RADIO TEST REPORT

Test Report No. : 10636726H-F-R3

Applicant	:	**Panasonic Mobile Communications Development of Europe Ltd**
Type of Equipment	:	**Digital Camera**
Model No.	:	**DMC-CM1**
Test regulation	:	**FCC Part 27 Subpart C: 2014**
FCC ID	:	**UCE314062A**
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.
6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 10636726H-F-R2. 10636726H-F-R2 is replaced with this report.

Date of test: January 15 to March 17, 2015

Representative test engineer:
Yutaka Yoshida
Engineer
Consumer Technology Division

Approved by:
Takahiro Hatakeda
Leader
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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.
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REVISION HISTORY

Original Test Report No.: 10636726H-F

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10636726H-F	February 20, 2015	-	-
1	10636726H-F-R1	March 5, 2015	P.4	Correction of rating
2	10636726H-F-R2	March 10, 2015	P.23	Addition of word “Effective radiated power (ERP)”
3	10636726H-F-R3	March 17, 2015	P.53-56	Addition of LTE PAPR Worst Mode RB configurations data

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SECTION 1: Customer information

Company Name	:	Panasonic Mobile Communications Development of Europe Ltd
Address	:	Willoughby Road, Bracknell Berkshire RG12 8FP, UK
Telephone Number	:	+44 (0) 1344 706774
Facsimile Number	:	+44 (0) 1344 706796
Contact Person	:	Andrew James

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

2.1 Identification of E.U.T.

Type of Equipment	:	Digital Camera
Model No.	:	DMC-CM1
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	AC120V/60Hz (AC Adaptor) DC3.8V (Battery)
Receipt Date of Sample	:	January 7, 2015
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

General Specification

Power Supply (radio part input) : Cellular PA: 3.0V-4.2V (Depend on Battery voltage)
Cellular other RF part: 1.3V, 1.8V, 2.05V, 2.7V (Regulated voltage)
WLAN 5GHz Front-end module: 3.0V-4.2V (Depend on Battery voltage)
WLAN/BT other RF part: 1.3V, 1.8V, 3.0V (Regulated voltage)

Clock frequency(ies) in the system : 2.26GHz (Max)
See below table for other clock frequencies

Frequency	Device
32.768kHz	MSM8974AB
32.768kHz (X'tal)	BUYD2206
27.0MHz	TC358764AXBG, XO2-256-64UCBGA, BUYD2206
48.0MHz (X'tal)	WCN3680
24.0MHz	MSM8974AB, Sub Camera
19.2MHz	WTR1625L, MSM8974AB
19.2MHz (X'tal)	PM8941
9.6MHz	WCD9320
72MHz	Main Camera
27.12MHz	NFC IC

Hardware / Software version : Rev. PR / QRCT Version 3.0.32.0

Radio Specification

	IEEE802.11b	IEEE802.11g/n (20 M band)	IEEE802.11a/n/ac (20 M band)	IEEE802.11n/ac (40 M band)	IEEE802.11ac (80 M band)
Frequency of operation	2412-2462MHz	2412-2462MHz	5180-5240MHz 5260-5320MHz 5500-5700MHz 5745-5825MHz	5190-5230MHz 5270-5310MHz 5510-5670MHz 5755-5795MHz	5210MHz 5290MHz 5530-5610MHz 5775MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)		OFDM (64QAM, 16QAM, QPSK, BPSK, 256QAM)
Channel spacing	5MHz		20MHz	40MHz	80MHz
Antenna type	Monopole				
Antenna Connector type	Spring type				
Antenna Gain	2.4GHz: -5.40dBi W52: -3.0dBi, W53: -3.5dBi, W56: -1.5dBi, W58: -1.8dBi				

