subtracting the cable loss and the attenuator loss connected between the Signal Generator and the Substitution Antenna from the Output power of the Signal Generator recorded in 2).
- The carrier level and noise levels were confirmed at each position of X, Y and Z axis of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Test data : APPENDIX 1
Test result : Pass

SECTION 6: Bandwidth (Conducted)

Test Procedure

The Emission Bandwidth and 99% Occupied Bandwidth was measured with a spectrum analyzer and attenuator connected to the antenna port.

Test data : APPENDIX 1
Test result : Pass

SECTION 7: Spurious Emission and Band-Edge (Conducted/Radiated)

[Conducted]

Test Procedure

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

[Radiated]

Test Procedure

- 1) EUT was placed on a platform of nominal size, 0.5m by 1.0m, raised 80cm above the conducting ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The Radiated Electric Field Strength intensity has been measured in a semi anechoic chamber with a ground plane and at a distance of 3m. The measuring antenna height varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
- 2) Exchanged the EUT to the Substitution Antenna, the antenna was set for the same height as EUT on the table. Half wave dipole antenna was used as a substitution antenna for testing at the frequency below 1GHz, which is harmonized with the measured frequency in 1). Horn antenna calibrated with the Half wave dipole antenna was used as a substitution antenna for testing at the frequency above 1GHz, which is harmonized with the measured frequency in 1). The Substitution antenna was connected with the Signal Generator, and the polarized electromagnetic radiation of the Substitution antenna was matched with the one of the measuring antenna, which was set with the Signal Generator to the measured frequency in 1). Then, we set with the Output power (CW) of the Signal Generator where the measuring electromagnetic field is equal to the measured value in 1). The measuring antenna height varied between 1 and 4m to obtain the maximum receiving level. Its Output power of Signal Generator was recorded.
- 3) Effective radiated power (ERP) and Equivalent isotropic radiated power(EIRP) were calculated by subtracting the cable loss and the attenuator loss connected between the Signal Generator and the Substitution Antenna from the Output power of the Signal Generator recorded in 2). For the usage of the antenna (Shorted dipole and Horn antenna) except for the Half wave dipole antenna (2.15dBi) for the Substitution antenna, the Effective radiated power was calculated by compensating the finite difference in the antenna gain of the Half wave dipole antenna, and Substitution antenna.

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

Test data : APPENDIX 1
Test result : Pass

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SECTION 8: Frequency Stability(Temperature/Voltage Variation)

Test Procedure

The Frequency Stability was measured with a Digital Radio 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 (DC 3.6V to DC 4.2V), and it is presented as the ppm unit.

Temperature : -30deg.C to +50deg.C (10 deg. C. step)
Voltage : Vnom:DC3.7V, Vmin:DC3.6V, Vmax:DC4.2V

As the operating input voltage of the EUT is between DC 3.6V to DC 4.2V (nominal voltage: DC 3.7V), Frequency Stability test was performed under the above condition.

Test data : APPENDIX 1
Test result : Pass

APPENDIX 1: Data of EMI test

RF Output Power (Conducted)

Conducted Output Power Band 4

Test place Head Office EMC Lab. No.6 Measurement Room
Report No. 32JE0205-HO
Date 06/06/2012
Temperature/ Humidity 27deg.C / 41% RH
Engineer Yutaka Yoshida
Mode Transmitting (Tx) LTE (QPSK)
Transmitting (Tx) LTE (16QAM)

BW	Mode	UL RB Allocation (Count)		UL RB Start	MPR	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)
						Low ch 19975	Low ch 19975	Low ch 19975	Mid ch 20175	Mid ch 20175	Mid ch 20175	High ch 20375	High ch 20375	High ch 20375
5	QPSK	1/lower	1	0	0	22.3	0.6	22.9	22.2	0.6	22.8	22.1	0.6	22.7
		1/upper	1	24	0	22.3	0.6	22.9	22.3	0.6	22.9	22.1	0.6	22.7
		50%/center	12	6	1	21.4	0.6	22.0	21.1	0.6	21.7	21.2	0.6	21.8
		100%/center	25	0	1	21.1	0.6	21.7	20.9	0.6	21.5	21.0	0.6	21.6
	16QAM	1/lower	1	0	1	21.3	0.6	21.9	21.2	0.6	21.8	21.1	0.6	21.7
		1/upper	1	24	1	21.2	0.6	21.8	21.3	0.6	21.9	21.1	0.6	21.7
		50%/center	12	6	2	20.4	0.6	21.0	20.2	0.6	20.8	20.3	0.6	20.9
		100%/center	25	0	2	20.1	0.6	20.7	20.0	0.6	20.6	20.0	0.6	20.6
BW	Mode	UL RB Allocation (Count)		UL RB Start	MPR	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)
						Low ch 20000	Low ch 20000	Low ch 20000	Mid ch 20175	Mid ch 20175	Mid ch 20175	High ch 20350	High ch 20350	High ch 20350
10	QPSK	1/lower	1	0	0	22.4	0.6	23.0	22.0	0.6	22.6	22.3	0.6	22.9
		1/upper	1	49	0	22.0	0.6	22.6	22.2	0.6	22.8	22.2	0.6	22.8
		50%/center	25	12	1	21.1	0.6	21.7	21.0	0.6	21.6	21.0	0.6	21.6
		100%/center	50	0	1	20.9	0.6	21.5	20.8	0.6	21.4	20.8	0.6	21.4
	16QAM	1/lower	1	0	1	21.3	0.6	21.9	21.2	0.6	21.8	21.4	0.6	22.0
		1/upper	1	49	1	21.0	0.6	21.6	21.4	0.6	22.0	21.1	0.6	21.7
		50%/center	25	12	2	20.2	0.6	20.8	20.1	0.6	20.7	20.1	0.6	20.7
		100%/center	50	0	2	19.9	0.6	20.5	19.8	0.6	20.4	19.9	0.6	20.5
BW	Mode	UL RB Allocation (Count)		UL RB Start	MPR	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)
						Low ch 20025	Low ch 20025	Low ch 20025	Mid ch 20175	Mid ch 20175	Mid ch 20175	High ch 20325	High ch 20325	High ch 20325
15	QPSK	1/lower	1	0	0	22.3	0.6	22.9	22.2	0.6	22.8	22.2	0.6	22.8
		1/upper	1	74	0	22.1	0.6	22.7	22.4	0.6	23.0	22.2	0.6	22.8
		50%/center	36	19	1	20.9	0.6	21.5	20.8	0.6	21.4	21.0	0.6	21.6
		100%/center	75	0	1	20.8	0.6	21.4	20.9	0.6	21.5	20.9	0.6	21.5
	16QAM	1/lower	1	0	1	21.3	0.6	21.9	21.4	0.6	22.0	21.3	0.6	21.9
		1/upper	1	74	1	21.2	0.6	21.8	21.4	0.6	22.0	21.2	0.6	21.8
		50%/center	36	19	2	19.8	0.6	20.4	19.8	0.6	20.4	20.0	0.6	20.6
		100%/center	75	0	2	19.9	0.6	20.5	19.8	0.6	20.4	19.9	0.6	20.5
BW	Mode	UL RB Allocation (Count)		UL RB Start	MPR	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)	Max. Avg. Power (dBm)	Cable loss(dB)	Result (dBm)
						Low ch 20050	Low ch 20050	Low ch 20050	Mid ch 20175	Mid ch 20175	Mid ch 20175	High ch 20300	High ch 20300	High ch 20300
20	QPSK	1/lower	1	0	0	22.4	0.6	23.0	22.4	0.6	23.0	22.4	0.6	23.0
		1/upper	1	99	0	22.2	0.6	22.8	22.4	0.6	23.0	22.2	0.6	22.8
		50%/center	50	25	1	20.8	0.6	21.4	20.9	0.6	21.5	21.0	0.6	21.6
		100%/center	100	0	1	20.8	0.6	21.4	21.0	0.6	21.6	21.0	0.6	21.6
	16QAM	1/lower	1	0	1	21.3	0.6	21.9	21.2	0.6	21.8	21.4	0.6	22.0
		1/upper	1	99	1	21.3	0.6	21.9	21.4	0.6	22.0	21.2	0.6	21.8
		50%/center	50	25	2	19.7	0.6	20.3	19.7	0.6	20.3	20.0	0.6	20.6
		100%/center	100	0	2	19.9	0.6	20.5	20.0	0.6	20.6	20.0	0.6	20.6

Results = Reading + Cable Loss

RF Output Power (Conducted)

Conducted Output Power Band 17

Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32JE0205-HO
Date	06/06/2012
Temperature/ Humidity	27deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Transmitting (Tx) LTE(QPSK)
	Transmitting (Tx) LTE (16QAM)

BW	Mode	UL RB Allocation (Count)		UL RB Start	MPR	Max. Avg. Power	Cable loss(dB)	Result (dBm)	Max. Avg. Power	Cable loss(dB)	Result (dBm)	Max. Avg. Power	Cable loss(dB)	Result (dBm)
						Low ch	Low ch	Low ch	Mid ch	Mid ch	Mid ch	High ch	High ch	High ch
5	QPSK	1/lower	1	0	0	22.5	0.4	22.9	21.9	0.4	22.3	21.8	0.4	22.2
		1/upper	1	24	0	22.5	0.4	22.9	21.7	0.4	22.1	21.7	0.4	22.1
		50%/center	12	6	1	21.5	0.4	21.9	21.3	0.4	21.7	21.3	0.4	21.7
		100%/center	25	0	1	21.5	0.4	21.9	21.3	0.4	21.7	21.0	0.4	21.4
	16QAM	1/lower	1	0	1	21.5	0.4	21.9	21.0	0.4	21.4	20.9	0.4	21.3
		1/upper	1	24	1	21.5	0.4	21.9	20.7	0.4	21.1	20.8	0.4	21.2
		50%/center	12	6	2	20.4	0.4	20.8	20.4	0.4	20.8	20.4	0.4	20.8
		100%/center	25	0	2	20.4	0.4	20.8	20.2	0.4	20.6	20.1	0.4	20.5
BW	Mode	UL RB Allocation (Count)		UL RB Start	MPR	Max. Avg. Power	Cable loss(dB)	Result (dBm)	Max. Avg. Power	Cable loss(dB)	Result (dBm)	Max. Avg. Power	Cable loss(dB)	Result (dBm)
						Low ch	Low ch	Low ch	Mid ch	Mid ch	Mid ch	High ch	High ch	High ch
10	QPSK	1/lower	1	0	0	22.5	0.4	22.9	22.4	0.4	22.8	22.5	0.4	22.9
		1/upper	1	49	0	22.0	0.4	22.4	22.2	0.4	22.6	22.2	0.4	22.6
		50%/center	25	12	1	21.5	0.4	21.9	21.4	0.4	21.8	21.3	0.4	21.7
		100%/center	50	0	1	21.3	0.4	21.7	21.3	0.4	21.7	21.3	0.4	21.7
	16QAM	1/lower	1	0	1	21.5	0.4	21.9	21.4	0.4	21.8	21.6	0.4	22.0
		1/upper	1	49	1	21.2	0.4	21.6	21.3	0.4	21.7	21.2	0.4	21.6
		50%/center	25	12	2	20.5	0.4	20.9	20.4	0.4	20.8	20.3	0.4	20.7
		100%/center	50	0	2	20.3	0.4	20.7	20.2	0.4	20.6	20.3	0.4	20.7

Results = Reading + Cable Loss

RF Output Power (Radiated)
Equivalent Isotropically Radiated Power(EIRP)
Band 4

Report No. 32JE0205-HO
Test place Head Office EMC Lab.
Semi Anechoic Chamber No.2
Date 06/13/2012
Temperature / Humidity 24 deg. C / 52 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK)
Transmitting (Tx) LTE (16QAM)

[BW 5MHz, QPSK, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1712.50	94.3	92.1	17.9	15.5	3.9	9.6	0.0	23.7	21.3	30.0	6.3	8.7	102	312	110	325	RB 1-0
1732.50	95.5	93.7	19.1	17.1	3.9	9.7	0.0	24.9	22.9	30.0	5.1	7.1	102	312	110	325	RB 1-24
1752.50	93.4	91.4	17.0	14.8	3.9	9.7	0.0	22.8	20.6	30.0	7.2	9.4	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

[BW 5MHz, 16QAM, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1712.50	93.3	91.2	16.9	14.6	3.9	9.6	0.0	22.7	20.4	30.0	7.3	9.6	102	312	110	325	RB 1-0
1732.50	94.8	93.0	18.4	16.4	3.9	9.7	0.0	24.2	22.2	30.0	5.8	7.8	102	312	110	325	RB 1-24
1752.50	92.4	90.4	16.0	13.8	3.9	9.7	0.0	21.8	19.6	30.0	8.2	10.4	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

RF Output Power (Radiated)
Equivalent Isotropically Radiated Power(EIRP)
Band 4

Report No. 32JE0205-HO
Test place Head Office EMC Lab.
Semi Anechoic Chamber No.2
Date 06/13/2012
Temperature / Humidity 24 deg. C / 52 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK)
Transmitting (Tx) LTE (16QAM)

[BW 10MHz, QPSK, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1715.00	94.0	92.3	17.6	15.7	3.9	9.6	0.0	23.4	21.5	30.0	6.6	8.5	102	312	110	325	RB 1-0
1732.50	95.1	93.3	18.7	16.7	3.9	9.7	0.0	24.5	22.5	30.0	5.5	7.5	102	312	110	325	RB 1-49
1750.00	93.2	91.2	16.8	14.6	3.9	9.7	0.0	22.6	20.4	30.0	7.4	9.6	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

[BW 10MHz, 16QAM, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1715.00	93.3	91.2	16.9	14.6	3.9	9.6	0.0	22.7	20.4	30.0	7.3	9.6	102	312	110	325	RB 1-0
1732.50	94.1	92.4	17.7	15.8	3.9	9.7	0.0	23.5	21.6	30.0	6.5	8.4	102	312	110	325	RB 1-49
1750.00	92.6	90.5	16.2	13.9	3.9	9.7	0.0	22.0	19.7	30.0	8.0	10.3	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

RF Output Power (Radiated)
Equivalent Isotropically Radiated Power(EIRP)
Band 4

Report No. 32JE0205-HO
Test place Head Office EMC Lab.
Semi Anechoic Chamber No.2
Date 06/13/2012
Temperature / Humidity 24 deg. C / 52 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK)
Transmitting (Tx) LTE (16QAM)

[BW 15MHz, QPSK, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1717.50	94.3	92.1	17.9	15.5	3.9	9.6	0.0	23.7	21.3	30.0	6.3	8.7	102	312	110	325	RB 1-0
1732.50	94.8	92.8	18.4	16.2	3.9	9.7	0.0	24.2	22.0	30.0	5.8	8.0	102	312	110	325	RB 1-74
1747.50	94.3	92.2	17.9	15.6	3.9	9.7	0.0	23.7	21.4	30.0	6.3	8.6	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

[BW 15MHz, 16QAM, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1717.50	93.3	91.2	16.9	14.6	3.9	9.6	0.0	22.7	20.4	30.0	7.3	9.6	102	312	110	325	RB 1-0
1732.50	95.2	93.5	18.8	16.9	3.9	9.7	0.0	24.6	22.7	30.0	5.4	7.3	102	312	110	325	RB 1-0
1747.50	93.3	91.3	16.9	14.7	3.9	9.7	0.0	22.7	20.5	30.0	7.3	9.5	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

RF Output Power (Radiated)
Equivalent Isotropically Radiated Power(EIRP)
Band 4

Report No. 32JE0205-HO
Test place Head Office EMC Lab.
Semi Anechoic Chamber No.2
Date 06/13/2012
Temperature / Humidity 24 deg. C / 52 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK)
Transmitting (Tx) LTE (16QAM)

[BW 20MHz, QPSK, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1720.00	94.2	92.1	17.8	15.5	3.9	9.6	0.0	23.6	21.3	30.0	6.4	8.7	102	312	110	325	RB 1-0
1732.50	95.6	94.0	19.2	17.4	3.9	9.7	0.0	25.0	23.2	30.0	5.0	6.8	102	312	110	325	RB 1-0
1745.00	95.4	93.4	19.0	16.8	3.9	9.7	0.0	24.8	22.6	30.0	5.2	7.4	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

[BW 20MHz, 16QAM, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Turn Height Table [cm] [deg.]		Vertical Rx Ant. Turn Height Table [cm] [deg.]		Remarks
	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER	[dBm]	HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1720.00	93.3	91.1	16.9	14.5	3.9	9.6	0.0	22.7	20.3	30.0	7.3	9.7	102	312	110	325	RB 1-0
1732.50	93.3	91.4	16.9	14.8	3.9	9.7	0.0	22.7	20.6	30.0	7.3	9.4	102	312	110	325	RB 1-99
1745.00	94.5	92.5	18.1	15.9	3.9	9.7	0.0	23.9	21.7	30.0	6.1	8.3	102	312	110	325	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

RF Output Power (Radiated)
Effective radiated power(ERP)
Band 17

Report No. 32JE0205-HO
Test place Head Office EMC Lab.
Semi Anechoic Chamber No.2
Date 06/12/2012
Temperature / Humidity 25 deg. C / 60 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE (QPSK)
Transmitting (Tx) LTE (16QAM)

[BW 5MHz, QPSK, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Turn Height Table [cm] [deg.]		Vertical Rx Ant. Turn Height Table [cm] [deg.]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER					
706.50	88.3	87.3	34.1	36.2	5.1	2.15	9.9	19.1	21.2	34.7	15.6	13.5	125	73	139	78	RB 1-0
710.00	88.8	87.4	34.6	36.3	5.1	2.15	9.9	19.6	21.3	34.7	15.1	13.4	125	73	139	78	RB 1-0
713.50	88.1	86.7	33.9	35.6	5.1	2.15	9.9	18.9	20.6	34.7	15.8	14.1	125	73	139	78	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

[BW 5MHz, 16QAM, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Turn Height Table [cm] [deg.]		Vertical Rx Ant. Turn Height Table [cm] [deg.]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER					
706.50	87.4	86.3	33.2	35.2	5.1	2.15	9.9	18.2	20.2	34.7	16.5	14.5	125	73	139	78	RB 1-0
710.00	87.9	86.4	33.7	35.3	5.1	2.15	9.9	18.7	20.3	34.7	16.0	14.4	125	73	139	78	RB 1-0
713.50	87.4	86.0	33.2	34.9	5.1	2.15	9.9	18.2	19.9	34.7	16.5	14.8	125	73	139	78	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

RF Output Power (Radiated)
Effective radiated power(ERP)
Band 17

Report No. 32JE0205-HO
Test place Head Office EMC Lab.
Semi Anechoic Chamber No.2
Date 06/12/2012
Temperature / Humidity 25 deg. C / 60 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK)
Transmitting (Tx) LTE (16QAM)

[BW 10MHz, QPSK, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Turn Height Table [cm] [deg.]		Vertical Rx Ant. Turn Height Table [cm] [deg.]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER					
709.00	88.2	87.3	34.0	36.2	5.1	2.15	9.9	19.0	21.2	34.7	15.7	13.5	125	73	139	78	RB 1-0
710.00	88.5	87.4	34.3	36.3	5.1	2.15	9.9	19.3	21.3	34.7	15.4	13.4	125	73	139	78	RB 1-0
711.00	88.7	87.6	34.5	36.5	5.1	2.15	9.9	19.5	21.5	34.7	15.2	13.2	125	73	139	78	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

[BW 10MHz, 16QAM, 1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Turn Height Table [cm] [deg.]		Vertical Rx Ant. Turn Height Table [cm] [deg.]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER					
709.00	87.2	86.2	33.0	35.1	5.1	2.15	9.9	18.0	20.1	34.7	16.7	14.6	125	73	139	78	RB 1-0
710.00	87.5	86.2	33.3	35.1	5.1	2.15	9.9	18.3	20.1	34.7	16.4	14.6	125	73	139	78	RB 1-0
711.00	87.7	86.6	33.5	35.5	5.1	2.15	9.9	18.5	20.5	34.7	16.2	14.2	125	73	139	78	RB 1-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 430kHz , VBW: 1.5MHz)

Peak to Average power Ratio (Conducted)
Band 4

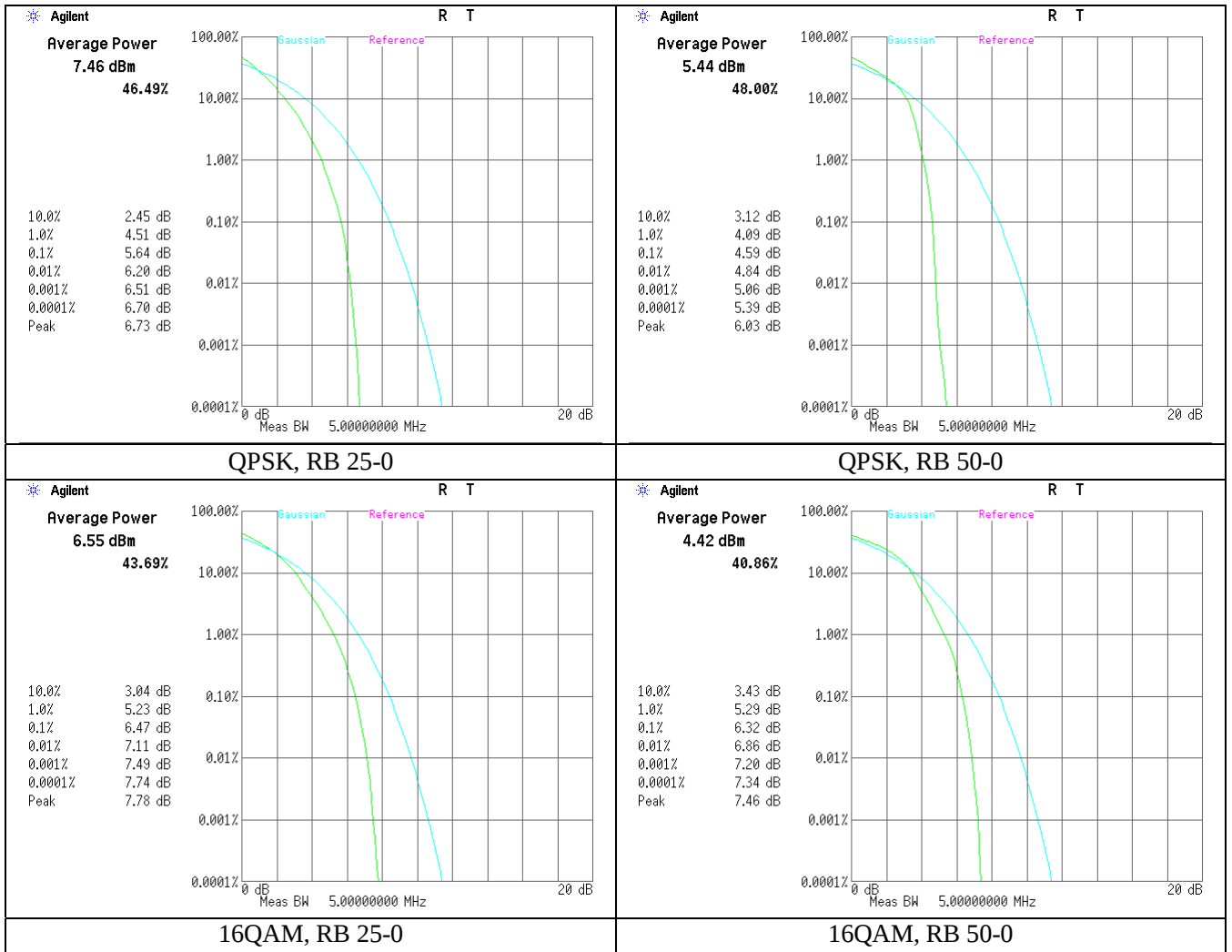
Test place Head Office EMC Lab. No.7 Measurement Room
Report No. 32JE0205-HO
Date 06/19/2012
Temperature/ Humidity 23deg.C / 46% RH
Engineer Katsunori Okai
Mode Transmitting (Tx) LTE(QPSK)
Transmitting (Tx) LTE (16QAM)
1732.5MHz

BW	Mode	UL RB Allocation	UL RB Start	Peak to Average power Ratio [dB]	Limit [dB]
5MHz	QPSK	25	0	5.64	13
	16QAM	25	0	6.47	13
10MHz	QPSK	50	0	4.59	13
	16QAM	50	0	6.32	13
15MHz	QPSK	75	0	5.84	13
	16QAM	75	0	7.01	13
20MHz	QPSK	100	0	6.56	13
	16QAM	100	0	7.39	13

*In order to decide the largest deviation between the average and the peak power of the EUT in a bandwidth, Complementary Cumulative Distribution Function (CCDF) curves of the spectrum analyzer were used for LTE Signals.