	Bluetooth Ver.4.0 with EDR function	GSM	W-CDMA	LTE
Frequency of operation	2402-2480MHz	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz	[Up Link] Band II: 1850 – 1910MHz Band IV: 1710 – 1755MHz Band V: 824 – 849MHz [Down Link] Band II: 1930 – 1990MHz Band IV: 2110 – 2155MHz Band V: 869 – 894MHz	[Up Link] Band II: 1850 – 1910MHz Band IV: 1710 – 1755MHz Band V: 824 – 849MHz Band VII: 2500 – 2570MHz Band X VII: 704 – 716MHz [Down Link] Band II: 1930 – 1990MHz Band IV: 2110 – 2155MHz Band V: 869 – 894MHz Band VII: 2620 – 2690MHz Band X VII: 734 – 746MHz
Type of modulation	BT: FHSS (GFSK, π/4-DQPSK, 8-DPSK) LE: GFSK	GMSK , 8PSK	QPSK	QPSK, 16QAM
Channel spacing	BT: 1MHz LE: 2MHz	200kHz	200kHz	100kHz
Antenna type	Monopole	Monopole	Main: Monopole Sub: Monopole	
Antenna Connector type	Spring type	Spring type	Main: Spring type Sub: Spring type	
Antenna Gain	-5.40dBi	GSM850: -0.9dBi PCS: 0.5dBi	Band II: 0.5dBi Band IV: 0.6dBi Band V: -0.9dBi	Band II: 0.5dBi Band IV: 0.6dBi Band V: -0.9dBi Band VII: -0.2dBi Band X VII: -1.5dBi

	NFC	GPS/GLONASS
Frequency of operation	13.56MHz	GPS: 1575.42MHz GLONASS: 1597.55-1605.89MHz
Type of modulation	ASK	GPS: BPSK GLONASS: BPSK
Channel spacing	-	GLONASS: 0.5625MHz
Antenna type	Loop	Monopole
Antenna Connector type	Spring type	Spring type
Antenna Gain	N/A	-2.9dBi

*This test report applies for W-CDMA (Band IV), and LTE (Band IV, VII, X VII).

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 27 Subpart C: 2014, final revised on August 15, 2014

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 / Equivalent isotropic radiated power(EIRP) / Effective Radiated Power(ERP))	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 FCC 27.53(h)(3) FCC 27.53(m)(6)	Conducted	N/A	-	Complied
Band-Edge	FCC 2.1051 FCC 2.1053 FCC 27.53	Conducted/ Radiated	N/A	**W-CDMA** [Conducted] 16.32dB 1709.975MHz [Radiated] 2.5dB 1755.00MHz, Vertical **LTE** [Conducted] 1.59dB 2500.00MHz [Radiated] 2.9dB 1755.00MHz, 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	**W-CDMA** 17.4dB 3465.20MHz, Vertical **LTE** 4.1dB 5130.00MHz, Horizontal	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 "Power Meas License Digital Systems v02r02"
*These tests were performed without any deviations from test procedure except for additions or exclusions.

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
Measurement Distance 1m	
1GHz-18GHz	5.3dB
15GHz-26.5GHz	3.7dB
26.5GHz-40GHz	3.7dB

Power meter (±dB)	
Below 1GHz	Above 1GHz
0.7dB	1.5dB

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	
1.5dB	1.7dB	2.8dB	2.8dB	2.9dB	2.6dB

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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	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	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	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	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	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	4.0 x 4.5 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	-	8.8 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

* 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

<W-CDMA Band IV>

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 (DC-HSDPA Subtest 1-4) Transmitting (Tx) W-CDMA (HSUPA Subtest 1-5) Transmitting (Tx) W-CDMA (HSPA+ (16QAM) Subtest 1)	See Section 4.1.1	1712.4 MHz 1732.6 MHz 1752.6 MHz	1312 1413 1513
RF output Power (Radiated), Spurious Emission (Conducted/Radiated), Peak to Average power Ratio (Conducted)	Transmitting (Tx) W-CDMA (RMC12.2kbps)	TPC All Up bits(Max)	1712.4 MHz 1732.6 MHz 1752.6 MHz	1312 1413 1513
Band Edge (Conducted/Radiated)	Transmitting (Tx) W-CDMA (RMC12.2kbps)	TPC All Up bits(Max)	1712.4 MHz 1752.6 MHz	1312 1513
Emission Bandwidth, 99% Occupied bandwidth, Frequency Stability (Temperature/Voltage Variation)	Transmitting (Tx) W-CDMA (RMC12.2kbps)	TPC all up bits (MAX)	1732.6 MHz	1413

*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 section5.2 of 3GPP TS 34.121.)