Peak to Average power Ratio (Conducted)

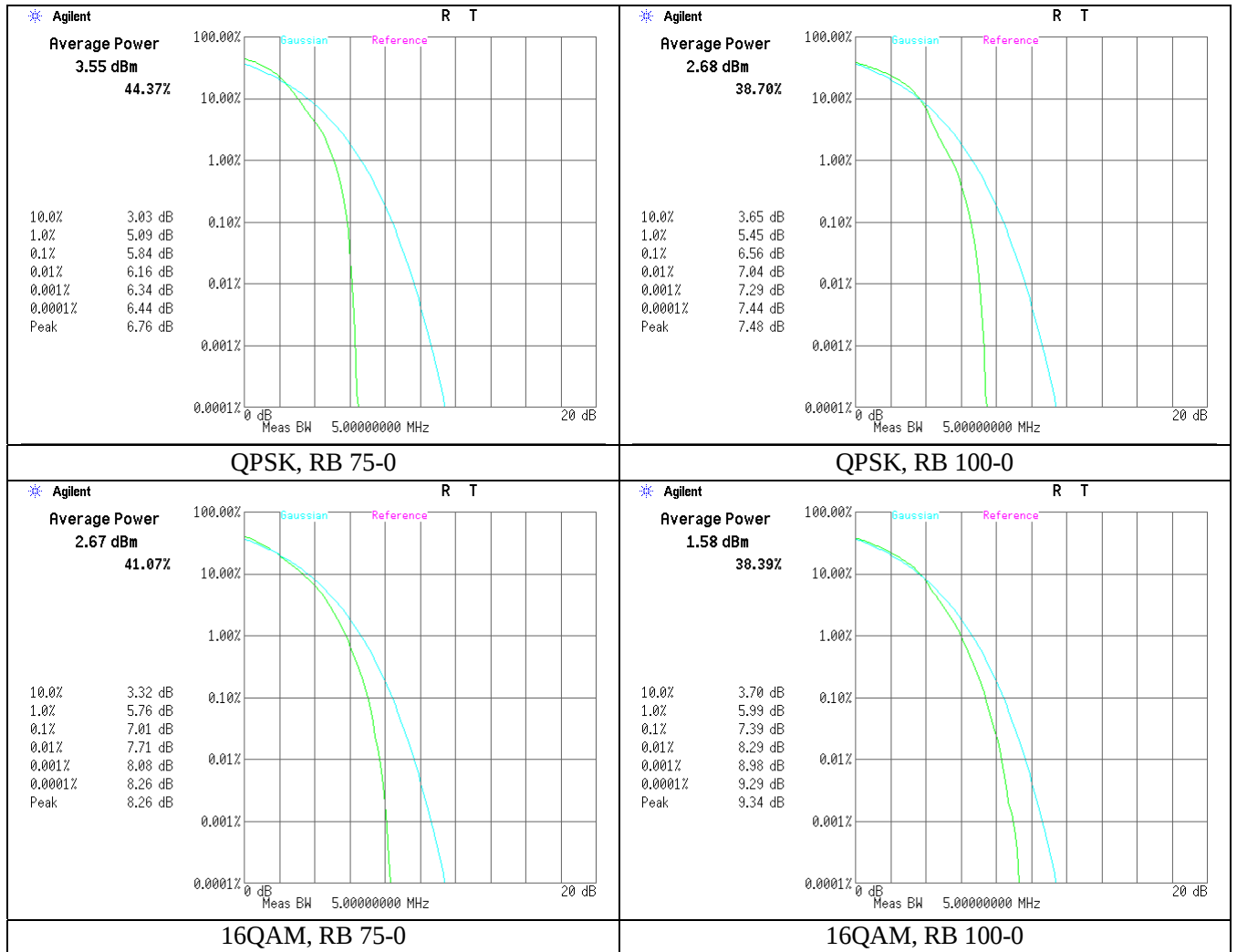
Band 4



*Set the spectrum analyzer radio mode to Power Stat CCDF.

Peak to Average power Ratio (Conducted)

Band 4



*Set the spectrum analyzer radio mode to Power Stat CCDF.

Peak to Average power Ratio (Conducted)
Band 17

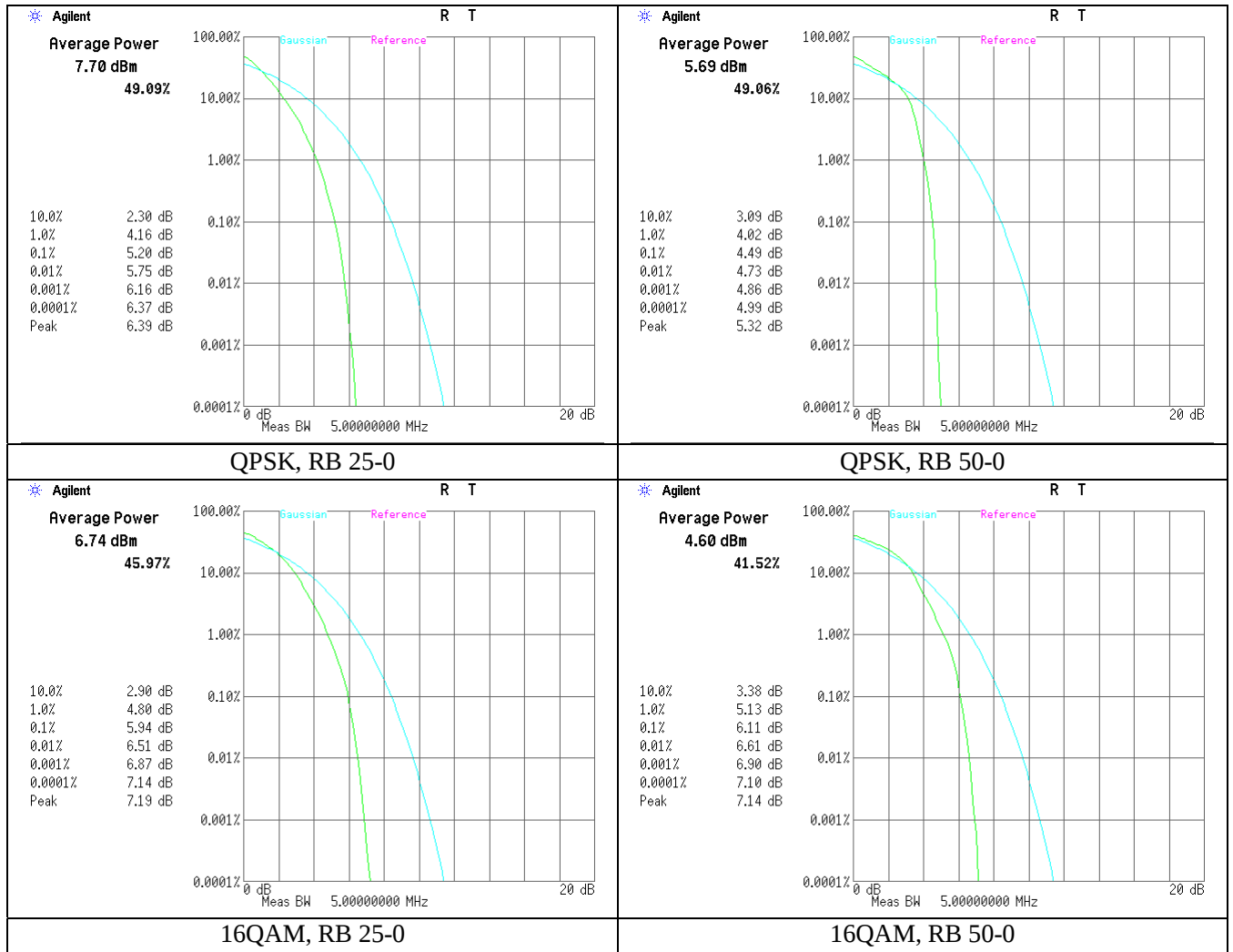
Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/19/2012
Temperature/ Humidity	23deg.C / 46% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK)
	Transmitting (Tx) LTE (16QAM)
	710MHz

BW	Mode	UL RB Allocation	UL RB Start	Peak to Average power Ratio [dB]	Limit [dB]
5MHz	QPSK	25	0	5.20	13
	16QAM	25	0	5.94	13
10MHz	QPSK	50	0	4.49	13
	16QAM	50	0	6.11	13

*In order to decide the largest deviation between the average and the peak power of the EUT in a bandwidth, Complementary Cumulative Distribution Function (CCDF) curves of the spectrum analyzer were used for LTE Signals.

Peak to Average power Ratio (Conducted)

Band 17



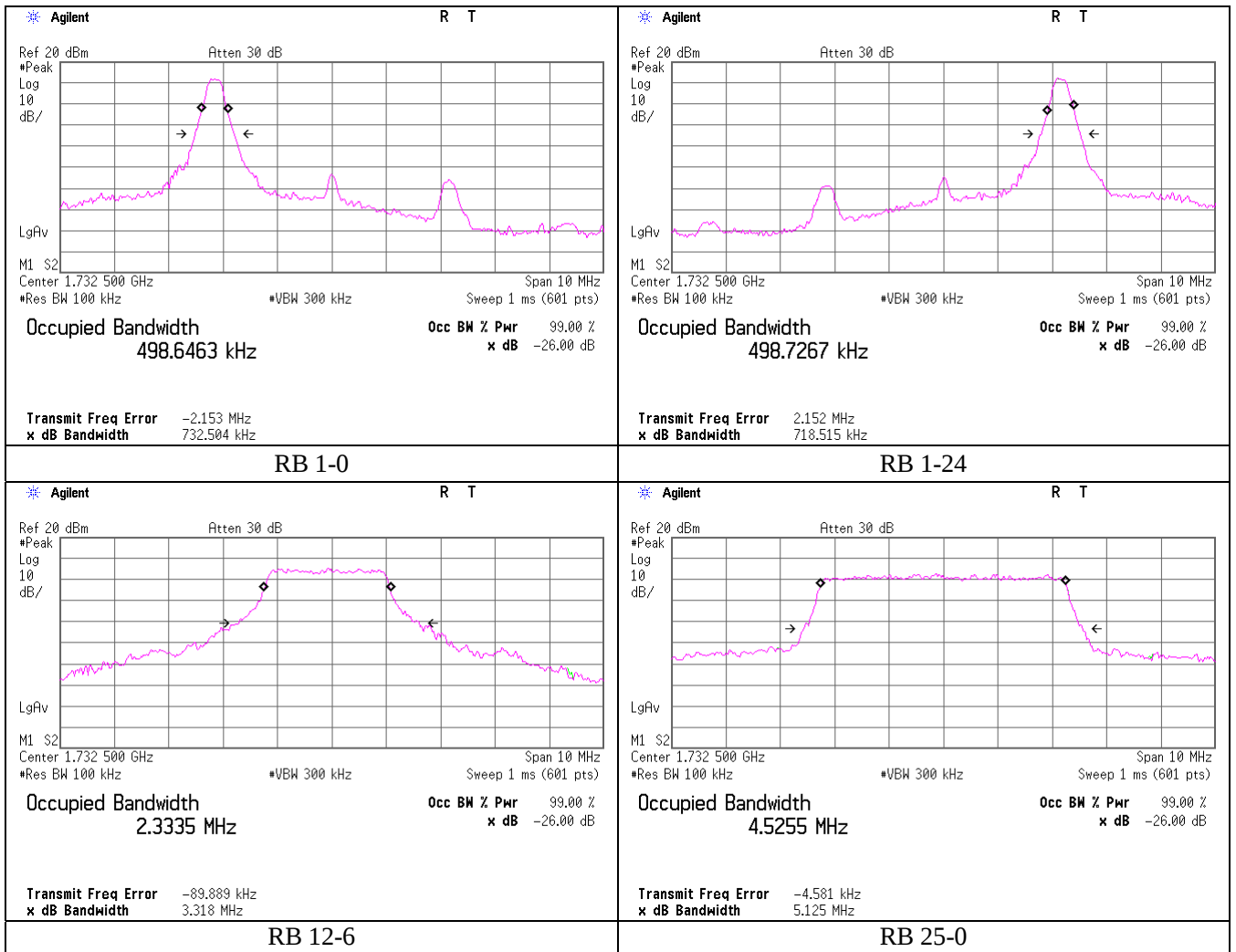
*Set the spectrum analyzer radio mode to Power Stat CCDF.

Bandwidth(Conducted)

Band 4

Test place Report No. Date Temperature/ Humidity Engineer Mode	Head Office EMC Lab. No.7 Measurement Room 32JE0205-HO 06/18/2012 23deg.C / 52% RH Katsunori Okai Transmitting (Tx) LTE(QPSK), BW 5MHz, 1732.5MHz
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BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
5MHz	QPSK	1	0	1732.5	0.733	0.4986
		1	24		0.719	0.4987
		12	6		3.318	2.3335
		25	0		5.125	4.5255

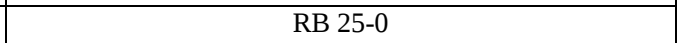
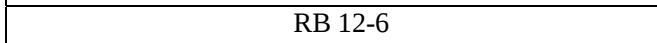
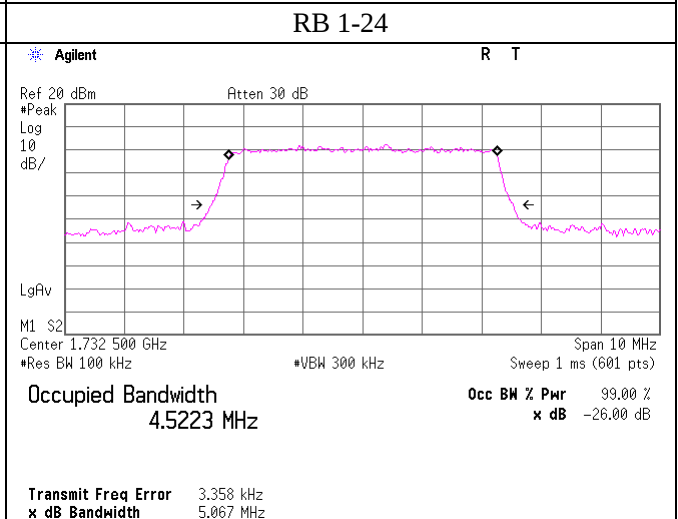
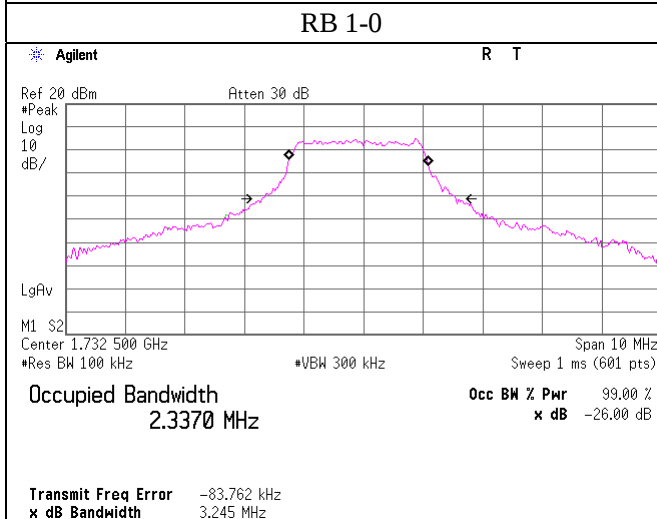
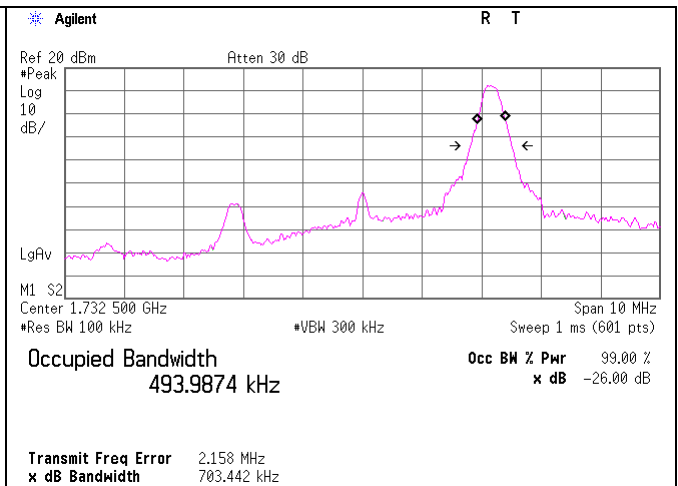
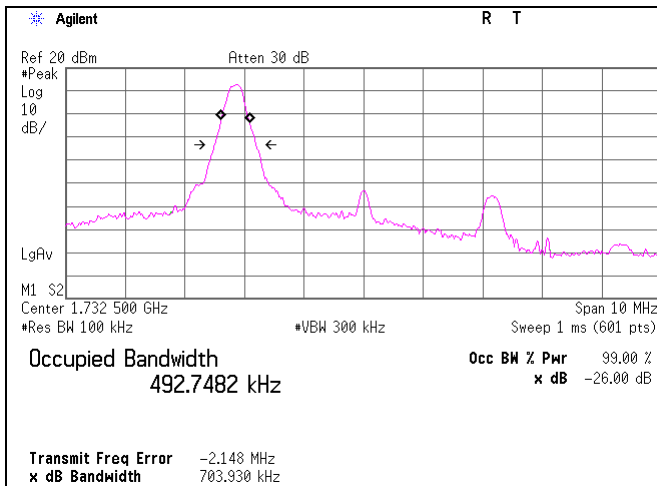


Bandwidth(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 5MHz, 1732.5MHz

BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
5MHz	16QAM	1	0	1732.5	0.704	0.4927
		1	24		0.703	0.4940
		12	6		3.245	2.3370
		25	0		5.067	4.5223

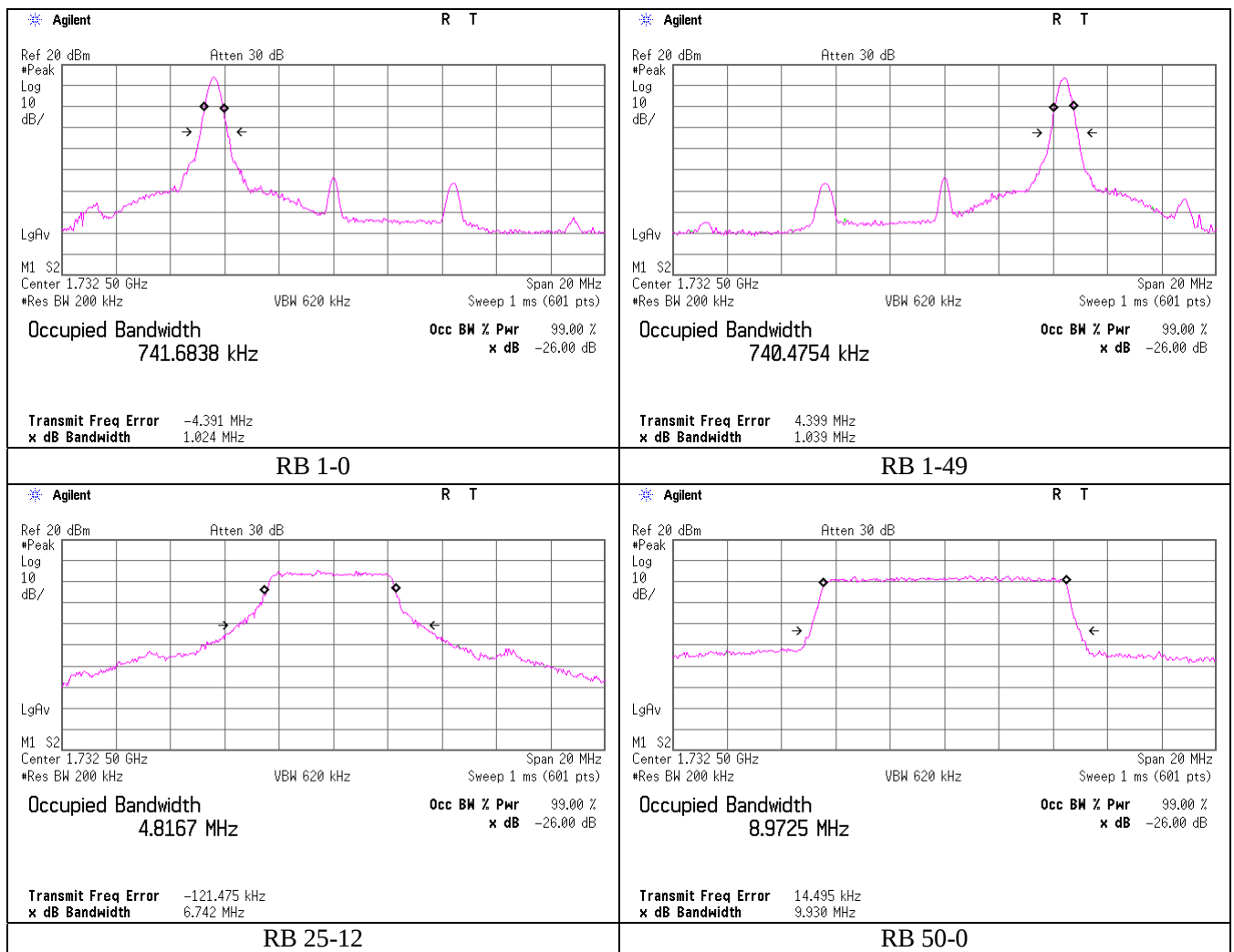


Bandwidth(Conducted)