<LTE Band IV> 1/3

Test	Modulation	Bandwidth	UL RB Config.	Power Control	Tested frequency[MHz]	Uplink Channel	
RF Output Power (Conducted)	QPSK 16QAM	20MHz	1/0	TPC All 1(MAX)	1720.0	20050	Low
			1/49		1732.5	20175	Mid
			1/99		1745.0	20300	High
			50/0				
			50/24				
			50/49				
			100/0				
		15MHz	1/0	TPC All 1(MAX)	1717.5	20025	Low
			1/37		1732.5	20175	Mid
			1/74		1747.5	20325	High
			36/0				
			36/19				
			36/39				
			75/0				
		10MHz	1/0	TPC All 1(MAX)	1715.0	20000	Low
			1/24		1732.5	20175	Mid
			1/49		1750.0	20350	High
			25/0				
			25/12				
			25/24				
			50/0				
		5MHz	1/0	TPC All 1(MAX)	1712.5	19975	Low
			1/12		1732.5	20175	Mid
			1/24		1752.5	20375	High
			12/0				
			12/6				
			12/11				
			25/0				
		3MHz	1/0	TPC All 1(MAX)	1711.5	19965	Low
			1/7		1732.5	20175	Mid
			1/14		1753.5	20385	High
			8/0				
			8/4				
			8/7				
			15/0				
		1.4MHz	1/0	TPC All 1(MAX)	1710.7	19957	Low
			1/2		1732.5	20175	Mid
			1/5		1754.3	20393	High
			3/0				
			3/1				
			3/3				
			6/0				

<LTE Band IV> 2/3

Test	Modulation	Bandwidth	UL RB Config.	Power Control	Tested frequency[MHz]	Uplink Channel	
RF Output Power(Radiated) (Equivalent Isotropic Radiated Power(EIRP))	QPSK	20MHz	1/99 *1)	TPC All 1(MAX)	1720.0	20050	Low
			1/99 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/49 *1)	TPC All 1(MAX)	1745.0	20300	High
		15MHz	1/0 *1)	TPC All 1(MAX)	1717.5	20025	Low
			1/74 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/0 *1)	TPC All 1(MAX)	1747.5	20325	High
		10MHz	1/49 *1)	TPC All 1(MAX)	1715.0	20000	Low
			1/49 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/24 *1)	TPC All 1(MAX)	1750.0	20350	High
		5MHz	1/12 *1)	TPC All 1(MAX)	1712.5	19975	Low
			1/24 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/12 *1)	TPC All 1(MAX)	1752.5	20375	High
		3MHz	1/14 *1)	TPC All 1(MAX)	1711.5	19965	Low
			1/14 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/0 *1)	TPC All 1(MAX)	1753.5	20385	High
		1.4MHz	1/0 *1)	TPC All 1(MAX)	1710.7	19957	Low
			1/0 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/0 *1)	TPC All 1(MAX)	1754.3	20393	High
	16QAM	20MHz	1/99 *1)	TPC All 1(MAX)	1720.0	20050	Low
			1/0 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/49 *1)	TPC All 1(MAX)	1745.0	20300	High
		15MHz	1/37 *1)	TPC All 1(MAX)	1717.5	20025	Low
			1/0 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/74 *1)	TPC All 1(MAX)	1747.5	20325	High
		10MHz	1/49 *1)	TPC All 1(MAX)	1715.0	20000	Low
			1/0 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/0 *1)	TPC All 1(MAX)	1750.0	20350	High
		5MHz	1/0 *1)	TPC All 1(MAX)	1712.5	19975	Low
			1/24 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/12 *1)	TPC All 1(MAX)	1752.5	20375	High
		3MHz	1/0 *1)	TPC All 1(MAX)	1711.5	19965	Low
			1/14 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/0 *1)	TPC All 1(MAX)	1753.5	20385	High
		1.4MHz	1/0 *1)	TPC All 1(MAX)	1710.7	19957	Low
			1/5 *1)	TPC All 1(MAX)	1732.5	20175	Mid
			1/0 *1)	TPC All 1(MAX)	1754.3	20393	High
Peak to Average Power Ratio(Conducted)	QPSK 16QAM	20MHz	100/0	TPC All 1(MAX)	1720.0	20050	Low
					1732.5	20175	Mid
					1745.0	20300	High
		15MHz	75/0	TPC All 1(MAX)	1717.5	20025	Low
					1732.5	20175	Mid
					1747.5	20325	High
		10MHz	50/0	TPC All 1(MAX)	1715.0	20000	Low
					1732.5	20175	Mid
					1750.0	20350	High
		5MHz	25/0	TPC All 1(MAX)	1712.5	19975	Low
					1732.5	20175	Mid
					1752.5	20375	High
		3MHz	15/0	TPC All 1(MAX)	1711.5	19965	Low
					1732.5	20175	Mid
					1753.5	20385	High
		1.4MHz	6/0	TPC All 1(MAX)	1710.7	19957	Low
					1732.5	20175	Mid
					1754.3	20393	High

<LTE Band IV> 3/3

Test	Modulation	Bandwidth	UL RB Config.	Power Control	Tested frequency[MHz]	Uplink Channel	
Bandwidth(Conducted)	QPSK 16QAM	20MHz	100/0	TPC All 1(MAX)	1732.5	20175	Mid
		15MHz	75/0				
		10MHz	50/0				
		5MHz	25/0				
		3MHz	15/0				
		1.4MHz	6/0				
Band Edge(Conducted)	QPSK 16QAM	20MHz	100/0	TPC All 1(MAX)	1720.0	20050	Low
			100/0	TPC All 1(MAX)	1745.0	20300	High
			1/0	TPC All 1(MAX)	1720.0	20050	Low
			1/99	TPC All 1(MAX)	1745.0	20300	High
		15MHz	75/0	TPC All 1(MAX)	1717.5	20025	Low
			75/0	TPC All 1(MAX)	1747.5	20325	High
			1/0	TPC All 1(MAX)	1717.5	20025	Low
			1/74	TPC All 1(MAX)	1747.5	20325	High
		10MHz	50/0	TPC All 1(MAX)	1715.0	20000	Low
			50/0	TPC All 1(MAX)	1750.0	20350	High
			1/0	TPC All 1(MAX)	1715.0	20000	Low
			1/49	TPC All 1(MAX)	1750.0	20350	High
		5MHz	25/0	TPC All 1(MAX)	1712.5	19975	Low
			25/0	TPC All 1(MAX)	1752.5	20375	High
			1/0	TPC All 1(MAX)	1712.5	19975	Low
			1/24	TPC All 1(MAX)	1752.5	20375	High
		3MHz	15/0	TPC All 1(MAX)	1711.5	19965	Low
			15/0	TPC All 1(MAX)	1753.5	20385	High
			1/0	TPC All 1(MAX)	1711.5	19965	Low
			1/14	TPC All 1(MAX)	1753.5	20385	High
		1.4MHz	6/0	TPC All 1(MAX)	1710.7	19957	Low
			6/0	TPC All 1(MAX)	1754.3	20393	High
			1/0	TPC All 1(MAX)	1710.7	19957	Low
			1/5	TPC All 1(MAX)	1754.3	20393	High
Band Edge(Radiated)	QPSK 16QAM	3MHz *2)	15/0	TPC All 1(MAX)	1711.5	19965	Low
			15/0	TPC All 1(MAX)	1753.5	20385	High
			1/0	TPC All 1(MAX)	1711.5	19965	Low
			1/14	TPC All 1(MAX)	1753.5	20385	High
Spurious Emission(Conducted) Spurious Emission(Radiated)	QPSK	3MHz *4)	1/14	TPC All 1(MAX)	1711.5	19965	Low
			1/14	TPC All 1(MAX)	1732.5	20175	Mid
			1/0	TPC All 1(MAX)	1753.5	20385	High
Frequency Stability (Temperature/ Voltage Variation	QPSK 16QAM	20MHz *3)	100/0	TPC All 1(MAX)	1732.5	20175	Mid

*1) The UL RB Configration was used for testing as a representative, because it had the highest RF output power (conducted).
*2) Test was performed with BW:3MHz as a representative as it had the highest result at Band edge (conducted) test.
*3) The widest bandwidth was chosen for testing as a representative.
*4) The Bandwidth was used for testing as a representative, because it had the highest RF output power (conducted).