Band 4

Test place Report No. Date Temperature/ Humidity Engineer Mode	Head Office EMC Lab. No.7 Measurement Room 32JE0205-HO 06/18/2012 23deg.C / 52% RH Katsunori Okai Transmitting (Tx) LTE(QPSK), BW 10MHz, 1732.5MHz
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BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
10MHz	QPSK	1	0	1732.5	1.024	0.7417
		1	49		1.039	0.7405
		25	12		6.742	4.8167
		50	0		9.930	8.9725

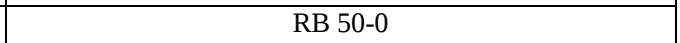
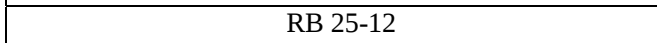
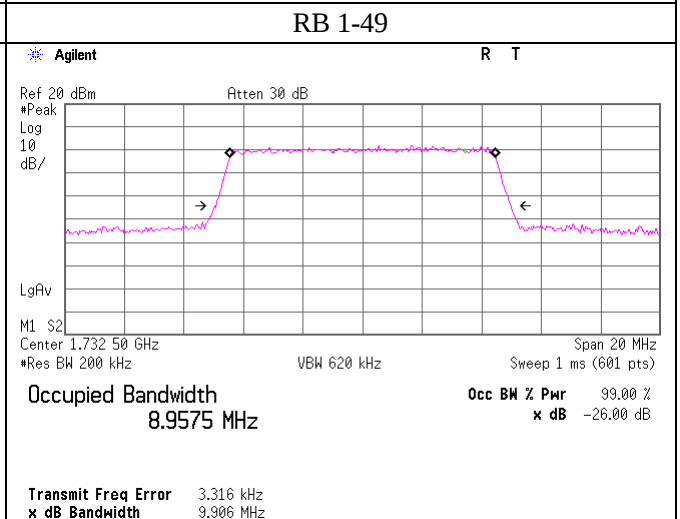
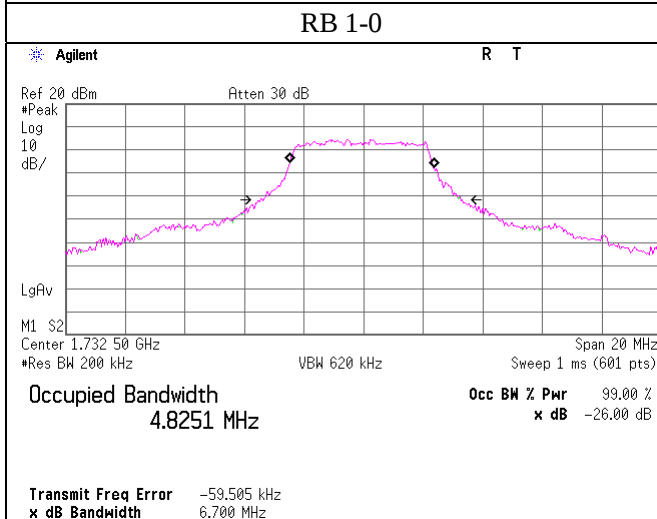
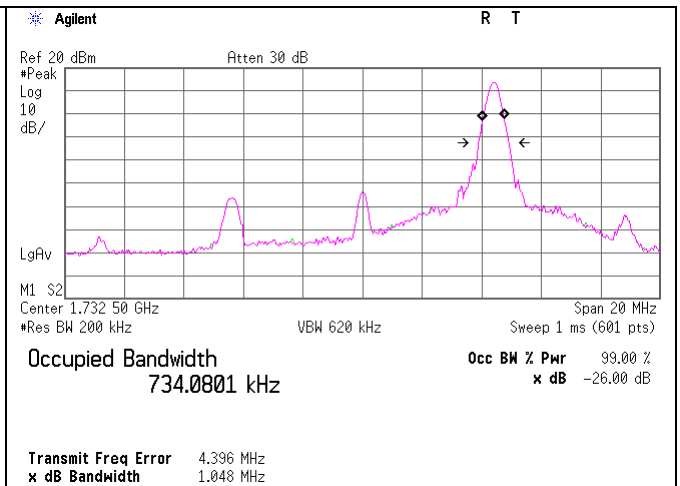
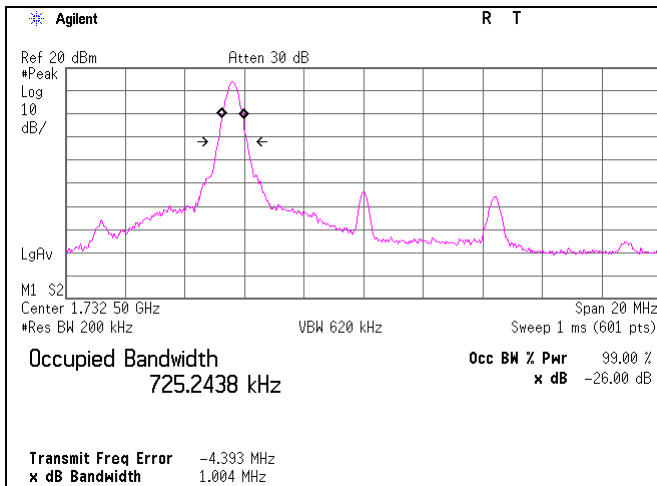


Bandwidth(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 10MHz, 1732.5MHz

BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
10MHz	16QAM	1	0	1732.5	1.004	0.7252
		1	49		1.048	0.7341
		25	12		6.700	4.8251
		50	0		9.906	8.9575

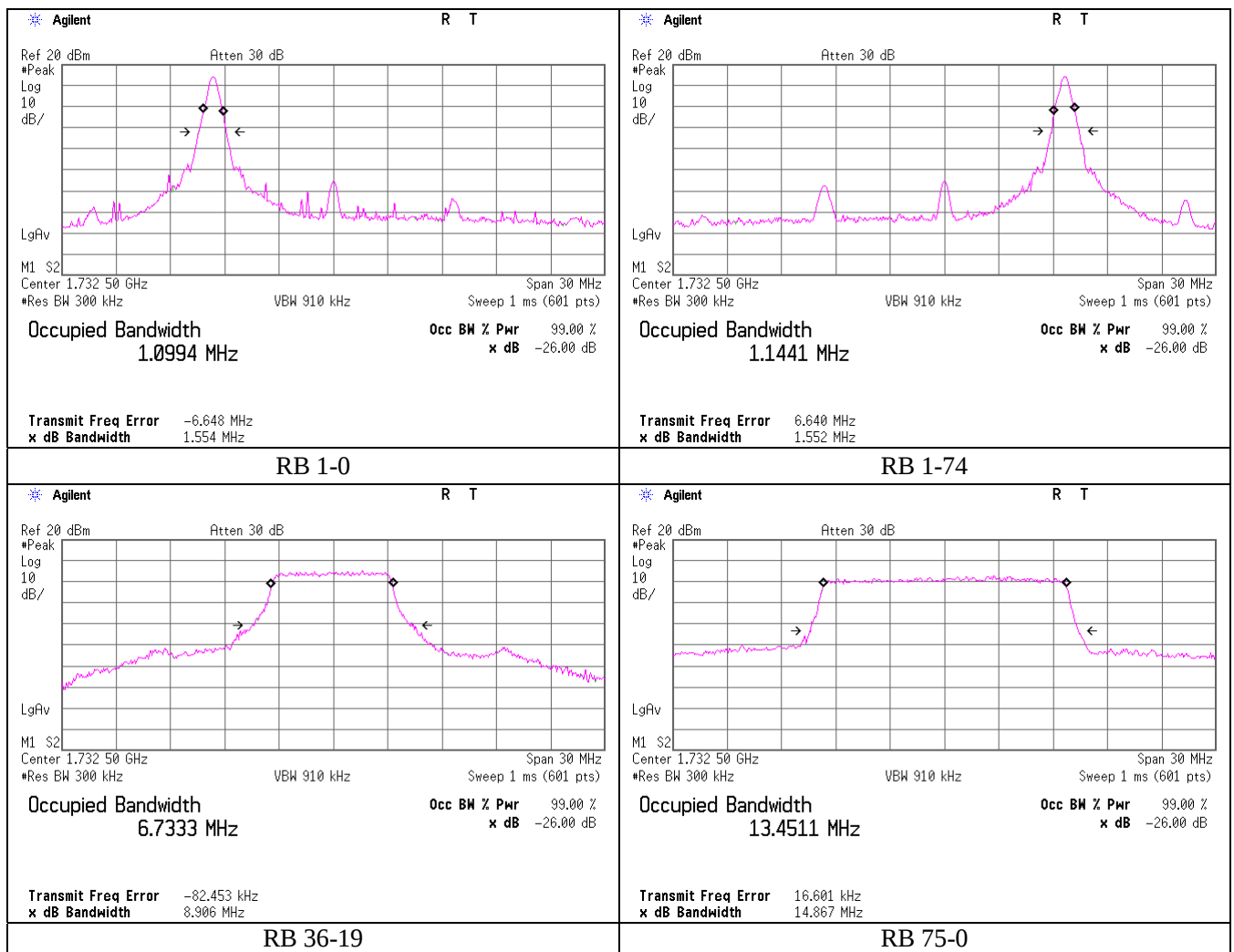


Bandwidth(Conducted)

Band 4

Test place Report No. Date Temperature/ Humidity Engineer Mode	Head Office EMC Lab. No.7 Measurement Room 32JE0205-HO 06/18/2012 23deg.C / 52% RH Katsunori Okai Transmitting (Tx) LTE(QPSK), BW 15MHz, 1732.5MHz
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BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
15MHz	QPSK	1	0	1732.5	1.554	1.0994
		1	74		1.552	1.1441
		36	19		8.906	6.7333
		75	0		14.867	13.4511

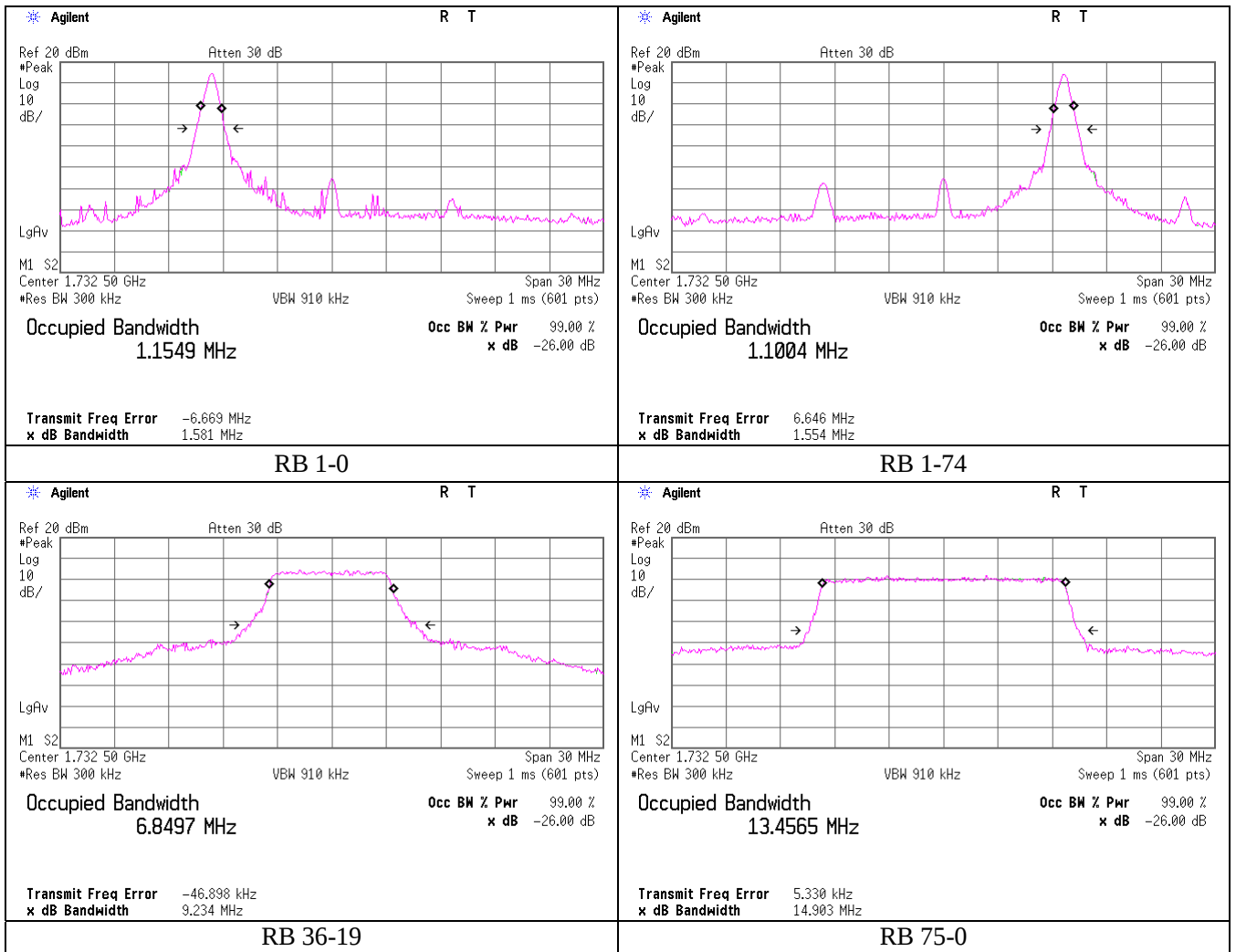


Bandwidth(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 15MHz, 1732.5MHz

BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
15MHz	16QAM	1	0	1732.5	1.581	1.1549
		1	74		1.554	1.1004
		36	19		9.234	6.8497
		75	0		14.903	13.4565

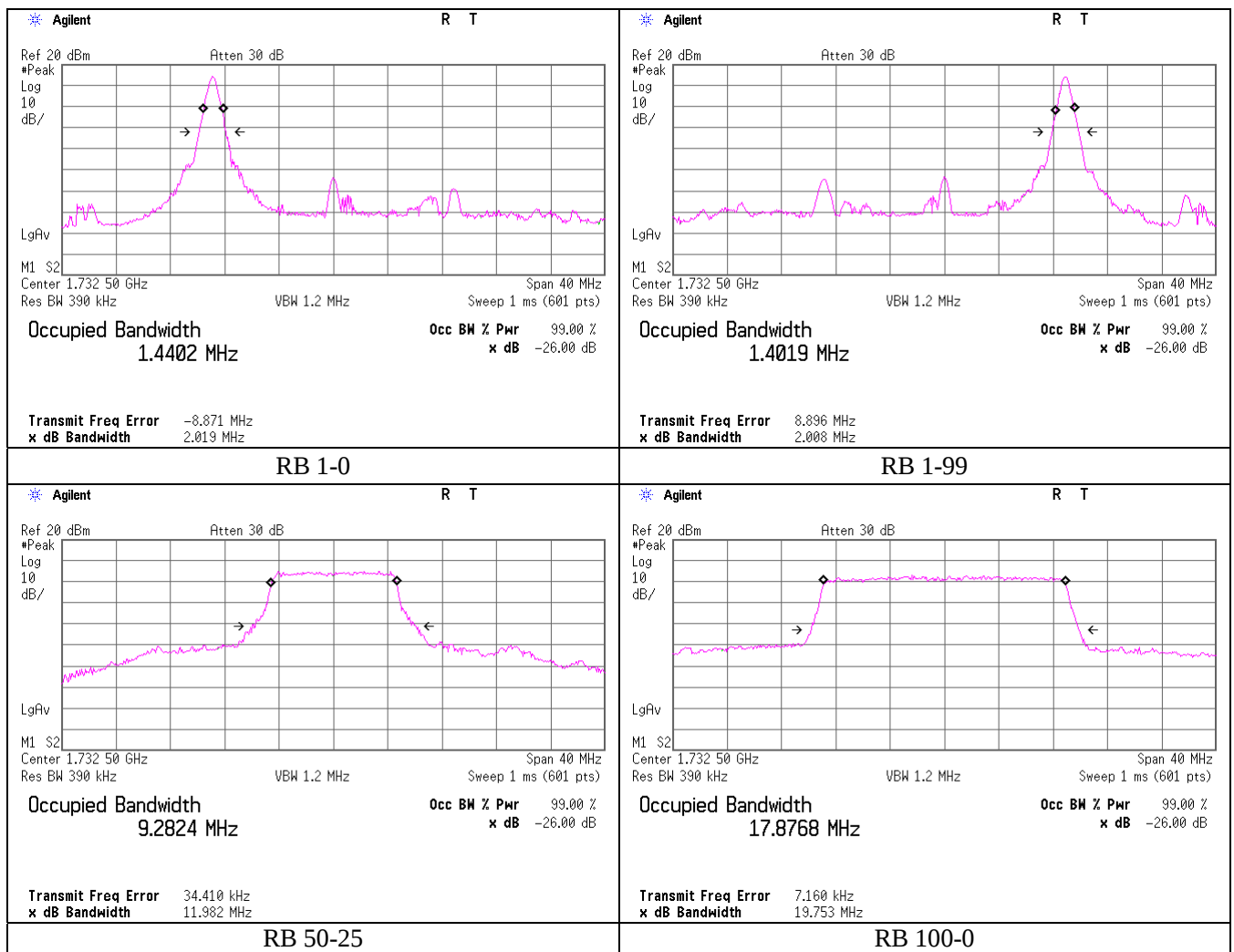


Bandwidth(Conducted)

Band 4

Test place Report No. Date Temperature/ Humidity Engineer Mode	Head Office EMC Lab. No.7 Measurement Room 32JE0205-HO 06/18/2012 23deg.C / 52% RH Katsunori Okai Transmitting (Tx) LTE(QPSK), BW 20MHz, 1732.5MHz
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BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
20MHz	QPSK	1	0	1732.5	2.019	1.4402
		1	99		2.008	1.4019
		50	25		11.982	9.2824
		100	0		19.753	17.8768

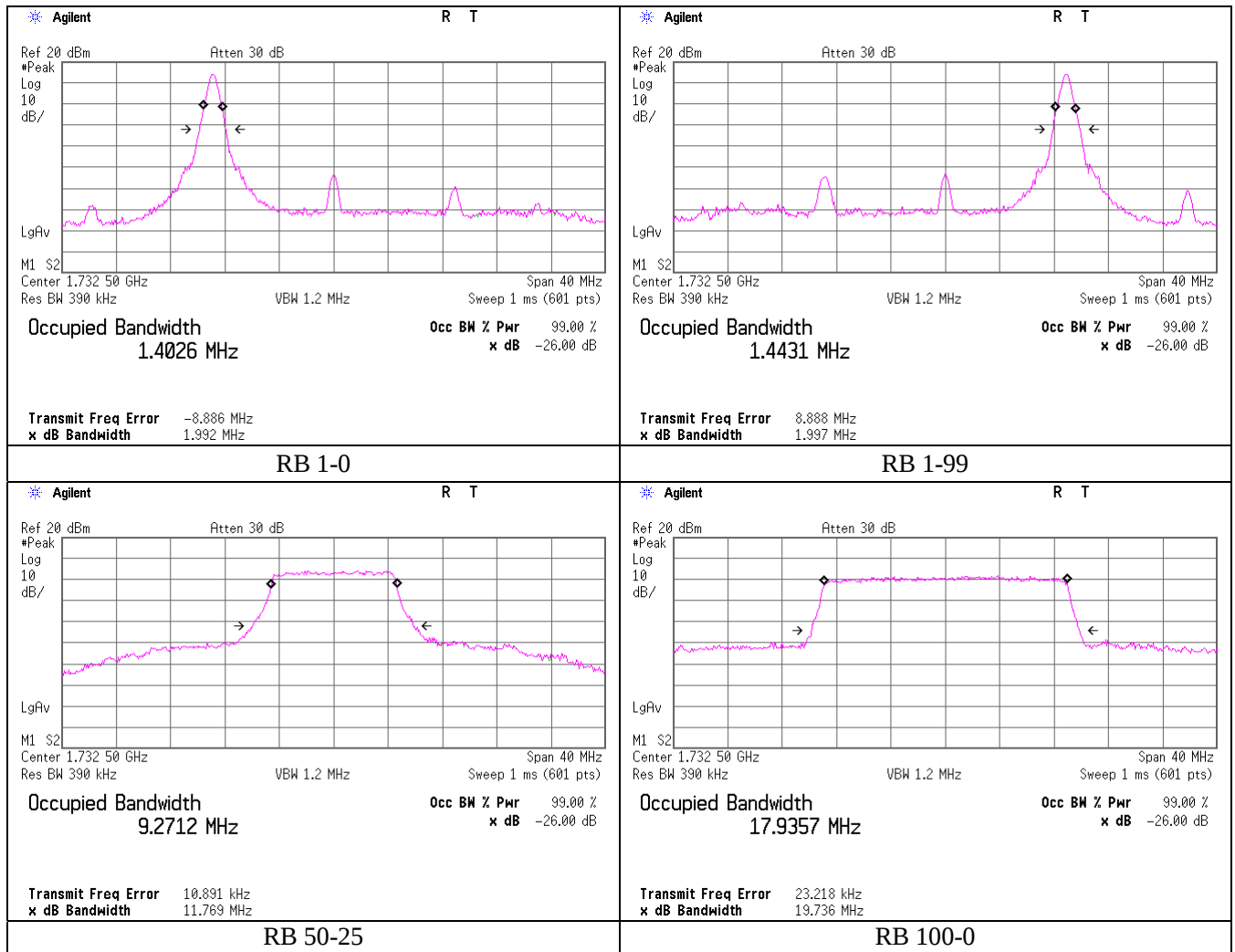


Bandwidth(Conducted)

Band 4

Test place Report No. Date Temperature/ Humidity Engineer Mode	Head Office EMC Lab. No.7 Measurement Room 32JE0205-HO 06/18/2012 23deg.C / 52% RH Katsunori Okai Transmitting (Tx) LTE (16QAM), BW 20MHz, 1732.5MHz
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BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
20MHz	16QAM	1	0	1732.5	1.992	1.4026
		1	99		1.997	1.4431
		50	25		11.769	9.2712
		100	0		19.736	17.9357