<LTE Band VII> 1/2

Test	Modulation	Bandwidth	UL RB Config.	Power Control	Tested frequency[MHz]	Uplink Channel	
RF Output Power (Conducted)	QPSK 16QAM	20MHz	1/0	TPC All 1(MAX)	2510.0	20850	Low
			1/49		2535.0	21100	Mid
			1/99		2560.0	21350	High
			50/0				
			50/24				
			50/49				
			100/0				
		15MHz	1/0	TPC All 1(MAX)	2507.5	20825	Low
			1/37		2535.0	21100	Mid
			1/74		2562.5	21375	High
			36/0				
			36/19				
			36/39				
			75/0				
		10MHz	1/0	TPC All 1(MAX)	2505.0	20800	Low
			1/24		2535.0	21100	Mid
			1/49		2565.0	21400	High
			25/0				
			25/12				
			25/24				
			50/0				
		5MHz	1/0	TPC All 1(MAX)	2502.5	20775	Low
			1/12		2535.0	21100	Mid
			1/24		2567.5	21425	High
			12/0				
			12/6				
			12/11				
			25/0				
RF Output Power(Radiated) (Equivalent Isotropic Radiated Power(EIRP))	QPSK	20MHz	1/0 *1)	TPC All 1(MAX)	2510.0	20850	Low
			1/49 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/99 *1)	TPC All 1(MAX)	2560.0	21350	High
		15MHz	1/0 *1)	TPC All 1(MAX)	2507.5	20825	Low
			1/37 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/74 *1)	TPC All 1(MAX)	2562.5	21375	High
		10MHz	1/0 *1)	TPC All 1(MAX)	2505.0	20800	Low
			1/24 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/49 *1)	TPC All 1(MAX)	2565.0	21400	High
		5MHz	1/0 *1)	TPC All 1(MAX)	2502.5	20775	Low
			1/12 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/24 *1)	TPC All 1(MAX)	2567.5	21425	High
	16QAM	20MHz	1/0 *1)	TPC All 1(MAX)	2510.0	20850	Low
			1/49 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/99 *1)	TPC All 1(MAX)	2560.0	21350	High
		15MHz	1/0 *1)	TPC All 1(MAX)	2507.5	20825	Low
			1/37 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/74 *1)	TPC All 1(MAX)	2562.5	21375	High
		10MHz	1/0 *1)	TPC All 1(MAX)	2505.0	20800	Low
			1/24 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/49 *1)	TPC All 1(MAX)	2565.0	21400	High
		5MHz	1/0 *1)	TPC All 1(MAX)	2502.5	20775	Low
			1/12 *1)	TPC All 1(MAX)	2535.0	21100	Mid
			1/24 *1)	TPC All 1(MAX)	2567.5	21425	High

<LTE Band VII> 2/2

Test	Modulation	Bandwidth	UL RB Config.	Power Control	Tested frequency[MHz]	Uplink Channel	
Peak to Average Power Ratio(Conducted)	QPSK 16QAM	20MHz	100/0	TPC All 1(MAX)	2510.0	20850	Low
					2535.0	21100	Mid
					2560.0	21350	High
		15MHz	75/0	TPC All 1(MAX)	2507.5	20825	Low
					2535.0	21100	Mid
					2562.5	21375	High
		10MHz	50/0	TPC All 1(MAX)	2505.0	20800	Low
					2535.0	21100	Mid
					2565.0	21400	High
		5MHz	25/0	TPC All 1(MAX)	2502.5	20775	Low
					2535.0	21100	Mid
					2567.5	21425	High
Bandwidth(Conducted)	QPSK 16QAM	20MHz	100/0	TPC All 1(MAX)	2535.0	21100	Mid
		15MHz	75/0				
		10MHz	50/0				
		5MHz	25/0				
Band Edge(Conducted)	QPSK 16QAM	20MHz	100/0	TPC All 1(MAX)	2510.0	20850	Low
			100/0	TPC All 1(MAX)	2560.0	21350	High
			1/0	TPC All 1(MAX)	2510.0	20850	Low
			1/99	TPC All 1(MAX)	2560.0	21350	High
		15MHz	75/0	TPC All 1(MAX)	2507.5	20825	Low
			75/0	TPC All 1(MAX)	2562.5	21375	High
			1/0	TPC All 1(MAX)	2507.5	20825	Low
			1/74	TPC All 1(MAX)	2562.5	21375	High
		10MHz	50/0	TPC All 1(MAX)	2505.0	20800	Low
			50/0	TPC All 1(MAX)	2565.0	21400	High
			1/0	TPC All 1(MAX)	2505.0	20800	Low
			1/49	TPC All 1(MAX)	2565.0	21400	High
		5MHz	25/0	TPC All 1(MAX)	2502.5	20775	Low
			25/0	TPC All 1(MAX)	2567.5	21425	High
			1/0	TPC All 1(MAX)	2502.5	20775	Low
			1/24	TPC All 1(MAX)	2567.5	21425	High
Band Edge(Radiated)	QPSK 16QAM	5MHz *2)	25/0	TPC All 1(MAX)	2502.5	20775	Low
			25/0	TPC All 1(MAX)	2567.5	21425	High
			1/0	TPC All 1(MAX)	2502.5	20775	Low
			1/24	TPC All 1(MAX)	2567.5	21425	High
Spurious Emission(Conducted) Spurious Emission(Radiated)	QPSK	10MHz *4)	1/49	TPC All 1(MAX)	2505.0	20800	Low
			1/49	TPC All 1(MAX)	2535.0	21100	Mid
			1/49	TPC All 1(MAX)	2565.0	21400	High
Frequency Stability (Temperature/ Voltage Variation	QPSK 16QAM	20MHz *3)	100/0	TPC All 1(MAX)	2535.0	21100	Mid

*1) The UL RB Configration was used for testing as a representative, because it had the highest RF output power (conducted).
*2) Test was performed with BW:5MHz as a representative as it had the highest result at Band edge (conducted) test.
*3) The widest bandwidth was chosen for testing as a representative.
*4) The Bandwidth was used for testing as a representative, because it had the highest RF output power (conducted).

<LTE Band XVII>

Test	Modulation	Bandwidth	UL RB Config.	Power Control	Tested frequency[MHz]	Uplink Channel	
RF Output Power (Conducted)	QPSK 16QAM	10MHz	1/0	TPC All 1(MAX)	709.0	23780	Low
			1/24		710.0	23790	Mid
			1/49		711.0	23800	High
			25/0				
			25/12				
			25/24				
			50/0				
		5MHz	1/0	TPC All 1(MAX)	706.5	23755	Low
			1/12		710.0	23790	Mid
			1/24		713.5	23825	High
			12/0				
			12/6				
			12/11				
			25/0				
RF Output Power(Radiated) (Effective Radiated Power)	QPSK	10MHz	1/49 *1)	TPC All 1(MAX)	709.0	23780	Low
			1/0 *1)	TPC All 1(MAX)	710.0	23790	Mid
			1/49 *1)	TPC All 1(MAX)	711.0	23800	High
		5MHz	1/24 *1)	TPC All 1(MAX)	706.5	23755	Low
			1/24 *1)	TPC All 1(MAX)	710.0	23790	Mid
			1/24 *1)	TPC All 1(MAX)	713.5	23825	High
	16QAM	10MHz	1/0 *1)	TPC All 1(MAX)	709.0	23780	Low
			1/24 *1)	TPC All 1(MAX)	710.0	23790	Mid
			1/0 *1)	TPC All 1(MAX)	711.0	23800	High
		5MHz	1/24 *1)	TPC All 1(MAX)	706.5	23755	Low
			1/24 *1)	TPC All 1(MAX)	710.0	23790	Mid
			1/24 *1)	TPC All 1(MAX)	713.5	23825	High
Peak to Average Power Ratio(Conducted)	QPSK 16QAM	10MHz	50/0	TPC All 1(MAX)	709.0	23780	Low
					710.0	23790	Mid
					711.0	23800	High
		5MHz	25/0	TPC All 1(MAX)	706.5	23755	Low
					710.0	23790	Mid
					713.5	23825	High
Bandwidth(Conducted)	QPSK 16QAM	10MHz	50/0	TPC All 1(MAX)	710.0	23790	Mid
		5MHz	25/0				
Band Edge(Conducted)	QPSK 16QAM	10MHz	50/0	TPC All 1(MAX)	709.0	23780	Low
			50/0	TPC All 1(MAX)	711.0	23800	High
			1/0	TPC All 1(MAX)	709.0	23780	Low
			1/49	TPC All 1(MAX)	711.0	23800	High
		5MHz	25/0	TPC All 1(MAX)	706.5	23755	Low
			25/0	TPC All 1(MAX)	713.5	23825	High
			1/0	TPC All 1(MAX)	706.5	23755	Low
			1/24	TPC All 1(MAX)	713.5	23825	High
Band Edge(Radiated)	QPSK 16QAM	5MHz *2)	25/0	TPC All 1(MAX)	706.5	23755	Low
			25/0	TPC All 1(MAX)	713.5	23825	High
			1/0	TPC All 1(MAX)	706.5	23755	Low
			1/24	TPC All 1(MAX)	713.5	23825	High
Spurious Emission(Conducted) Spurious Emission(Radiated)	QPSK	10MHz *4)	1/49	TPC All 1(MAX)	709.0	23780	Low
			1/0	TPC All 1(MAX)	710.0	23790	Mid
			1/49	TPC All 1(MAX)	711.0	23800	High
Frequency Stability (Temperature/ Voltage Variation	QPSK 16QAM	10MHz *3)	50/0	TPC All 1(MAX)	710.0	23790	Mid