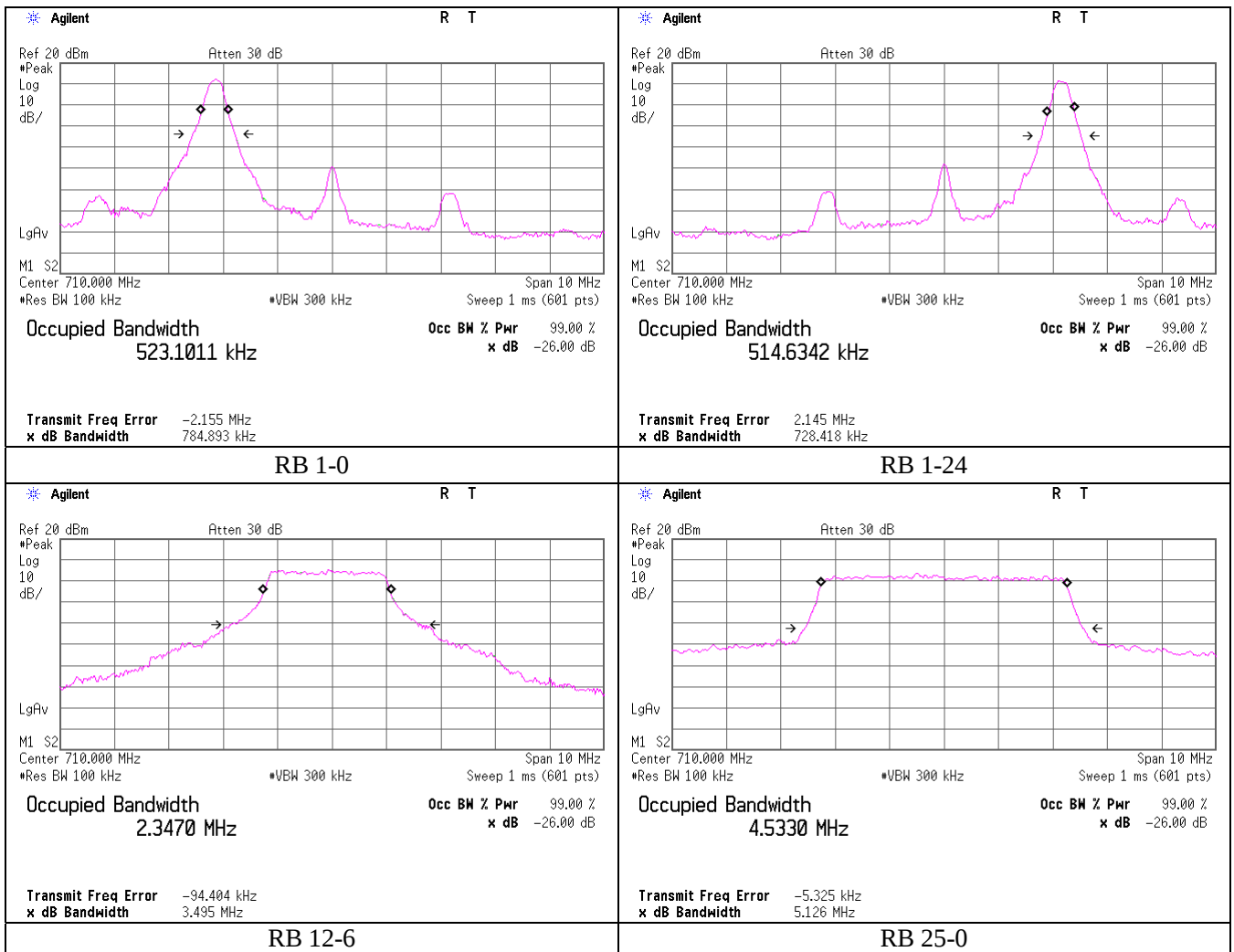


Bandwidth(Conducted)

Band 17

Test place Report No. Date Temperature/ Humidity Engineer Mode	Head Office EMC Lab. No.7 Measurement Room 32JE0205-HO 06/18/2012 23deg.C / 52% RH Katsunori Okai Transmitting (Tx) LTE(QPSK), BW 5MHz, 710MHz
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BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
5MHz	QPSK	1	0	710.0	0.785	0.5231
		1	24		0.728	0.5146
		12	6		3.495	2.3470
		25	0		5.126	4.5330

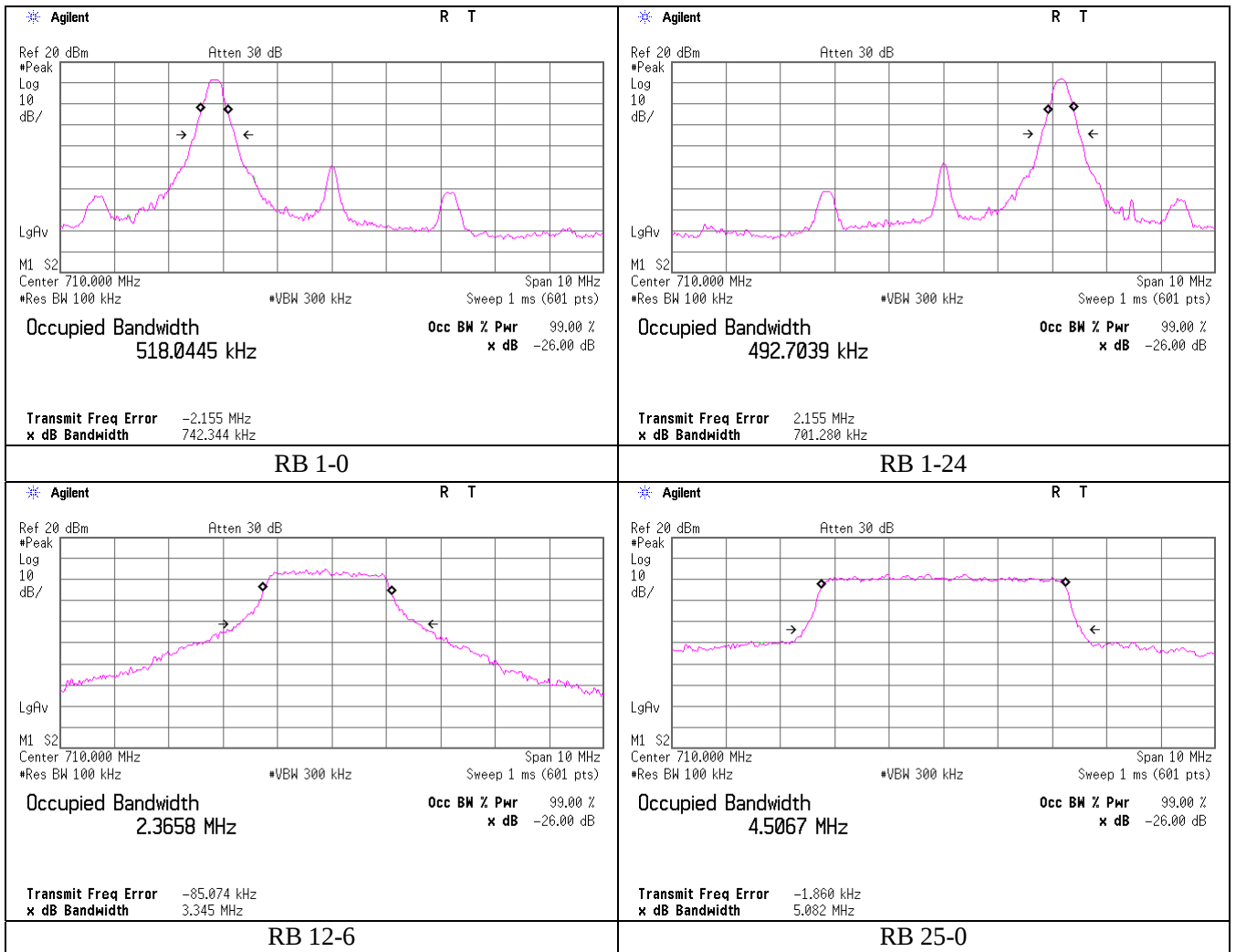


Bandwidth(Conducted)

Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 5MHz, 710MHz

BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
5MHz	16QAM	1	0	710.0	0.742	0.5180
		1	24		0.701	0.4927
		12	6		3.345	2.3658
		25	0		5.082	4.5067

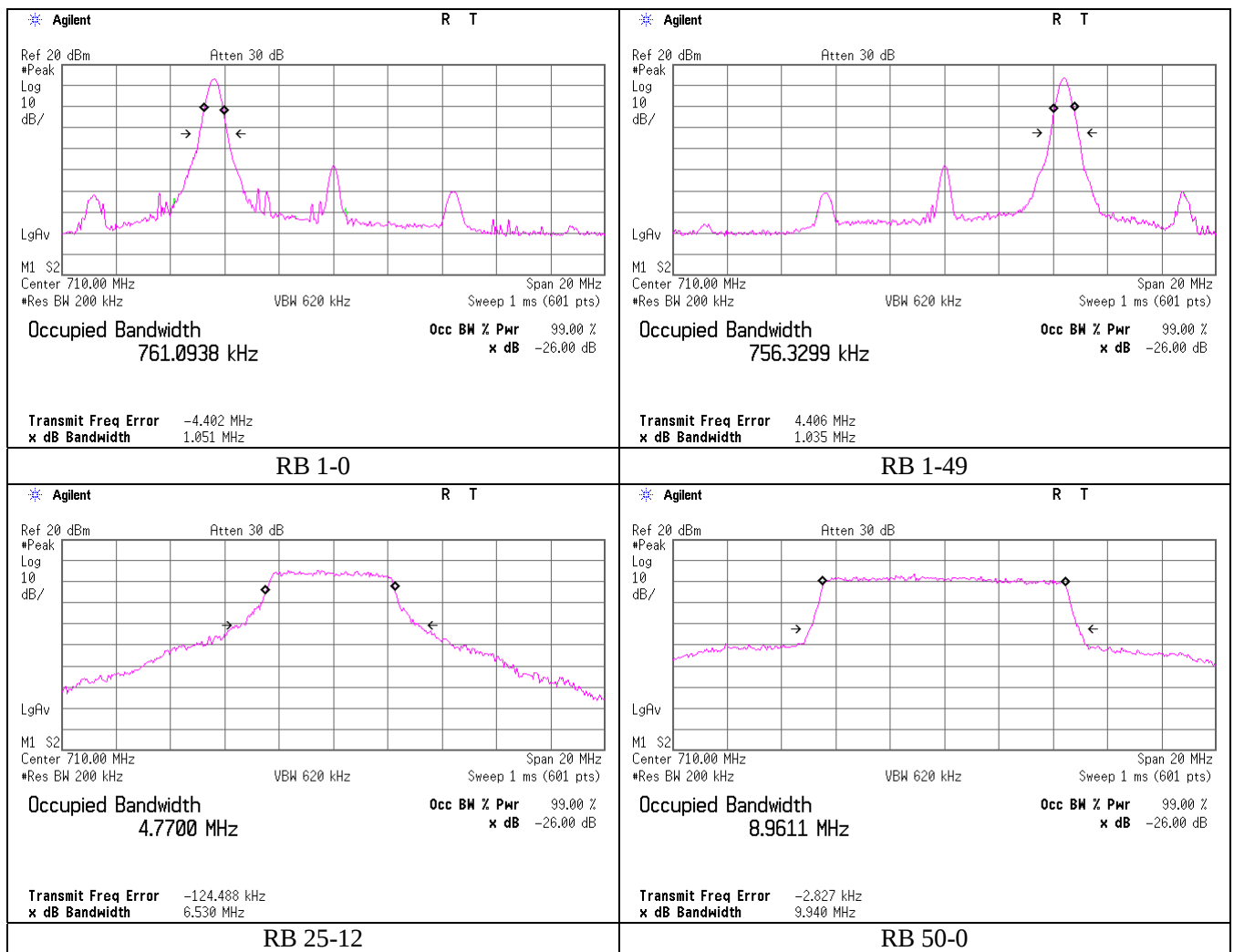


Bandwidth(Conducted)

Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 10MHz, 710MHz

BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
10MHz	QPSK	1	0	710.0	1.051	0.7611
		1	49		1.035	0.7563
		25	12		6.530	4.7700
		50	0		9.940	8.9611

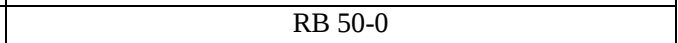
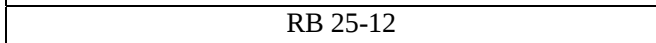
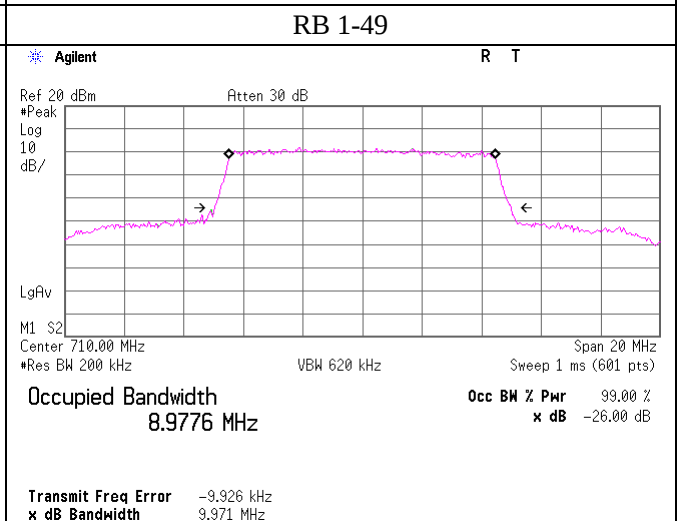
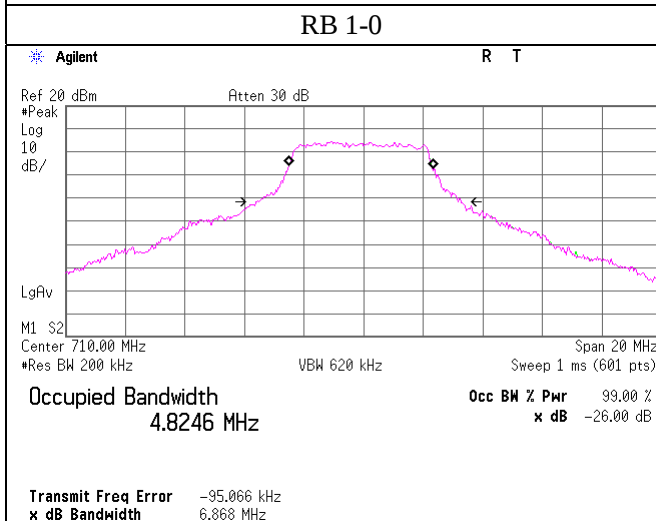
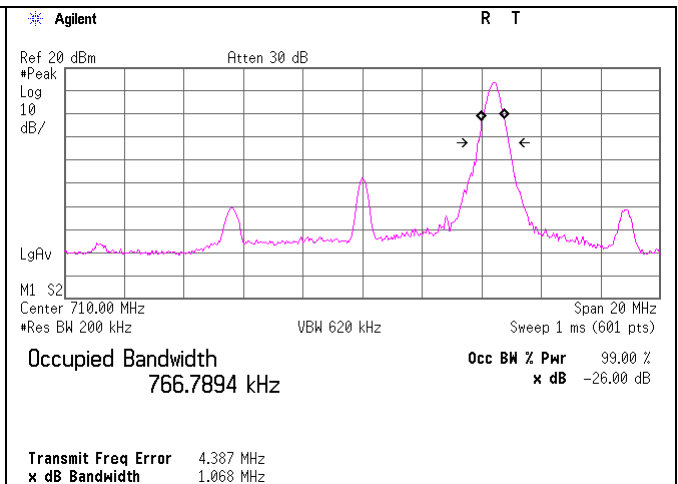
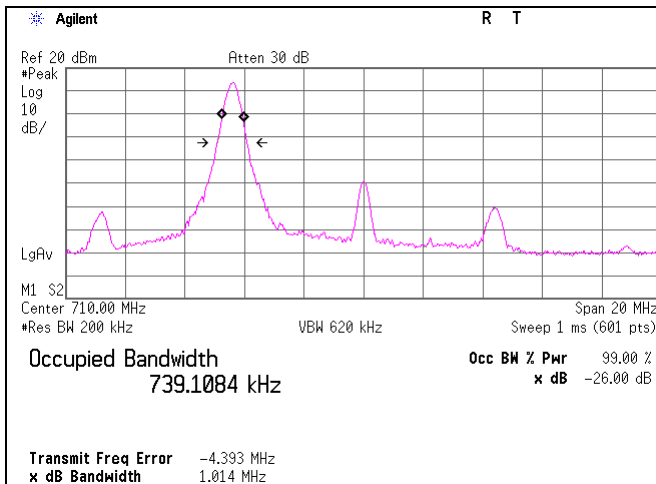


Bandwidth(Conducted)

Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 10MHz, 710MHz

BW	Mode	UL RB Allocation	UL RB Start	Frequency [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]
10MHz	16QAM	1	0	710.0	1.014	0.7391
		1	49		1.068	0.7668
		25	12		6.868	4.8246
		50	0		9.971	8.9776



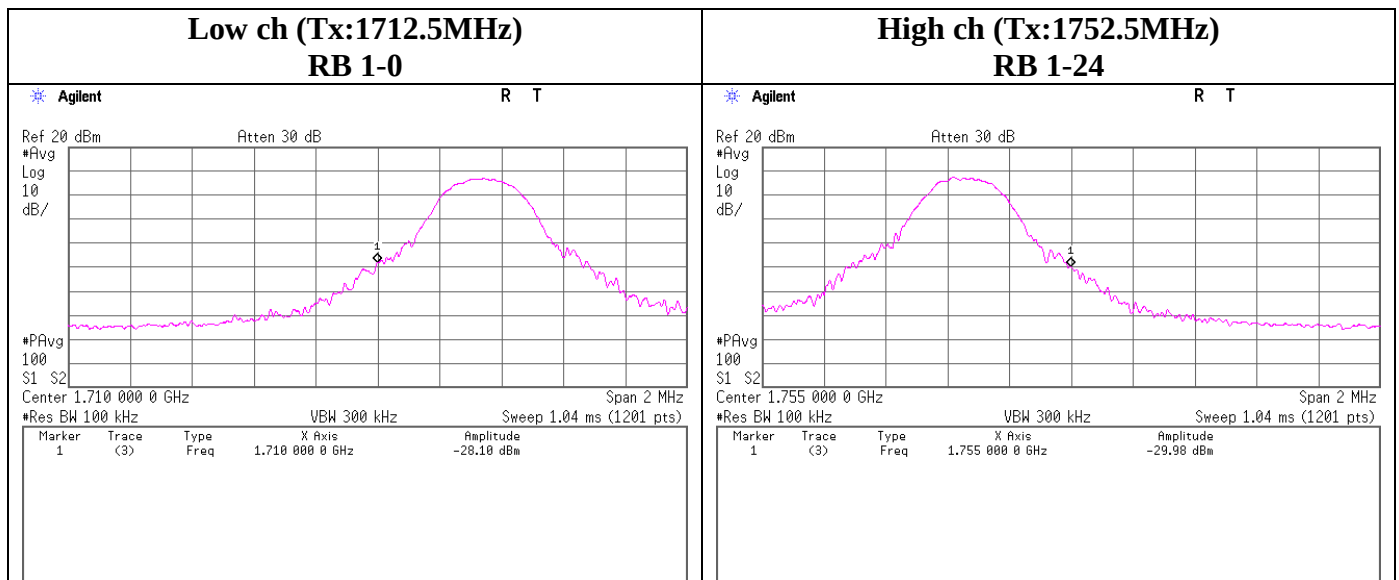
Band-Edge(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 5MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1710.0000	-28.10	10.07	3.90	-14.13	-13.0	1.13
1755.0000	-29.98	10.07	3.91	-16.00	-13.0	3.00

Sample Calculation : Result = Reading + Atten. + Cable Loss



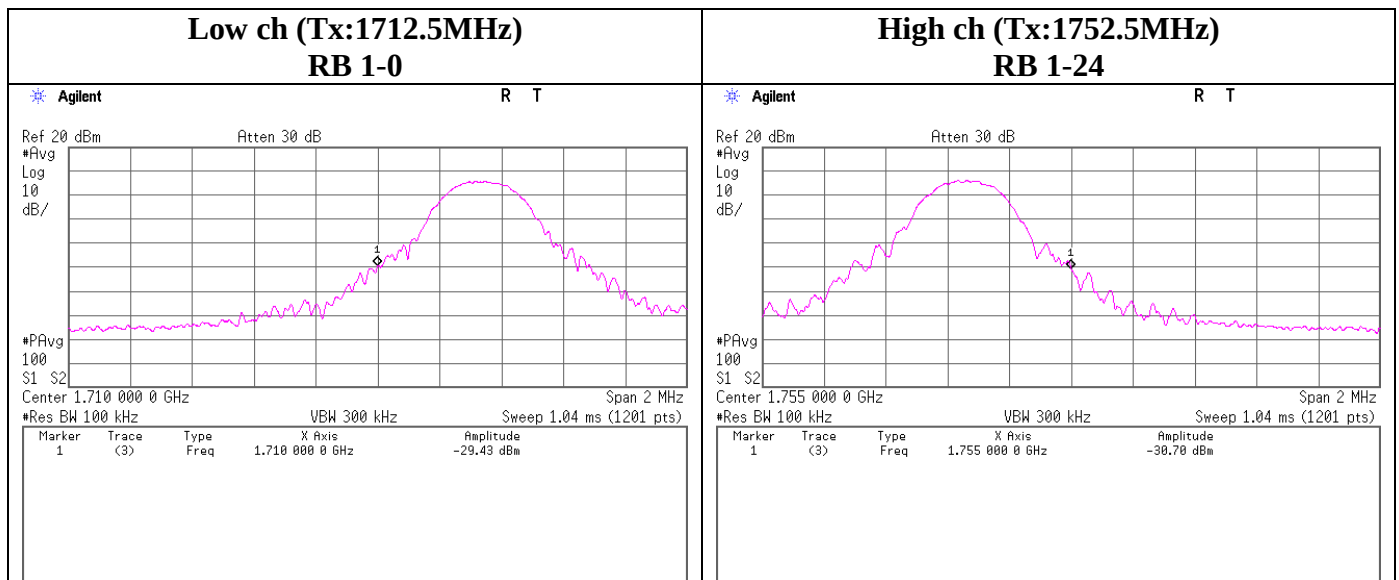
Band-Edge(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 5MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1710.0000	-29.43	10.07	3.90	-15.46	-13.0	2.46
1755.0000	-30.70	10.07	3.91	-16.72	-13.0	3.72