*1) The UL RB Configration was used for testing as a representative, because it had the highest RF output power (conducted).
*2) Test was performed with BW:5MHz as a representative as it had the highest result at Band edge (conducted) test.
*3) The widest bandwidth was chosen for testing as a representative.
*4) The Bandwidth was used for testing as a representative, because it had the highest RF output power (conducted).

4.1.1 Explanation of theRel-99 WCDMA, 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 WCDMA. 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: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, 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: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_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, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, 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 β_c/β_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 β_c = 11/15 and β_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
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.		
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.		

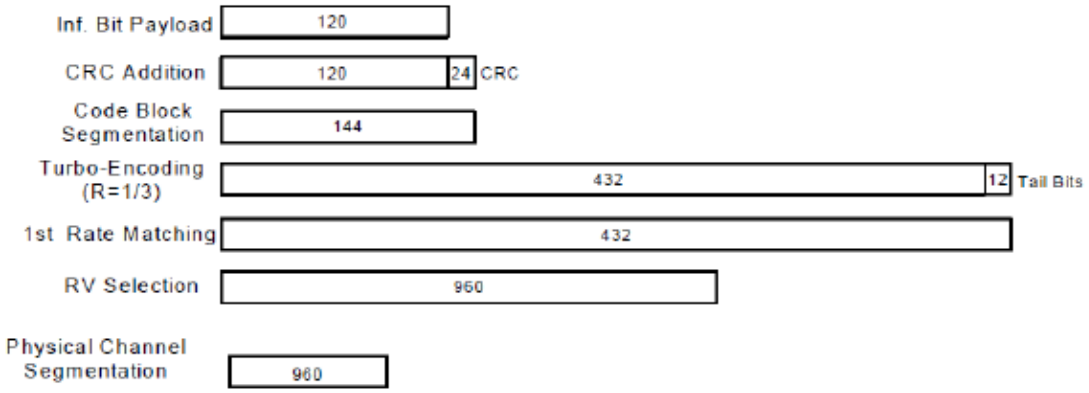


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

[HSUPA]

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{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	209/225	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	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 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: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_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 β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_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 β_c = 14/15 and β_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: β_{ed} can not be set directly, it is set by Absolute Grant Value.

[HSPA+]

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

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{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	$\beta_{ed}1$: 30/15 $\beta_{ed}2$: 30/15	$\beta_{ed}3$: 24/15 $\beta_{ed}4$: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_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 β_c is set to 1 and β_d = 0 by default.
Note 4: β_{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		βc/βd	MPR	Power Class 3 limit
						βc	βd			
	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						
	ΔACK	ΔNACK	ΔCQI	Ack-Nack repetition factor	CQI Feedback	CQI Repetition Factor	Ahs=βhs/βc
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	
	ΔACK	ΔNACK	ΔCQI	Ack-Nack repetition factor	CQI Feedback	CQI Repetition Factor	Ahs=βhs/βc	ΔE-DPCCH	ΔHARQ	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

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

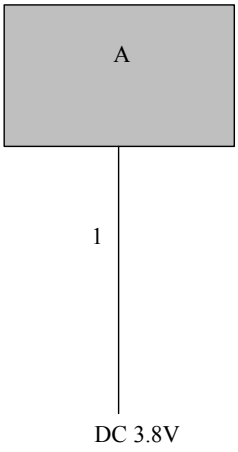
Information Element	Value/Remark
E-DCH info	Uplink DPCH info
- E-DPDCH info	
- Reference E-TFCIs	5 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	4
- Reference E-TFCI	67
- Reference E-TFCI PO	18
- Reference E-TFCI	71
- Reference E-TFCI PO	23
- Reference E-TFCI	75
- Reference E-TFCI PO	26
- Reference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