Sample Calculation : Result = Reading + Atten. + Cable Loss



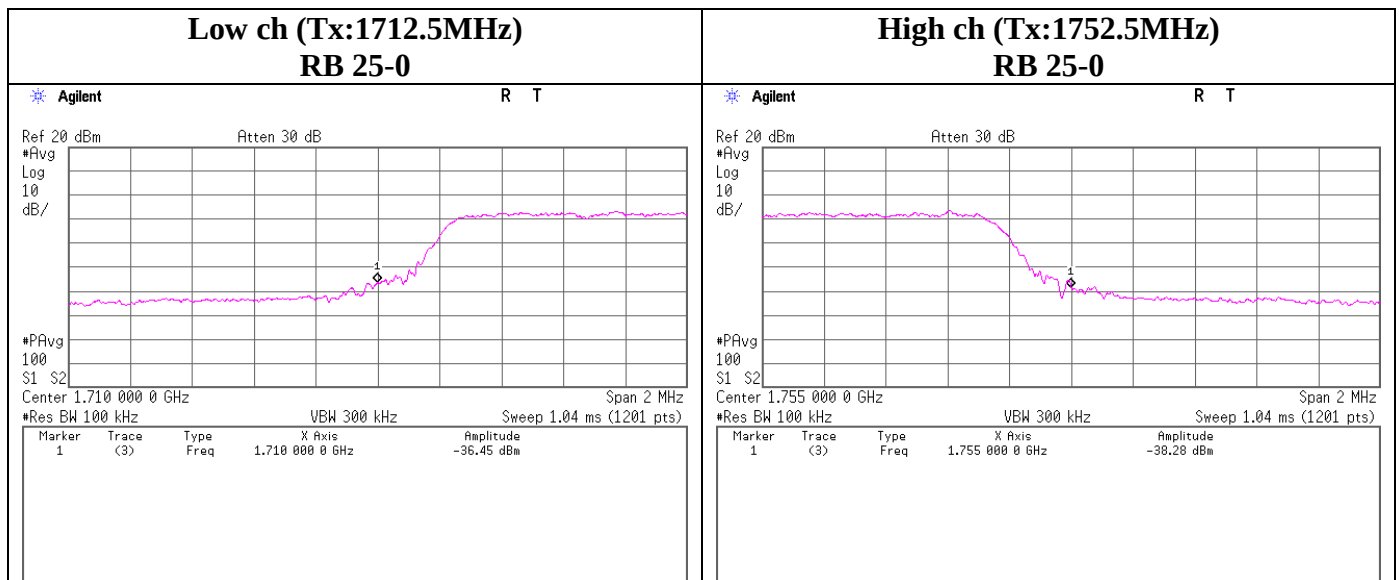
Band-Edge(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 5MHz, 25 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1710.0000	-36.45	10.07	3.90	-22.48	-13.0	9.48
1755.0000	-38.28	10.07	3.91	-24.30	-13.0	11.30

Sample Calculation : Result = Reading + Atten. + Cable Loss



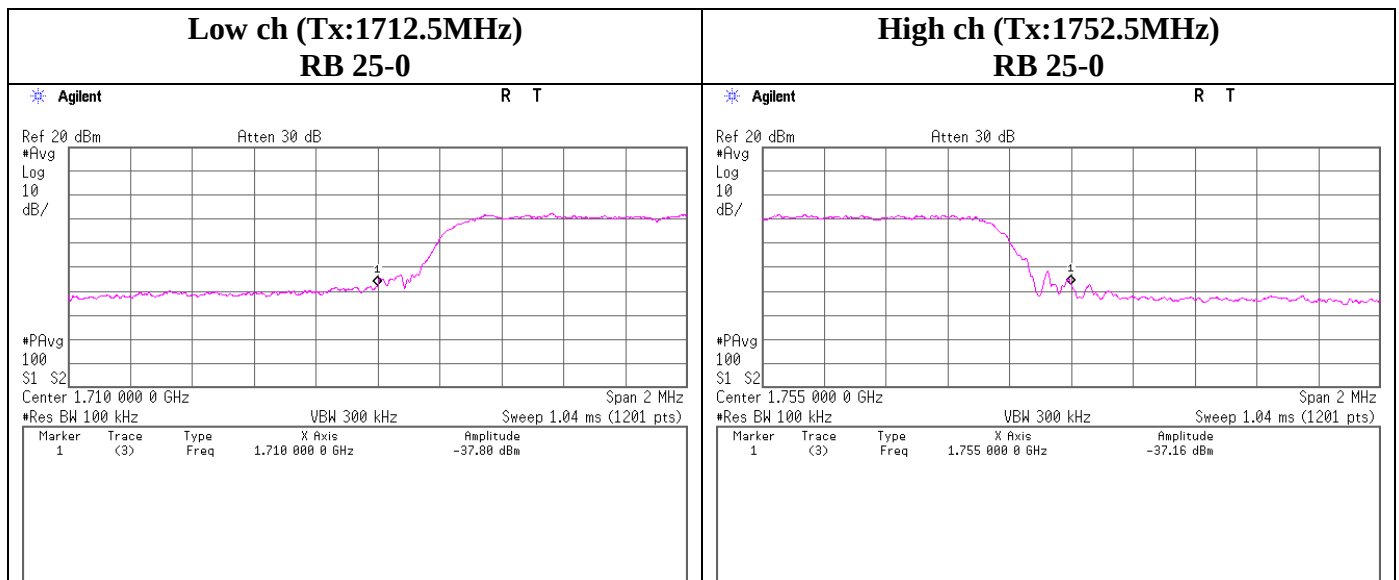
Band-Edge(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 5MHz, 25 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1710.0000	-37.80	10.07	3.90	-23.83	-13.0	10.83
1755.0000	-37.16	10.07	3.91	-23.18	-13.0	10.18

Sample Calculation : Result = Reading + Atten. + Cable Loss



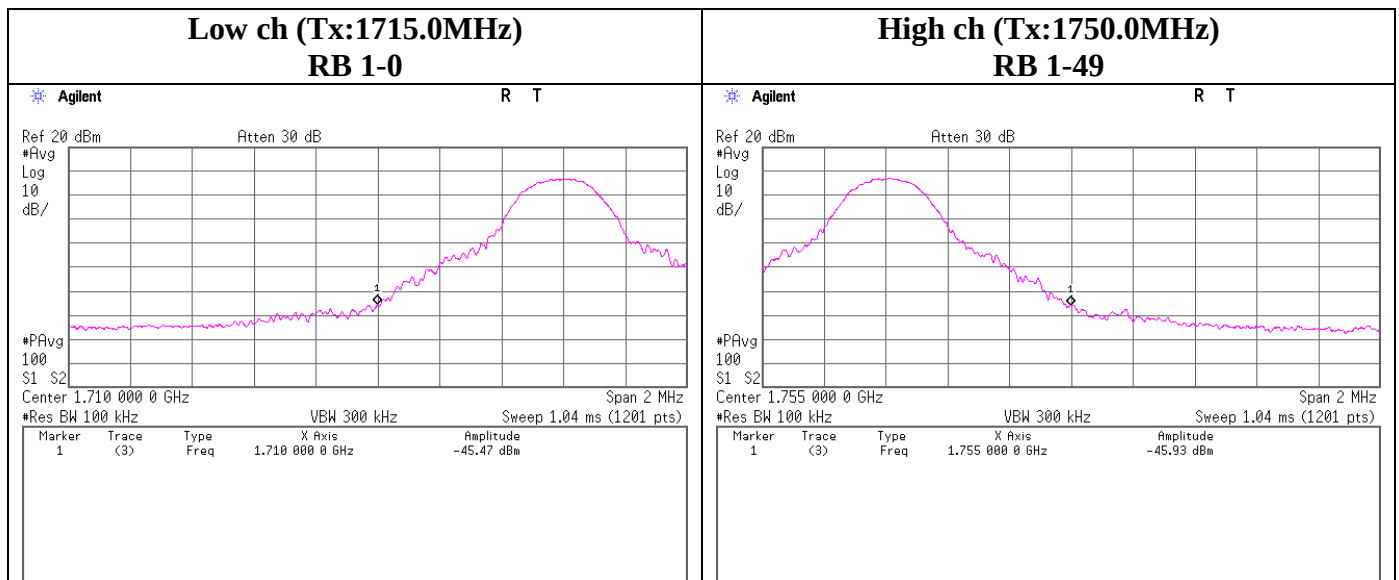
Band-Edge(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 10MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1710.0000	-45.47	10.07	3.90	-31.50	-13.0	18.50
1755.0000	-45.93	10.07	3.91	-31.95	-13.0	18.95

Sample Calculation : Result = Reading + Atten. + Cable Loss

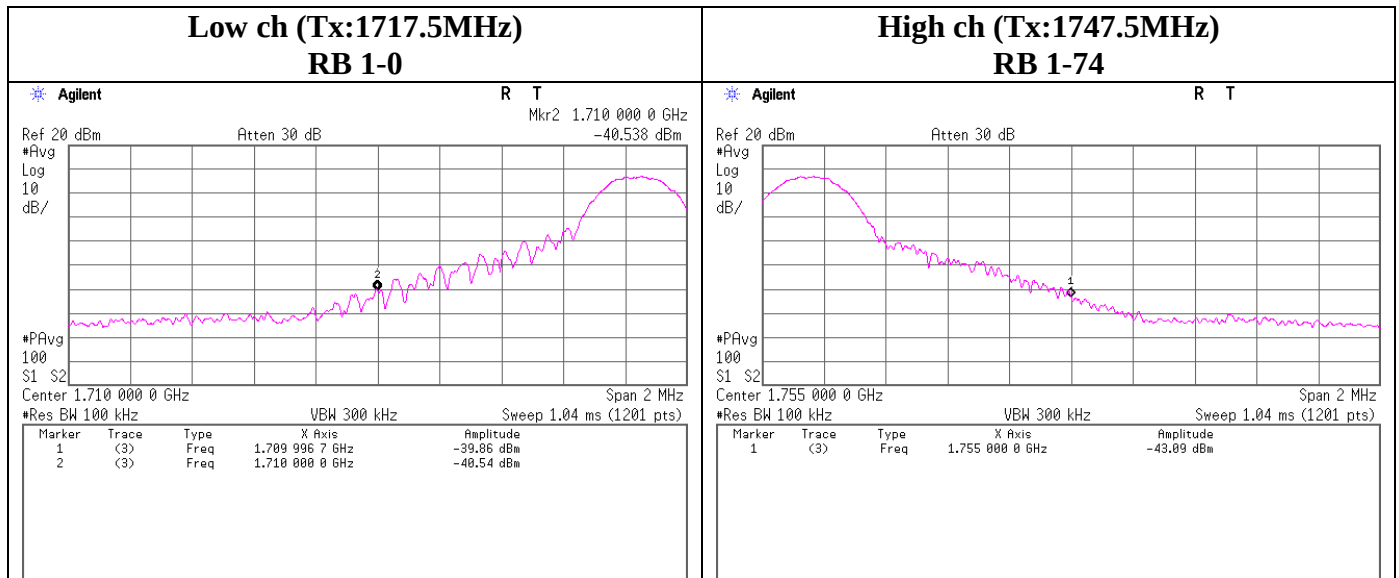


Band-Edge(Conducted) Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 15MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1709.9967	-39.86	10.07	3.90	-25.89	-13.0	12.89
1710.0000	-40.54	10.07	3.90	-26.57	-13.0	13.57
1755.0000	-43.09	10.07	3.91	-29.11	-13.0	16.11

Sample Calculation : Result = Reading + Atten. + Cable Loss



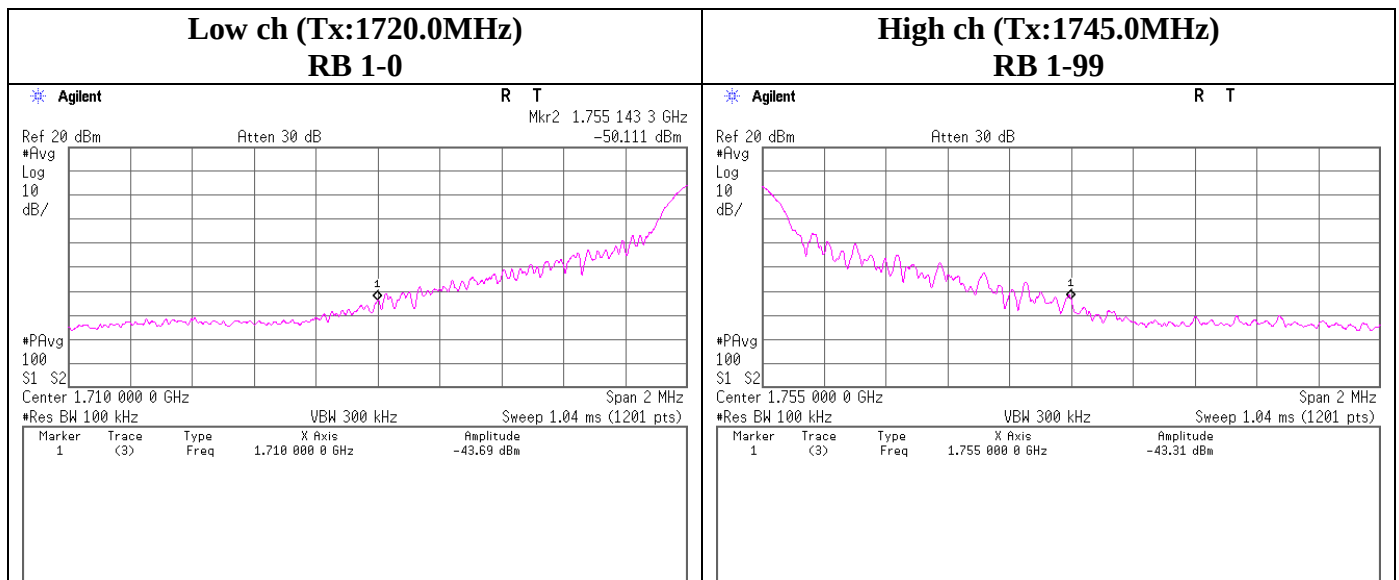
Band-Edge(Conducted)

Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 20MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1710.0000	-43.69	10.07	3.90	-29.72	-13.0	16.72
1755.0000	-43.31	10.07	3.91	-29.33	-13.0	16.33

Sample Calculation : Result = Reading + Atten. + Cable Loss

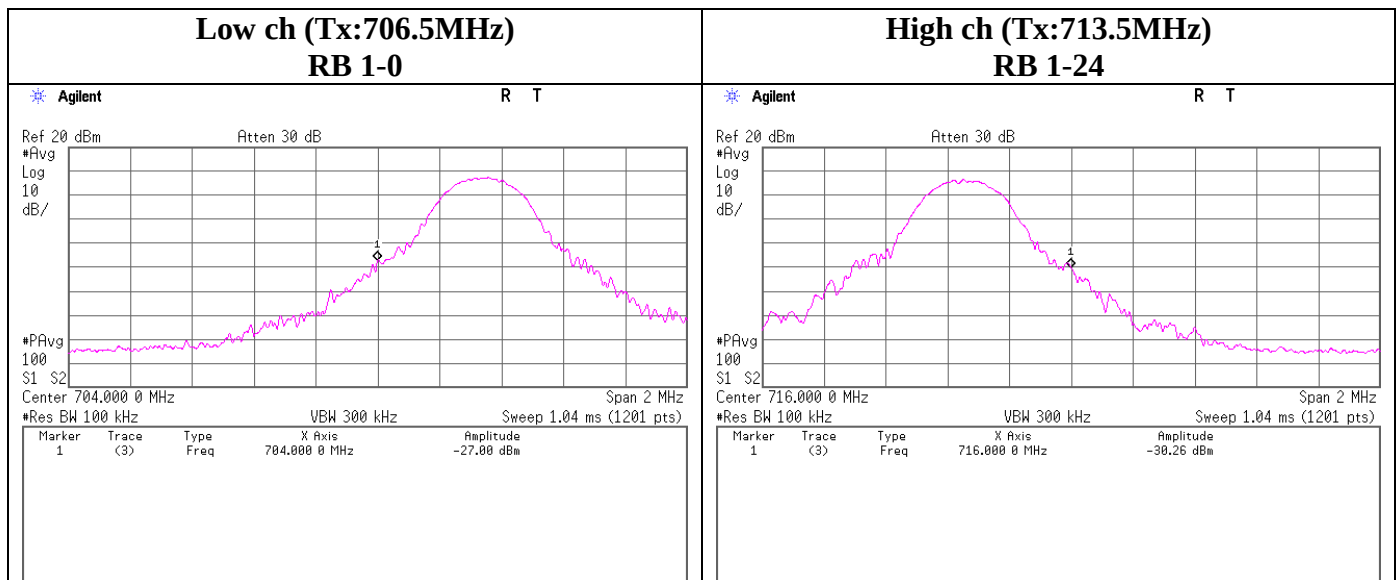


Band-Edge(Conducted) Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 5MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
704.0000	-27.00	10.05	3.78	-13.17	-13.0	0.17
716.0000	-30.26	10.05	3.78	-16.43	-13.0	3.43

Sample Calculation : Result = Reading + Atten. + Cable Loss

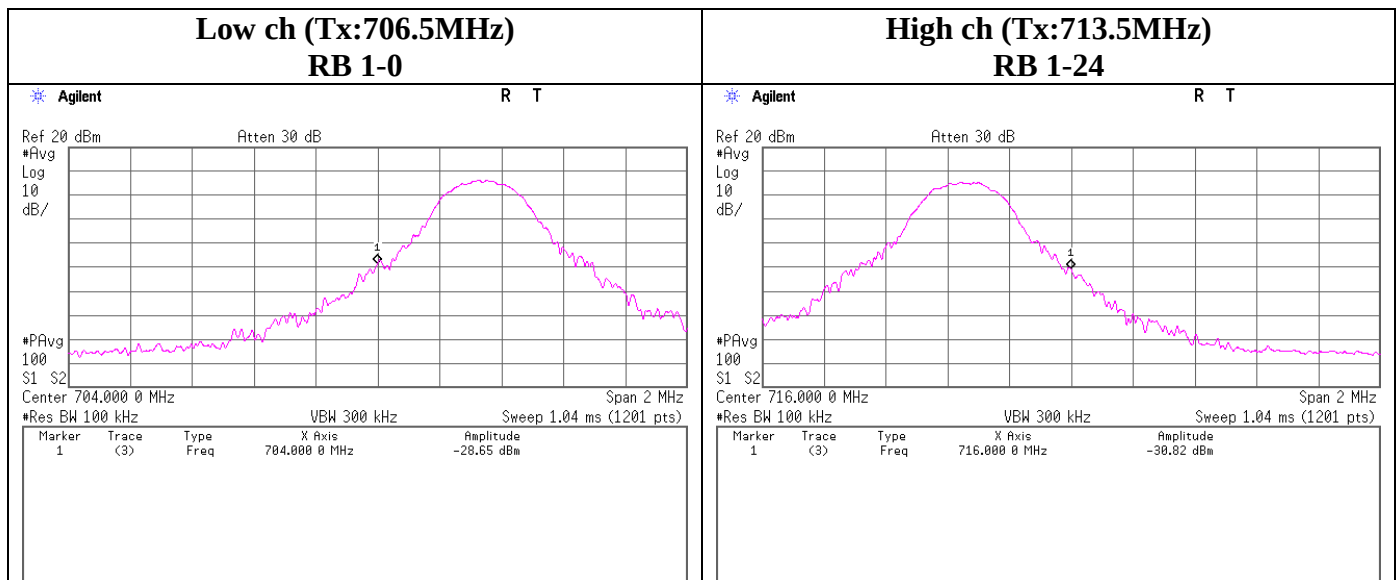


Band-Edge(Conducted) Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 5MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
704.0000	-28.65	10.05	3.78	-14.82	-13.0	1.82
716.0000	-30.82	10.05	3.78	-16.99	-13.0	3.99

Sample Calculation : Result = Reading + Atten. + Cable Loss



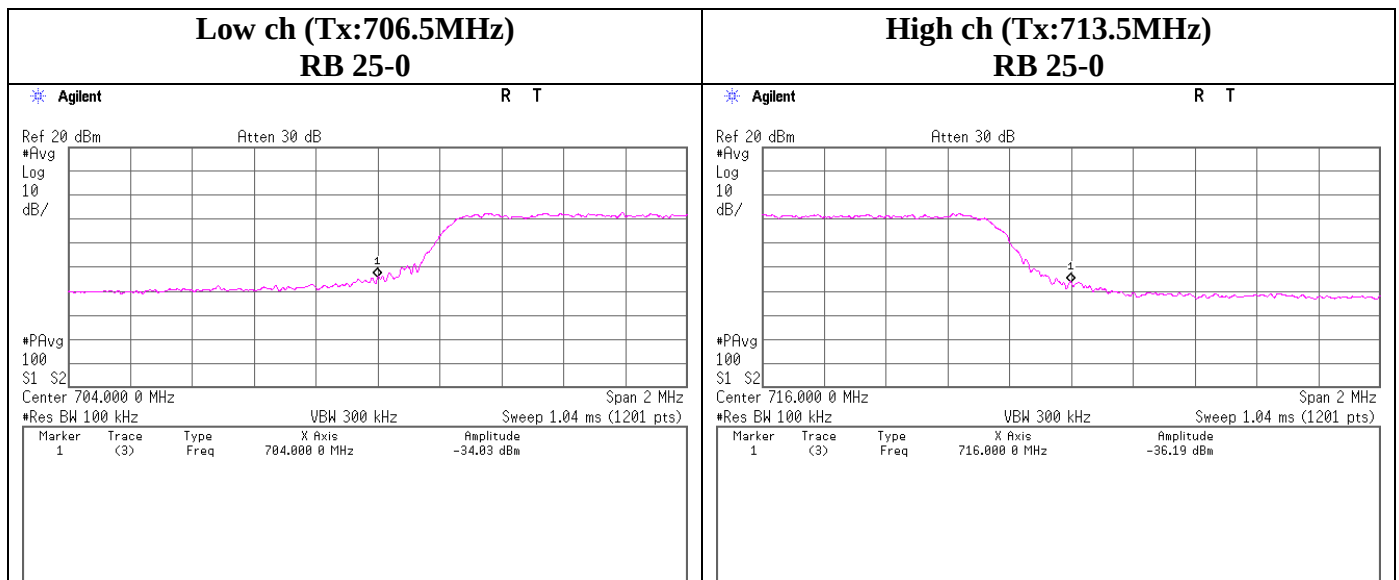
Band-Edge(Conducted)

Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 5MHz, 25 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
704.0000	-34.03	10.05	3.78	-20.20	-13.0	7.20
716.0000	-36.19	10.05	3.78	-22.36	-13.0	9.36

Sample Calculation : Result = Reading + Atten. + Cable Loss

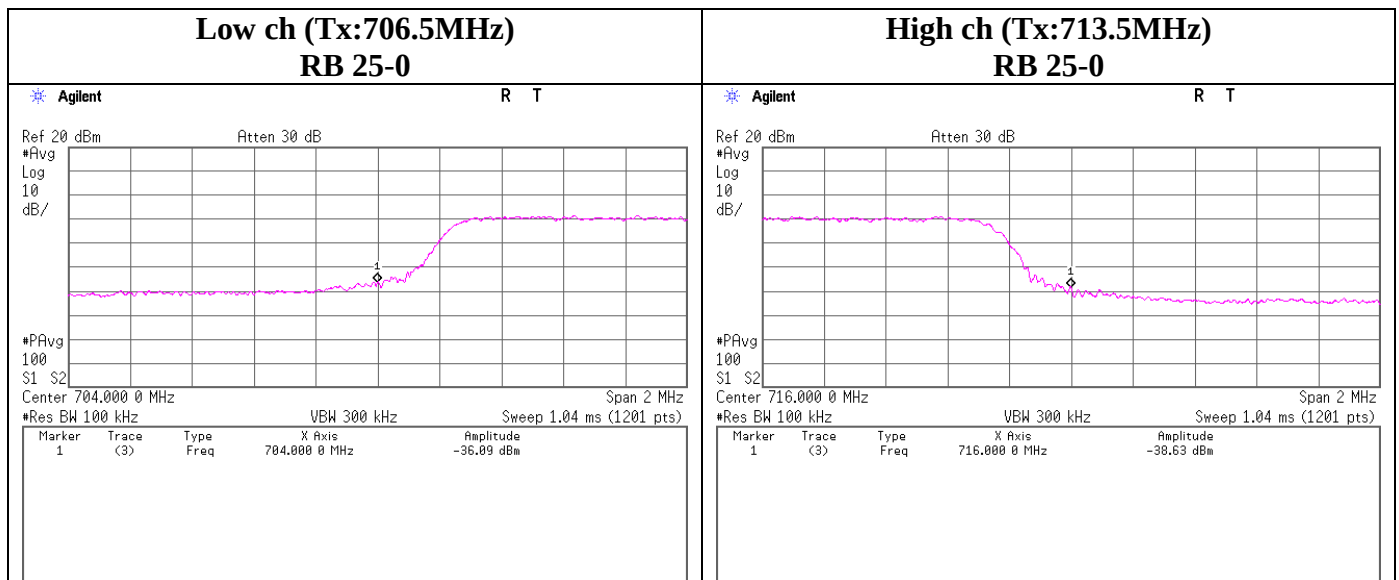


Band-Edge(Conducted) Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE (16QAM), BW 5MHz, 25 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
704.0000	-36.09	10.05	3.78	-22.26	-13.0	9.26
716.0000	-38.63	10.05	3.78	-24.80	-13.0	11.80

Sample Calculation : Result = Reading + Atten. + Cable Loss

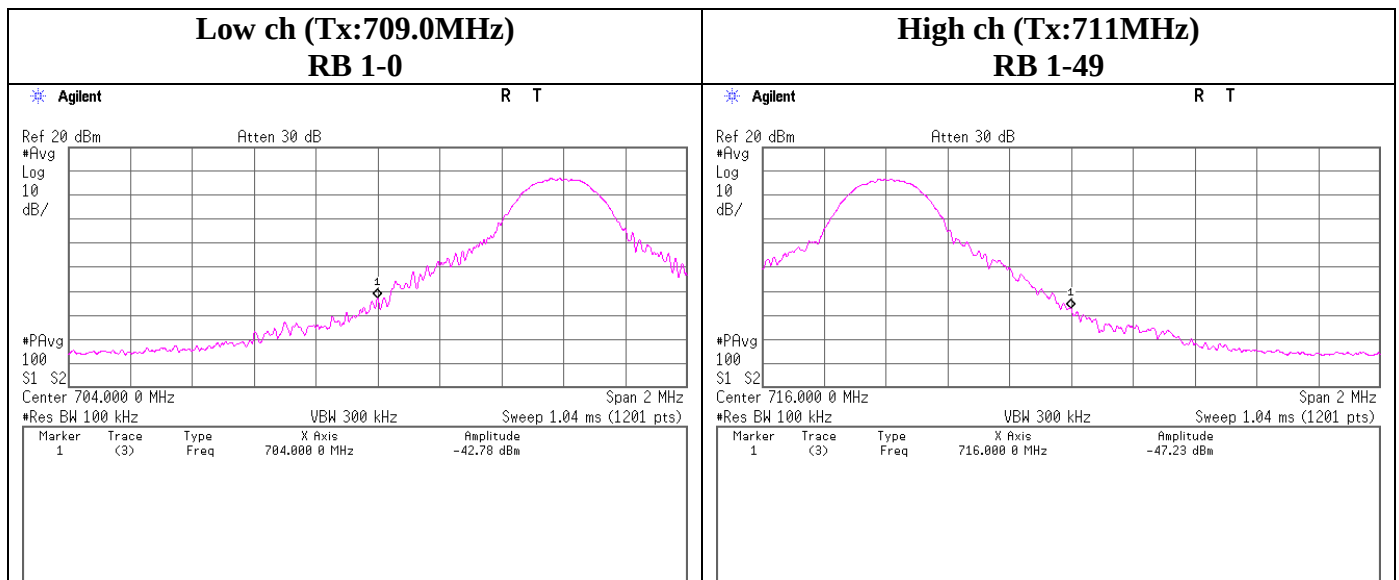


Band-Edge(Conducted) Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 10MHz, 1 RB

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
704.0000	-42.78	10.05	3.78	-28.95	-13.0	15.95
716.0000	-47.23	10.05	3.78	-33.40	-13.0	20.40

Sample Calculation : Result = Reading + Atten. + Cable Loss



Band Edge (Radiated)

Band 4

Report No. 32JE0205-HO
Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date 06/20/2012
Temperature / Humidity 23 deg. C / 79 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK), BW 5MHz

[1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1710.00	55.3	54.6	-21.5	-22.5	3.9	9.6	0.0	-15.7	-16.7	-13.0	2.7	3.7	102	312	110	321	RB 1-0
1755.00	55.9	54.9	-20.6	-22.4	3.9	9.7	0.0	-14.8	-16.6	-13.0	1.8	3.6	100	308	107	323	RB 1-24

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss
Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : S/A RMS Average (RBW: 100kHz , VBW: 300kHz)

[100% RB allocation]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1710.00	49.1	47.9	-27.7	-29.3	3.9	9.6	0.0	-21.9	-23.5	-13.0	8.9	10.5	102	312	110	321	RB 25-0
1755.00	47.0	46.2	-29.5	-31.1	3.9	9.7	0.0	-23.7	-25.3	-13.0	10.7	12.3	100	308	107	323	RB 25-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss
Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : S/A RMS Average (RBW: 100kHz , VBW: 300kHz)

Band Edge (Radiated)

Band 4

Report No. 32JE0205-HO
Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date 06/20/2012
Temperature / Humidity 23 deg. C / 79 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(16QAM), BW 5MHz

[1 RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1710.00	54.6	53.2	-22.2	-24.0	3.9	9.6	0.0	-16.4	-18.2	-13.0	3.4	5.2	102	312	110	321	RB 1-0
1755.00	54.6	54.3	-21.8	-23.0	3.9	9.7	0.0	-16.0	-17.2	-13.0	3.0	4.2	100	308	107	323	RB 1-24

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 100kHz , VBW: 300kHz)

[100% RB allocation]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1710.00	48.0	46.5	-28.7	-30.6	3.9	9.6	0.0	-22.9	-24.8	-13.0	9.9	11.8	102	312	110	321	RB 25-0
1755.00	46.5	45.6	-30.0	-31.7	3.9	9.7	0.0	-24.2	-25.9	-13.0	11.2	12.9	100	308	107	323	RB 25-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 100kHz , VBW: 300kHz)

Band Edge (Radiated)

Band 17

Report No. 32JE0205-HO
Test place Head Office EMC Lab. No.2 and No.3 Semi Anechoic Chamber
Date 06/12/2012 06/22/2012
Temperature / Humidity 25 deg. C / 60 % RH 24 deg. C / 57 % RH
Engineer Hironobu Ohnishi Katsunori Okai
Mode Transmitting (Tx) LTE(QPSK), BW 5MHz

[1RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height [cm]		Vertical Rx Ant. Height [cm]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Table [deg.]	Table [deg.]	Table [deg.]	Table [deg.]	
704.00	43.7	42.7	-10.9	-8.7	5.1	2.15	9.9	-25.9	-23.7	-13.0	12.9	10.7	125	73	139	78	RB 1-0
716.00	41.4	39.8	-12.4	-11.7	5.1	2.15	9.9	-27.5	-26.8	-13.0	14.5	13.8	125	73	139	78	RB 1-24

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 30kHz , VBW: 100kHz)

[100% RB allocation]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height [cm]		Vertical Rx Ant. Height [cm]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Table [deg.]	Table [deg.]	Table [deg.]	Table [deg.]	
704.00	35.8	32.8	-16.6	-18.0	4.2	2.15	9.9	-30.7	-32.2	-13.0	17.7	19.2	125	267	154	189	RB 25-0
716.00	34.4	31.3	-18.5	-19.7	4.3	2.15	9.9	-32.7	-33.9	-13.0	19.7	20.9	128	269	158	320	RB 25-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 30kHz , VBW: 100kHz)

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Band Edge (Radiated)

Band 17

Report No. 32JE0205-HO
Test place Head Office EMC Lab. No.2 and No.3 Semi Anechoic Chamber
Date 06/12/2012 06/22/2012
Temperature / Humidity 25 deg. C / 60 % RH 24 deg. C / 57 % RH
Engineer Hironobu Ohnishi Katsunori Okai
Mode Transmitting (Tx) LTE(16QAM), BW 5MHz

[1RB]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Height [cm]	Turn Table [deg.]	Height [cm]	Turn Table [deg.]	
704.00	42.0	41.2	-12.6	-10.2	5.1	2.15	9.9	-27.6	-25.2	-13.0	14.6	12.2	125	73	139	78	RB 1-0
716.00	41.1	39.7	-12.7	-11.8	5.1	2.15	9.9	-27.8	-26.9	-13.0	14.8	13.9	125	73	139	78	RB 1-24

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 30kHz , VBW: 100kHz)

[100% RB allocation]

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Height [cm]	Turn [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
704.00	34.5	32.2	-17.9	-18.6	4.2	2.15	9.9	-32.0	-32.8	-13.0	19.0	19.8	125	267	154	189	RB 25-0
716.00	32.2	29.8	-20.7	-21.2	4.3	2.15	9.9	-34.9	-35.4	-13.0	21.9	22.4	128	269	158	320	RB 25-0

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

Detector : S/A RMS Average (RBW: 30kHz , VBW: 100kHz)

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Spurious Emission (Conducted)
Band 4

Test place Head Office EMC Lab. No.7 Measurement Room
Report No. 32JE0205-HO
Date 06/19/2012
Temperature/ Humidity 23deg.C / 46% RH
Engineer Katsunori Okai
Mode Transmitting (Tx) LTE(QPSK), BW 20MHz, RB 1-0

Limit Line

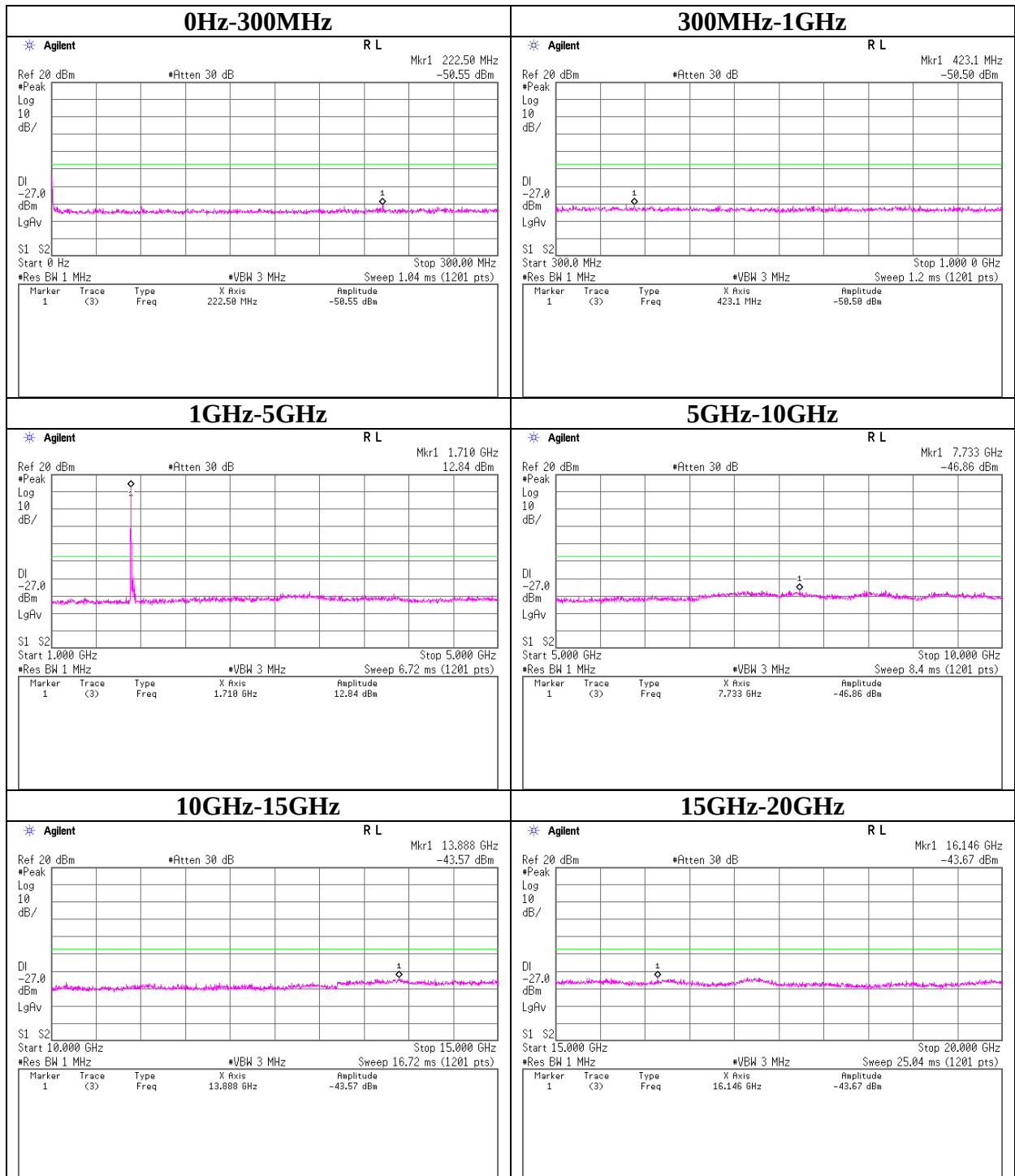
Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line [dBm]
1720.0	-13.0	10.07	3.90	-27.0
1732.5	-13.0	10.07	3.91	-27.0
1745.0	-13.0	10.07	3.91	-27.0

Sample Calculation : Limit Line = Limit - Atten. - Cable Loss

Spurious Emission (Conducted)

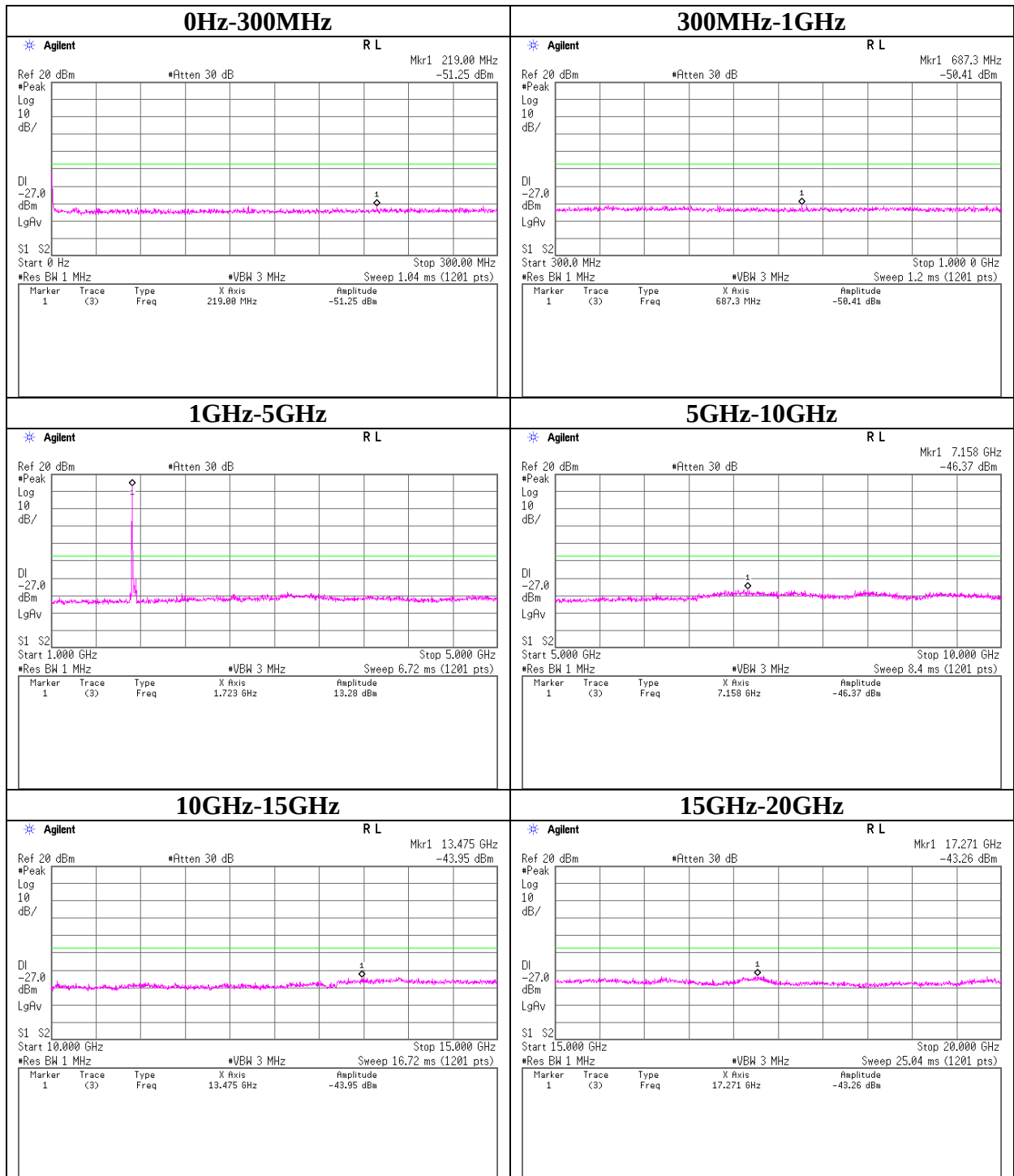
Band 4

Tx:1720.0MHz



Spurious Emission (Conducted)

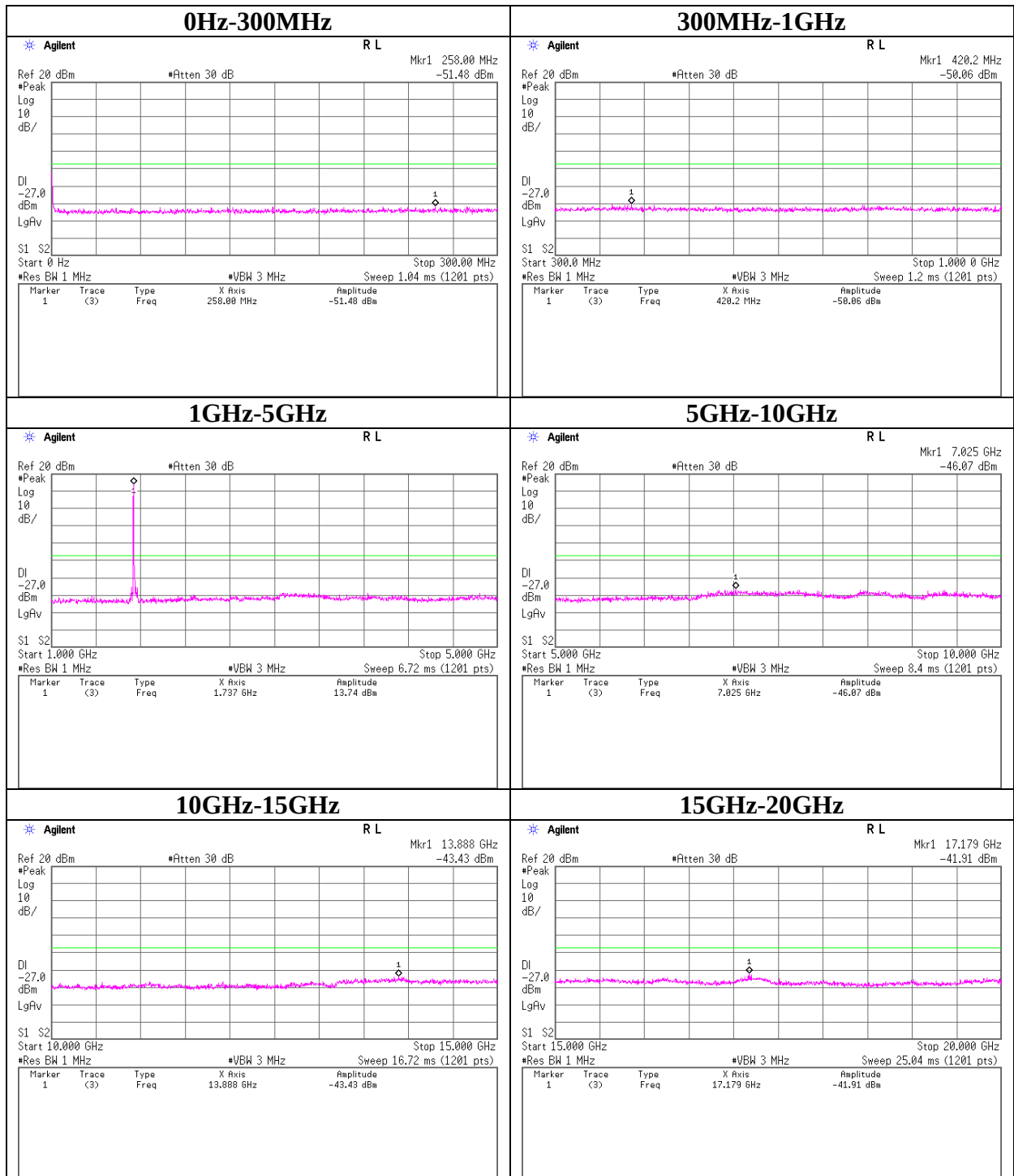
Band 4
Tx:1732.5MHz



Spurious Emission (Conducted)

Band 4

Tx:1745.0MHz



Spurious Emission (Conducted)
Band 4

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/19/2012
Temperature/ Humidity	23deg.C / 46% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(16QAM), BW 20MHz, RB 1-0(1720MHz and 1745MHz), RB 1-99(1732.5MHz)

Limit Line

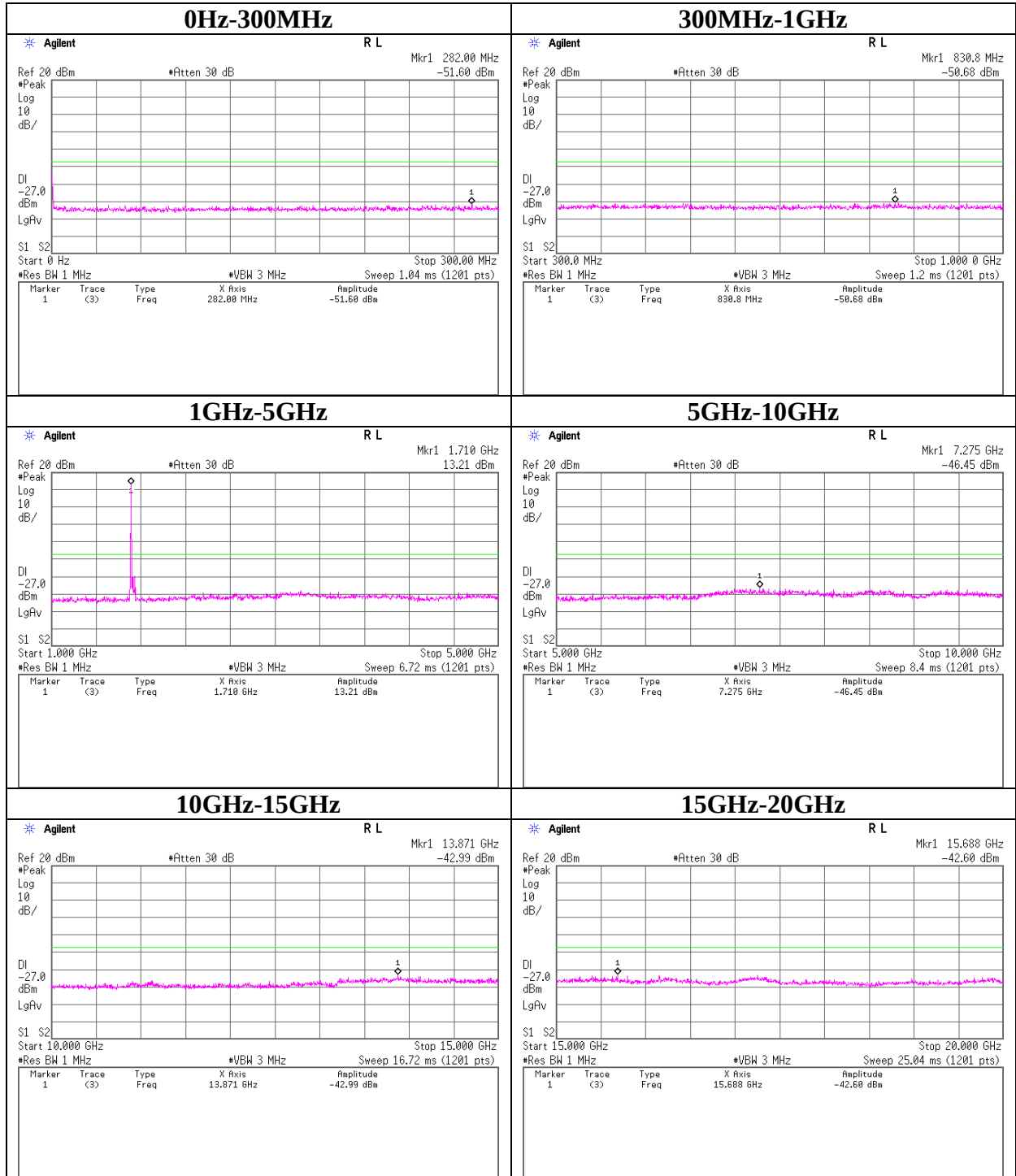
Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line [dBm]
1720.0	-13.0	10.07	3.90	-27.0
1732.5	-13.0	10.07	3.91	-27.0
1745.0	-13.0	10.07	3.91	-27.0

Sample Calculation : Limit Line = Limit - Atten. - Cable Loss

Spurious Emission (Conducted)

Band 4

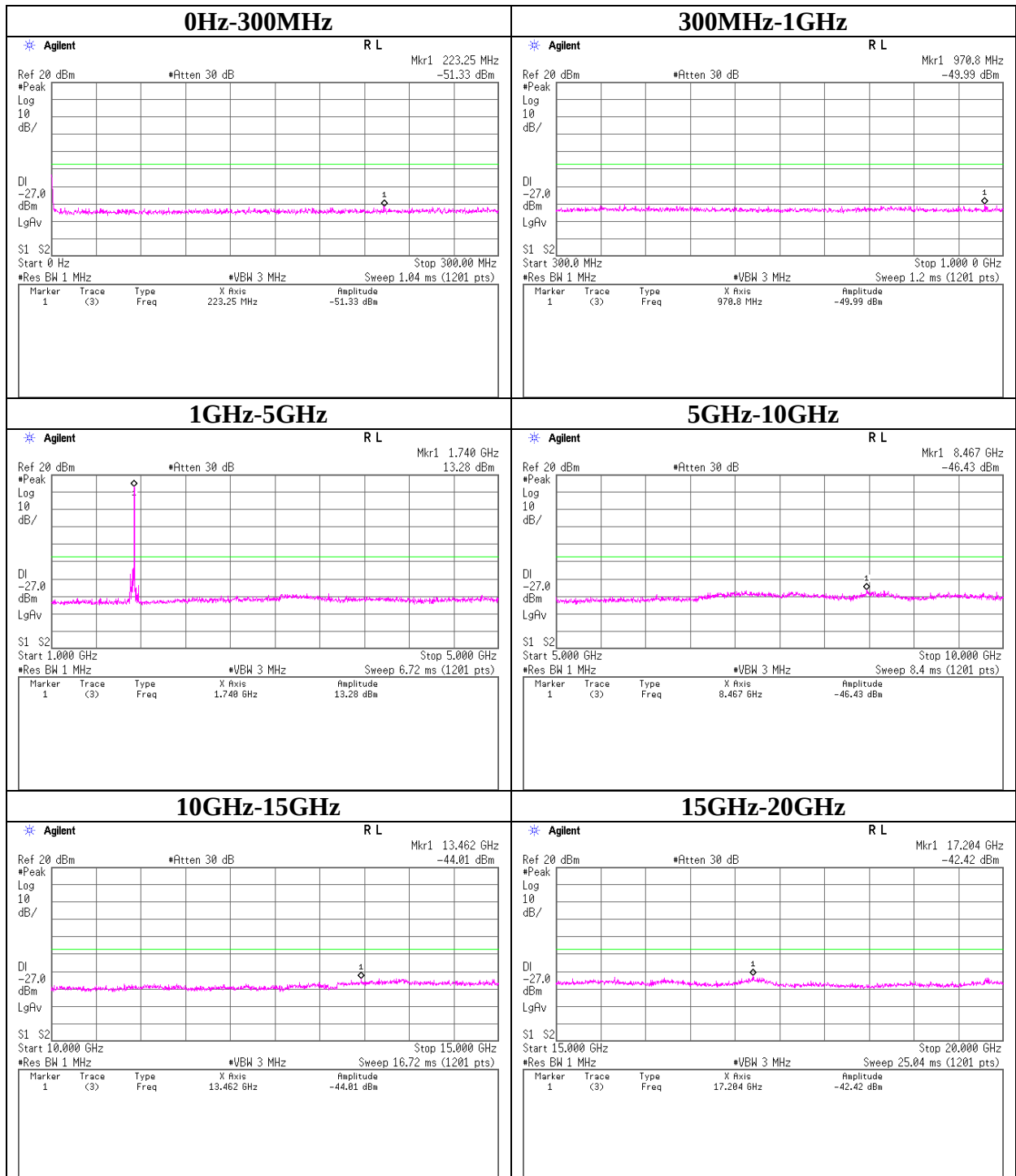
Tx:1720.0MHz



Spurious Emission (Conducted)

Band 4

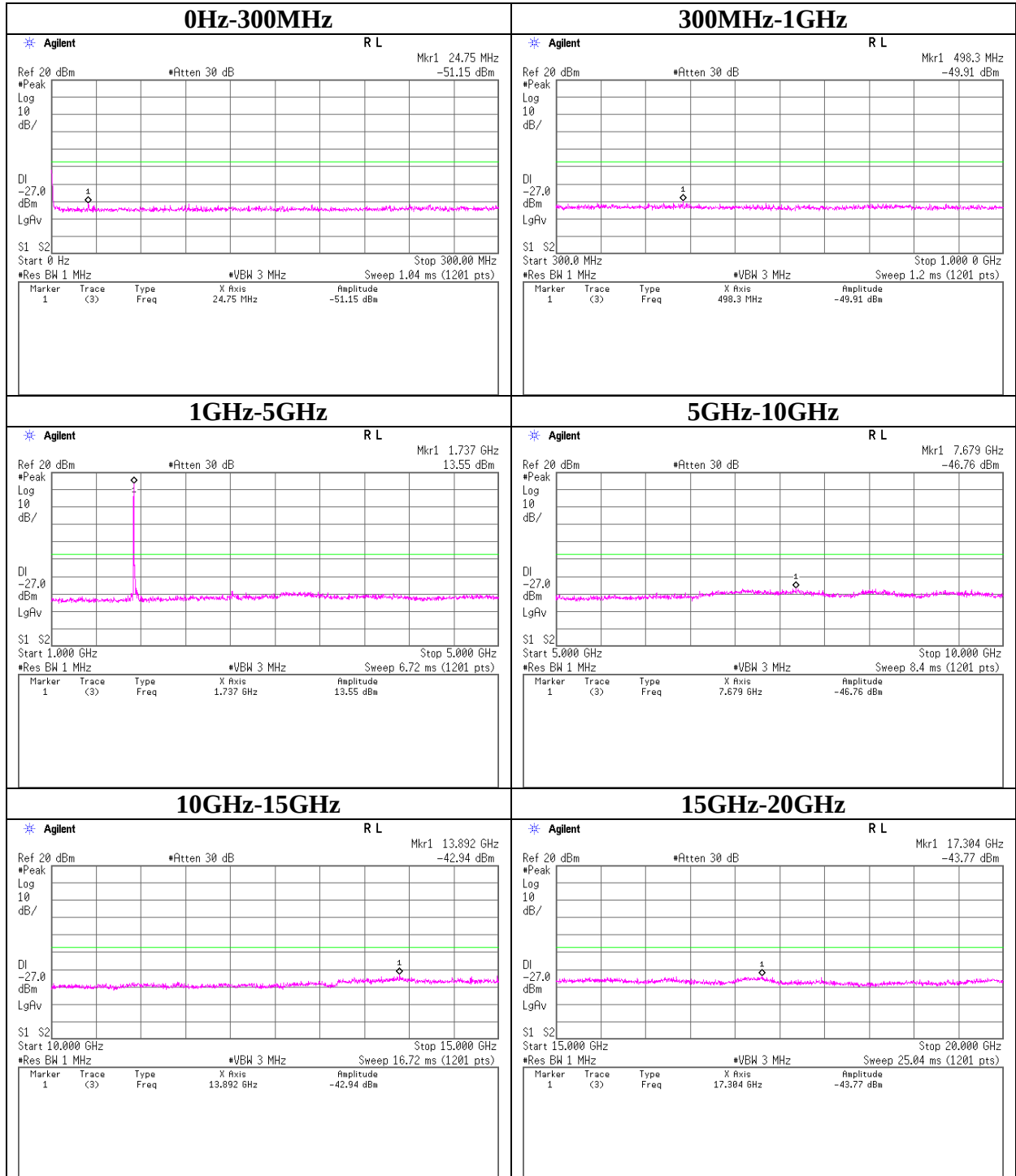
Tx:1732.5MHz



Spurious Emission (Conducted)

Band 4

Tx:1745.0MHz



Spurious Emission (Conducted)
Band 17

Test place	Head Office EMC Lab. No.7 Measurement Room
Report No.	32JE0205-HO
Date	06/18/2012
Temperature/ Humidity	23deg.C / 52% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 10MHz , RB 1-0

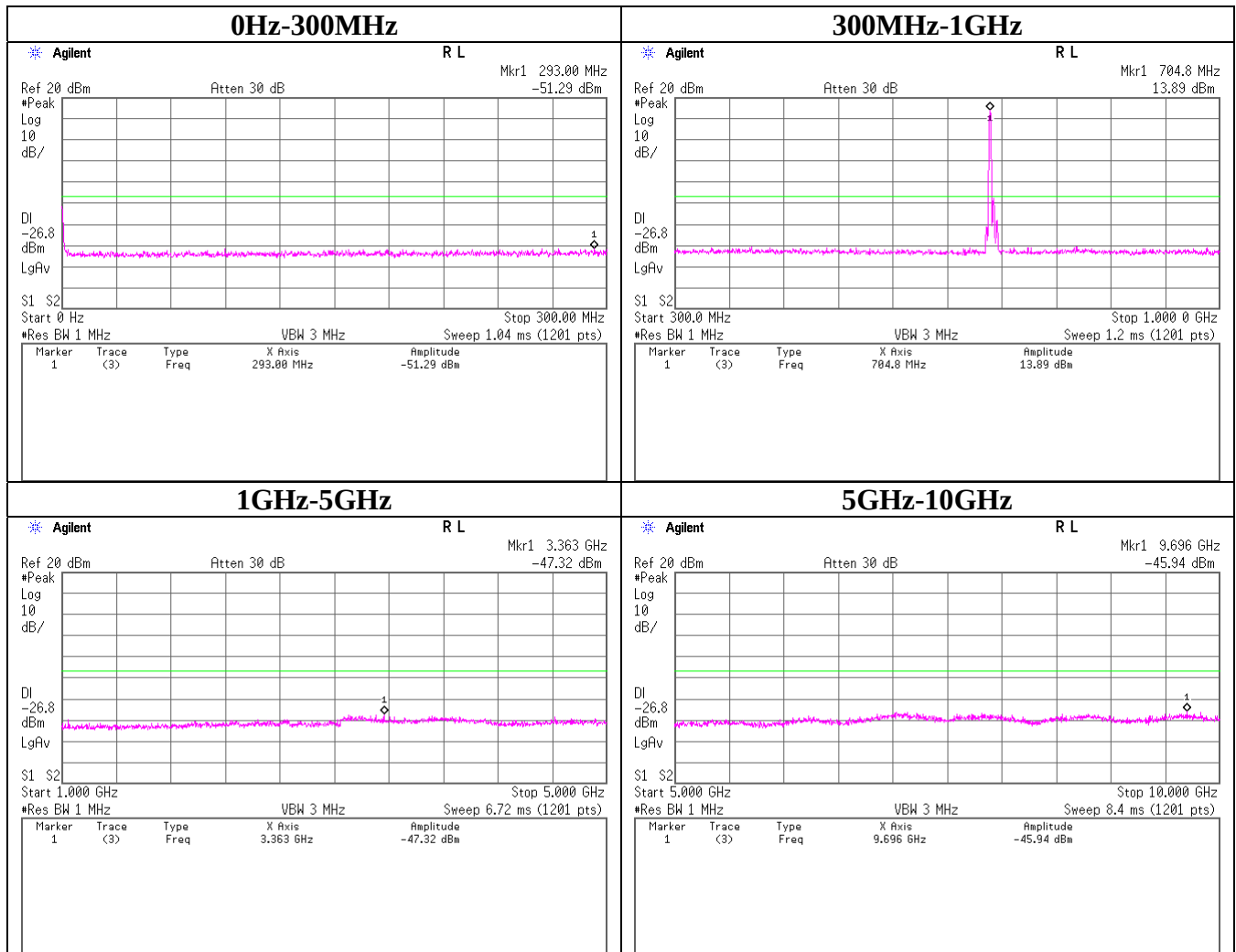
Limit Line

Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line [dBm]
709.0	-13.0	10.05	3.78	-26.8
710.0	-13.0	10.05	3.78	-26.8
711.0	-13.0	10.05	3.78	-26.8

Sample Calculation : Limit Line = Limit - Atten. - Cable Loss

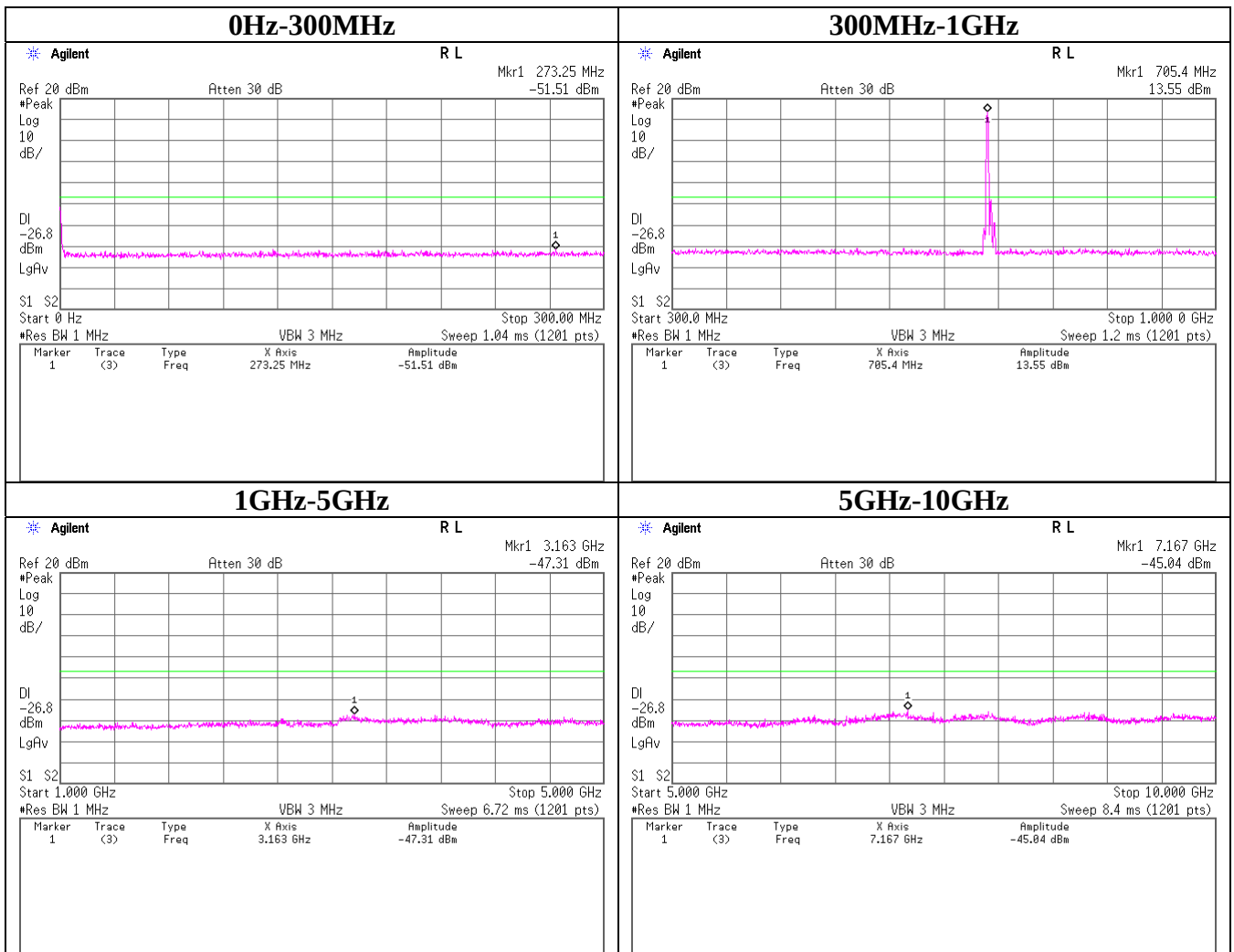
Spurious Emission (Conducted)

Band 17
Tx:709.0MHz



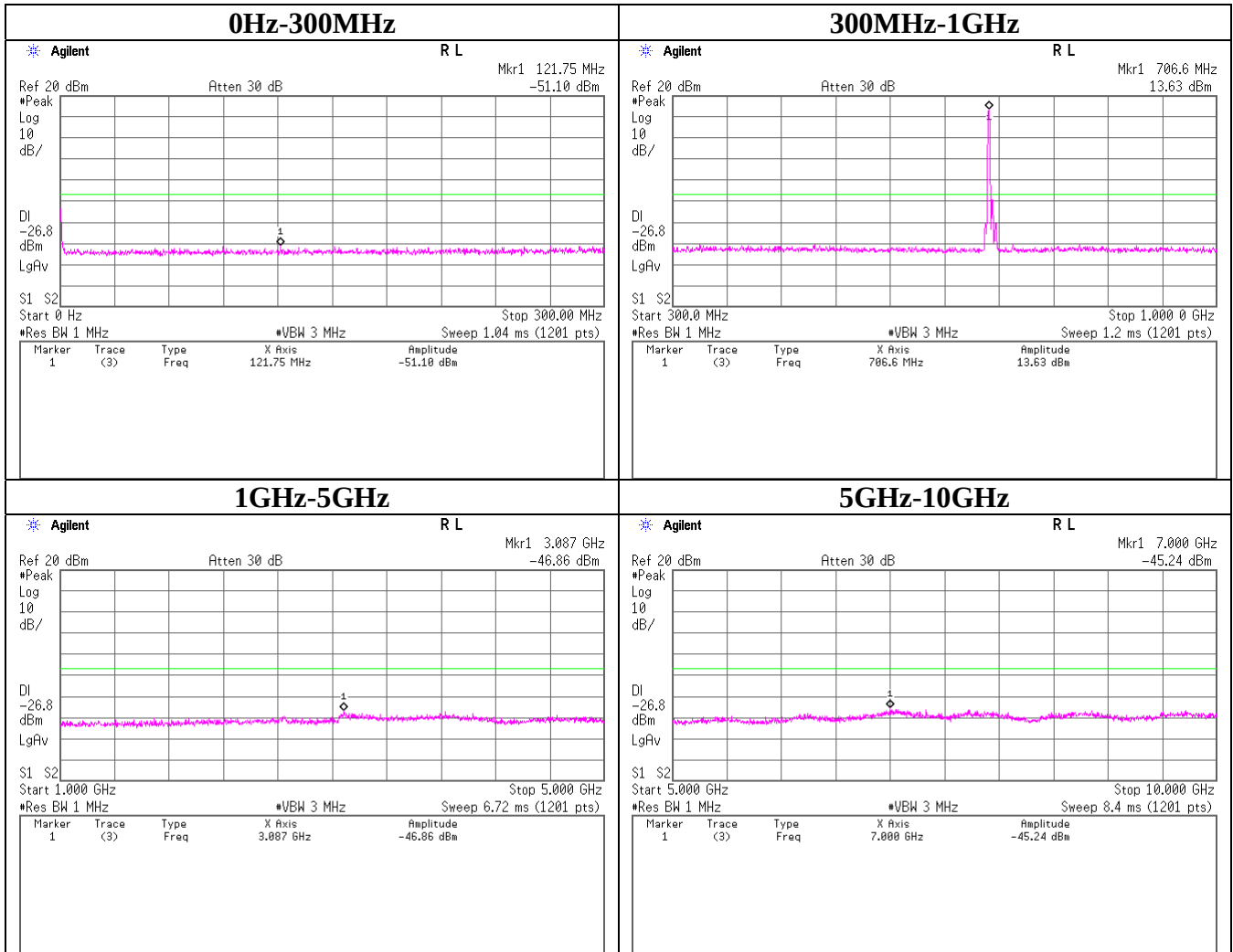
Spurious Emission (Conducted)

Band 17
Tx:710.0MHz



Spurious Emission (Conducted)

Band 17
Tx:711.0MHz



Spurious Emission (Conducted)
Band 17

Test place Head Office EMC Lab. No.7 Measurement Room
Report No. 32JE0205-HO
Date 06/18/2012
Temperature/ Humidity 23deg.C / 52% RH
Engineer Katsunori Okai
Mode Transmitting (Tx) LTE(16QAM), BW 10MHz, RB 1-0

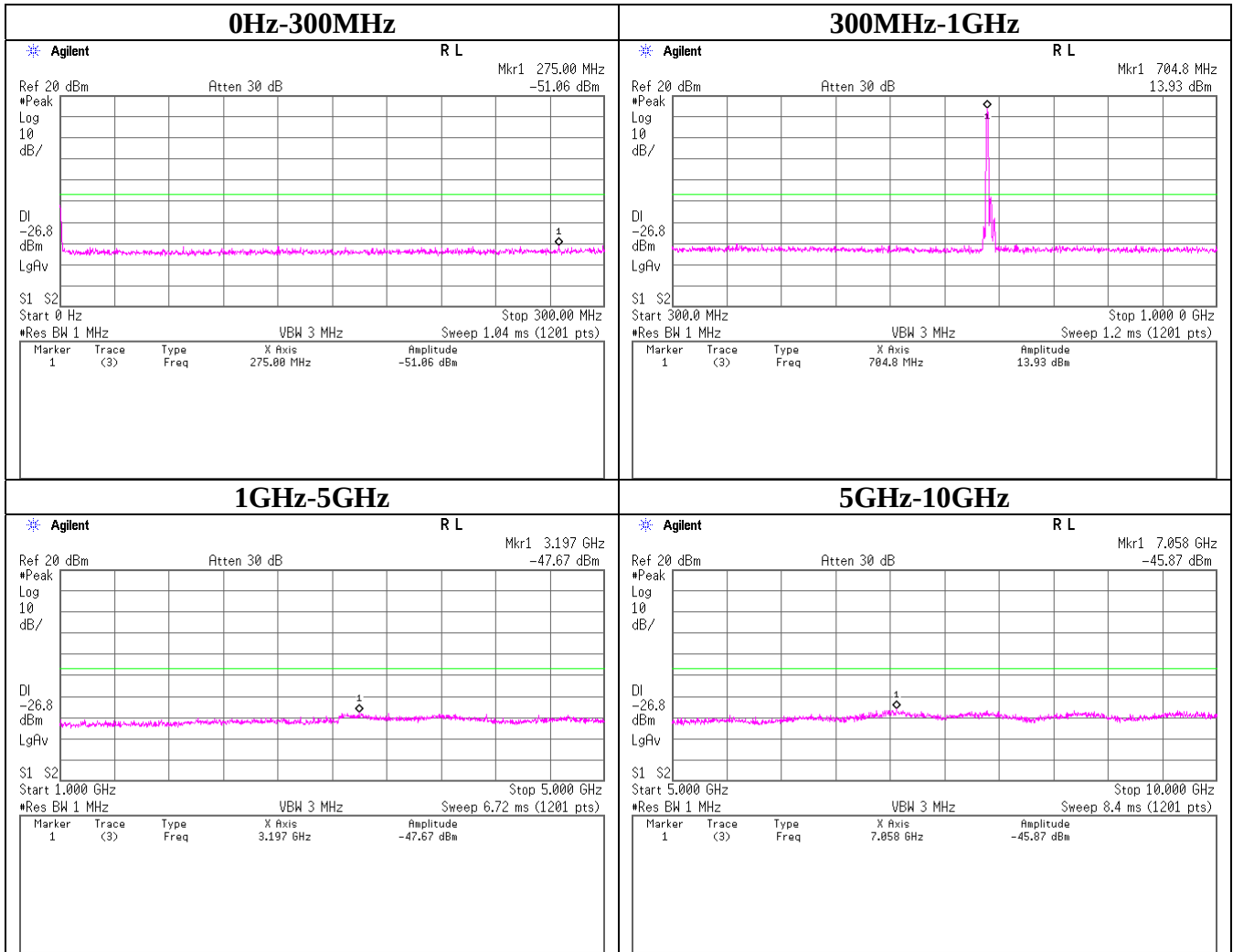
Limit Line

Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line [dBm]
709.0	-13.0	10.05	3.78	-26.8
710.0	-13.0	10.05	3.78	-26.8
711.0	-13.0	10.05	3.78	-26.8

Sample Calculation : Limit Line = Limit - Atten. - Cable Loss

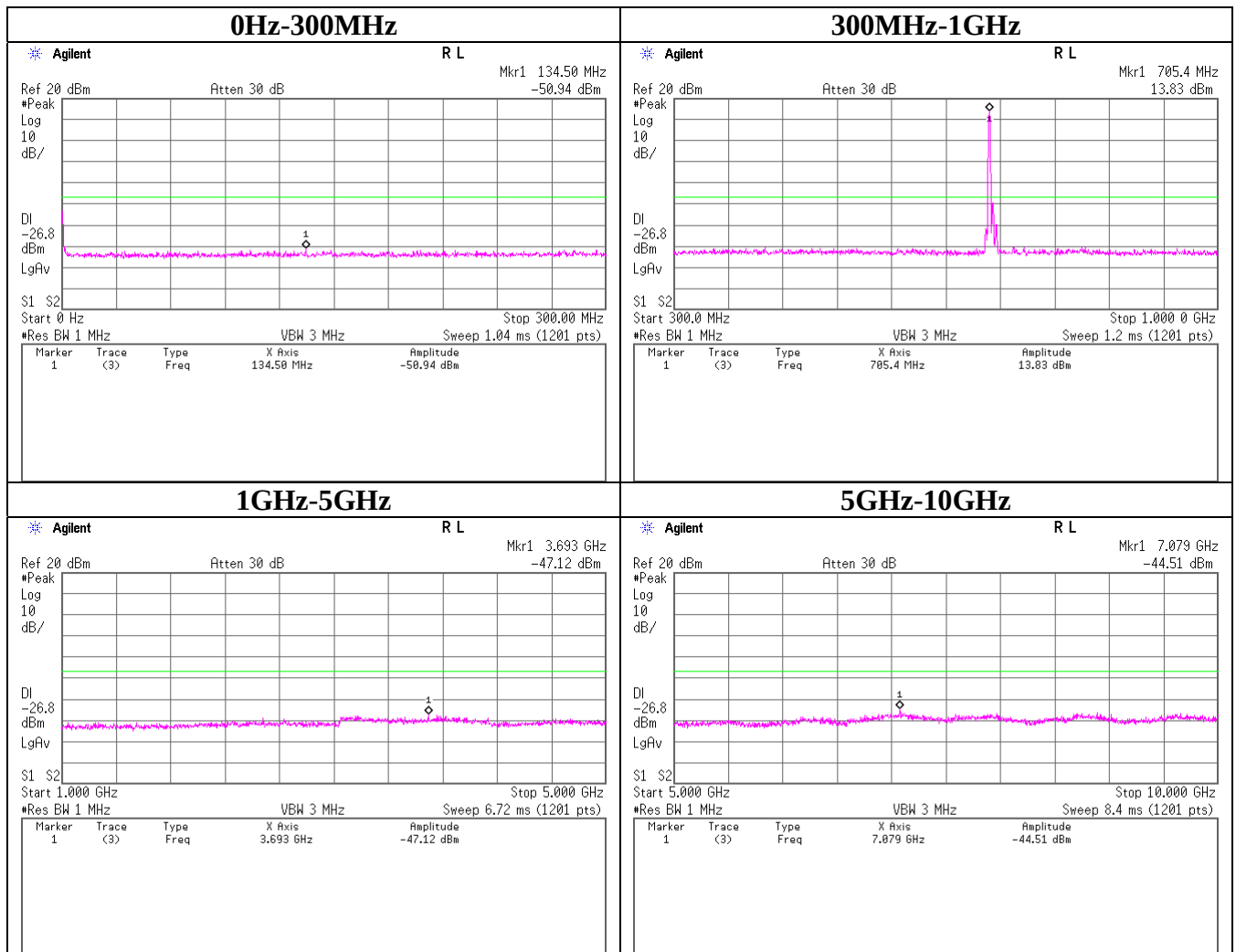
Spurious Emission (Conducted)

Band 17
Tx:709.0MHz



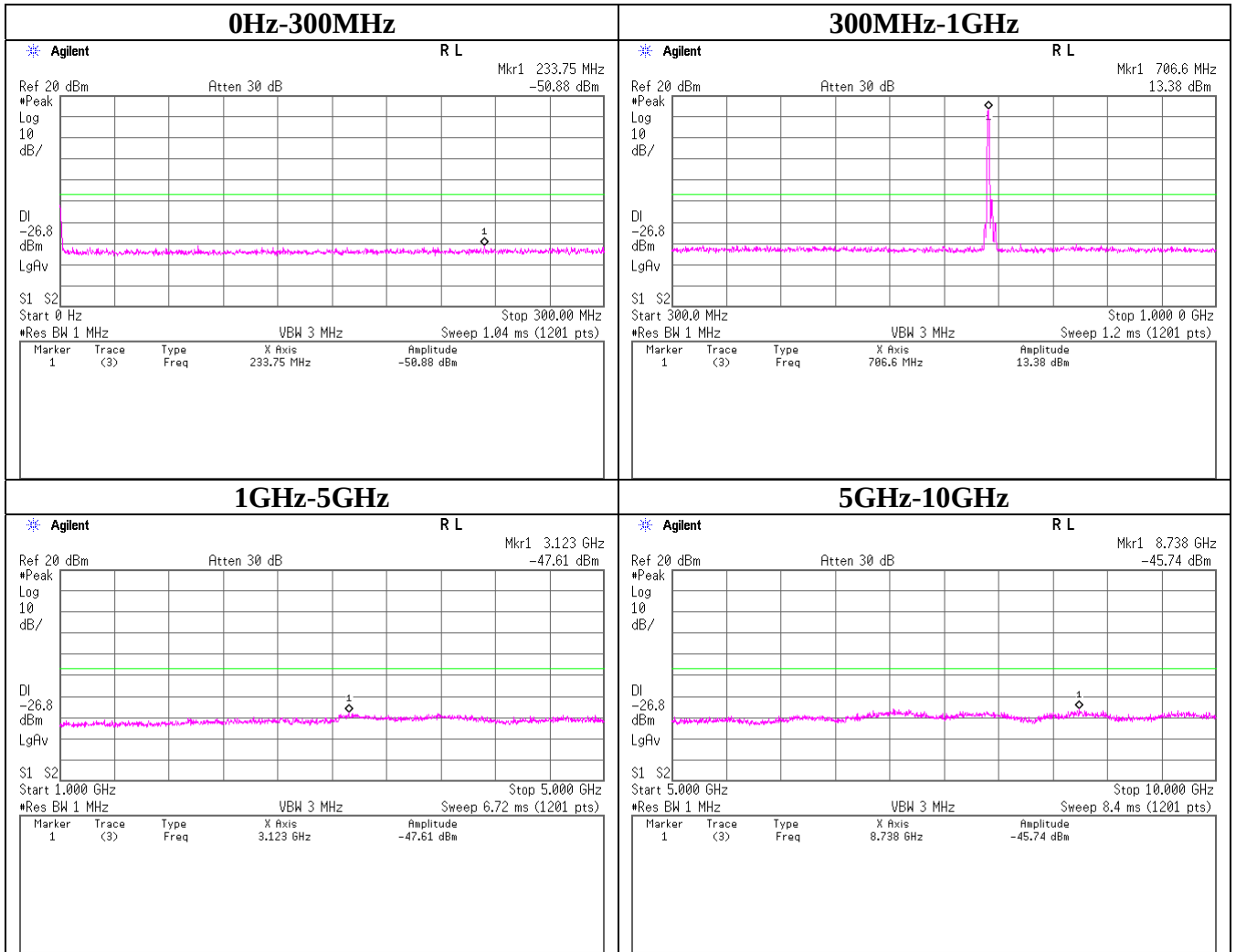
Spurious Emission (Conducted)

Band 17
Tx:710.0MHz



Spurious Emission (Conducted)

Band 17
Tx:711.0MHz



Spurious Emission (Radiated)

Band 4

Report No. 32JE0205-HO
Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date 06/14/2012
Temperature / Humidity 24 deg. C / 50 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK), BW 20MHz, RB 1-0

Tx: 1720MHz

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height [cm]		Vertical Rx Ant. Height [cm]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	cm	deg.	cm	deg.	
3422.18	56.3	53.7	-46.5	-54.9	4.5	11.9	0.0	-39.1	-47.5	-13.0	26.1	34.5	112	42	100	32	
5133.27	47.0	45.8	-60.0	-62.3	5.5	11.7	0.0	-53.8	-56.1	-13.0	40.8	43.1	100	243	109	187	
6844.36	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
8555.45	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17110.90	55.4	55.3	-37.9	-34.5	10.7	13.6	0.0	-35.0	-31.6	-13.0	22.0	18.6	108	210	100	179	

Tx: 1732.5MHz

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height [cm]		Vertical Rx Ant. Height [cm]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	cm	deg.	cm	deg.	
3447.18	52.6	51.6	-56.4	-57.0	4.5	11.9	0.0	-49.0	-49.6	-13.0	36.0	36.6	146	35	103	22	
5170.77	47.8	47.6	-59.2	-60.5	5.5	11.8	0.0	-53.0	-54.3	-13.0	40.0	41.3	100	241	100	135	
6894.36	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
8617.95	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17235.90	58.3	56.7	-34.9	-32.8	10.7	12.8	0.0	-32.9	-30.8	-13.0	19.9	17.8	107	209	100	179	

Tx: 1745MHz

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height [cm]		Vertical Rx Ant. Height [cm]		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	cm	deg.	cm	deg.	
3472.18	56.7	53.8	-46.1	-54.8	4.6	12.0	0.0	-38.6	-47.3	-13.0	25.6	34.3	110	40	115	41	
5208.27	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
6944.36	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
8680.45	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17360.90	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss
Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-40GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
NS : No signal detect.
Detector : S/A PK (RBW: 1MHz , VBW: 3MHz)

Spurious Emission (Radiated)

Band 17

Report No. 32JE0205-HO
Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date 06/14/2012
Temperature / Humidity 24 deg. C / 50 % RH
Engineer Hironobu Ohnishi
Mode Transmitting (Tx) LTE(QPSK), BW 10MHz, RB 1-0

Tx: 709MHz

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1409.18	50.5	53.2	-66.1	-59.7	3.6	9.0	0.0	-62.8	-56.4	-13.0	49.8	43.4	156	152	110	183	
2113.77	54.2	55.0	-56.5	-54.6	4.2	9.8	0.0	-53.0	-51.1	-13.0	40.0	38.1	131	216	120	180	
2818.36	51.5	57.5	-59.0	-50.6	4.3	10.3	0.0	-55.2	-46.8	-13.0	42.2	33.8	113	254	132	189	
3522.96	NS	50.4	-	-59.5	4.6	12.1	0.0	-	-54.2	-13.0	-	41.2	-	-	102	183	
7045.91	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 710MHz

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1411.18	49.8	54.2	-66.8	-58.7	3.6	9.0	0.0	-63.5	-55.4	-13.0	50.5	42.4	105	148	110	182	
2116.78	53.3	55.1	-57.4	-54.5	4.2	9.8	0.0	-53.9	-51.0	-13.0	40.9	38.0	162	13	117	188	
2822.37	51.3	57.2	-59.2	-50.9	4.3	10.3	0.0	-55.3	-47.0	-13.0	42.3	34.0	111	253	112	189	
3527.96	NS	51.5	-	-58.4	4.6	12.1	0.0	-	-53.1	-13.0	-	40.1	-	-	104	179	
7055.92	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 711MHz

Frequency [MHz]	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. Atten. Loss [dB]	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
	HOR	VER	HOR	VER				HOR	VER		HOR	VER	Rx Ant. Height [cm]	Turn Table [deg.]	Rx Ant. Height [cm]	Turn Table [deg.]	
1413.18	49.8	52.2	-66.8	-60.7	3.6	9.0	0.0	-63.5	-57.4	-13.0	50.5	44.4	150	158	109	186	
2119.77	53.3	54.9	-57.4	-54.7	4.2	9.8	0.0	-53.9	-51.2	-13.0	40.9	38.2	100	210	119	170	
2826.36	52.6	56.9	-57.9	-51.2	4.3	10.3	0.0	-54.0	-47.3	-13.0	41.0	34.3	197	246	110	189	
3532.95	NS	49.0	-	-60.9	4.6	12.1	0.0	-	-55.6	-13.0	-	42.6	-	-	102	183	
7065.90	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15

Rx-ANTENNA : Biconical Antenna(30M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-12.75GHz)

Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-12.75GHz)

Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

NS : No signal detect.

Detector : S/A PK (RBW: 1MHz , VBW: 3MHz)

Frequency Stability(Temperature/Voltage Variation)

Band 4

Tx: 1732.5MHz

Test place Head Office EMC Lab. No.6 Measurement Room
Report No. 32JE0205-HO
Date 06/20/2012
Temperature/ Humidity 20deg.C / 51% RH
Engineer Katsunori Okai
Mode Transmitting (Tx) LTE(QPSK), BW 20MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.70	1732.49996813	10.90	0.0063	2.5
-20	3.70	1732.50005740	100.17	0.0578	2.5
-10	3.70	1732.50002765	70.43	0.0407	2.5
0	3.70	1732.50003560	78.37	0.0452	2.5
10	3.70	1732.49996015	2.92	0.0017	2.5
20	3.70	1732.49995723	0.00	0.0000	Reference
30	3.70	1732.50003646	79.23	0.0457	2.5
40	3.70	1732.50004755	90.32	0.0521	2.5
50	3.70	1732.50003135	74.12	0.0428	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	1732.49996483	7.61	0.0044	2.5
20	3.70	1732.49995723	0.00	0.0000	Reference
20	3.60	1732.49994827	-8.95	-0.0052	2.5

Frequency Stability(Temperature/Voltage Variation)

Band 17

Tx: 710.0MHz

Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32JE0205-HO
Date	06/20/2012
Temperature/ Humidity	20deg.C / 51% RH
Engineer	Katsunori Okai
Mode	Transmitting (Tx) LTE(QPSK), BW 10MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.70	710.00001476	26.73	0.0377	2.5
-20	3.70	710.00001088	22.85	0.0322	2.5
-10	3.70	710.00000914	21.11	0.0297	2.5
0	3.70	710.00001319	25.16	0.0354	2.5
10	3.70	709.99998788	-0.15	0.0002	2.5
20	3.70	709.99998803	0.00	0.0000	Reference
30	3.70	709.99998440	-3.63	-0.0051	2.5
40	3.70	709.99998569	-2.34	-0.0033	2.5
50	3.70	709.99998218	-5.85	-0.0082	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	709.99998386	-4.17	-0.0059	2.5
20	3.70	709.99998803	0.00	0.0000	Reference
20	3.60	709.99998370	-4.33	-0.0061	2.5

APPENDIX 3: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	AT	2012/02/06 * 12
MCC-99	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	30820/2	AT	2012/05/09 * 12
MURC-04	Digital Radio Test Set	AEROFLEX	7100	710000/093	AT/RE	2012/05/28 * 12
MCC-93	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	30814/2	AT	2012/05/09 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	MOS04	AT	2012/02/06 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2011/06/21 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2012/02/06 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2012/02/03 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2011/10/23 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2012/02/16 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2011/11/02 * 12
YTSSG03	Signal Generator	Rohde & Schwarz	SMT02	51400043	RE	2011/08/19 * 12
MCC-125	Corexial Cable	UL Japan	-	-	RE	2011/07/04 * 12
MDA-04	Dipole Antenna	Schwarzbeck	UHAP	992	RE	2011/10/15 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2012/02/22 * 12
MCC-132	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336161/4(1m) / 340639(5m)	RE	2011/09/06 * 12
KSG-05	Signal Generator	Rohde & Schwarz	SMR40	100137	RE	2011/08/30 * 12
MCC-130	Microwave Cable(1-33GHz)	HUBER+SUHNER	SF103/11PC3.5-31/11PC3.5-31/8.0m	54308/3	RE	2012/01/05 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2011/08/11 * 12
MHF-04	High Pass Filter 1.22-4.60GHz	Mini-Circuit	VHF-1200	10435	RE	2011/08/25 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2012/05/30 * 12
MHF-18	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCA	7002	RE	2011/09/08 * 12
MCC-77	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278942/4	RE	2011/12/08 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2012/05/25 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2011/10/23 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2011/09/26 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	RE	2011/11/02 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT	2012/04/06 * 12
MAT-23	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2012/03/27 * 12
MPSC-01	Power splitters/Combiners	Mini-Circuit	ZFSC-2-2500	0124	AT	2011/09/27 * 12
MRENT-95	Spectrum Analyzer	Agilent	E4440A	MY46185823	RE	2012/06/19 * 12
MCH-04	Temperature and Humidity Chamber	Tabai Espec	PL-2KP	14015723	AT	2011/08/22 * 12

EMI test equipment (2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2012/02/24 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2012/02/06 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2011/10/15 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2011/07/15 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2011/11/02 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2012/03/16 * 12
MCC-126	Corexial Cable	UL Japan	-	-	RE	2011/07/15 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item:

RE: Radiated Emission

AT: Antenna terminal conducted test

UL Japan, Inc.

Head Office EMC Lab.

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

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