[Subtest 3]

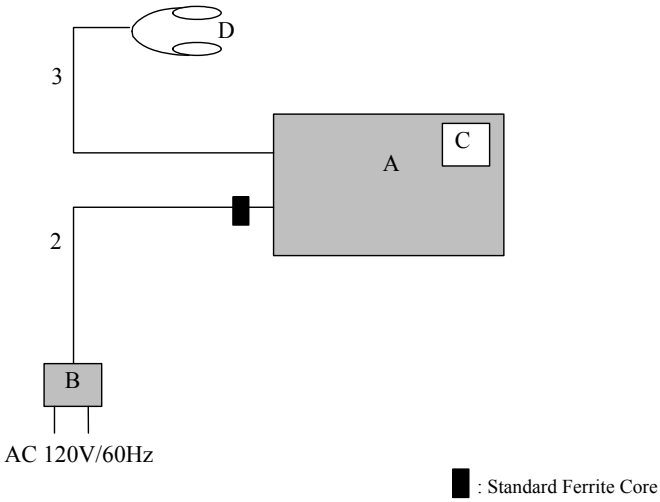
Information Element	Value/Remark
E-DCH info	Uplink DPCH info
- E-DPDCH info	
- Reference E-TFCIs	2 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	4
- Reference E-TFCI	92
- Reference E-TFCI PO	18

4.2 Configuration and peripherals

[Antenna terminal conducted test]



[All tests except for antenna terminal conducted test]



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

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Digital Camera	DMC-CM1	004401221416114 *1) 004401221415512 *2)	Panasonic	EUT
B	AC Adaptor	VSK0825	k4000106PH	Panasonic	EUT
C	Micro SD Card	02GUECA-MB	-	Panasonic	-
D	Earphone	-	-	Panasonic	-

*1) Used for antenna terminal conducted test.
*2) Used for all tests except for antenna terminal conducted test.

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	2.0	Unshielded	Unshielded	-
2	DC Cable	1.2	Unshielded	Unshielded	-
3	Earphone Cable	1.2	Unshielded	Unshielded	-

SECTION 5: RF Output Power (Conducted/Radiated)

[Conducted: Conducted Output Power]
Test Procedure
The RF output power (conducted) was measured with a Wireless Communication Test Set and an attenuator at the antenna port.

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

1) EUT was placed on a urethane platform of nominal size, 1.0 m by 0.5m, 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.
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) Equivalent isotropic radiated power(EIRP) / Effective radiated power (ERP) 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 urethane platform of nominal size, 1.0 m by 0.5m, 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) Equivalent isotropic radiated power(EIRP) was 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 8: 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 (DC 3.0V to DC 4.2V), and it is presented as the ppm unit.

Temperature	:	-30deg.C to +50deg.C (10 deg. C. step)
Voltage	:	Vnom:DC3.8V, Vmin:DC3.0V, Vmax:DC4.2V (Battery Output)

As the operating input voltage of the EUT is between DC 3.0V to DC 4.2V (nominal voltage: DC 3.8V), 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
W-CDMA Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/26/2015
Temperature/ Humidity	22deg. C / 48% RH
Engineer	Yutaka Yoshida
Mode	Tx W-CDMA

Mode	Ch	Frequency [MHz]	Result AV [dBm]
RMC 12.2kbps	Low	1712.4	23.47
	Mid	1732.6	23.37
	High	1752.6	23.25
HSDPA Subtest 1	Low	1712.4	22.51
	Mid	1732.6	22.38
	High	1752.6	22.41
HSDPA Subtest 2	Low	1712.4	22.50
	Mid	1732.6	22.32
	High	1752.6	22.40
HSDPA Subtest 3	Low	1712.4	22.07
	Mid	1732.6	21.92
	High	1752.6	22.01
HSDPA Subtest 4	Low	1712.4	22.07
	Mid	1732.6	21.92
	High	1752.6	22.01
DC-HSDPA Subtest 1	Low	1712.4	22.44
	Mid	1732.6	22.09
	High	1752.6	22.23
DC-HSDPA Subtest 2	Low	1712.4	22.61
	Mid	1732.6	22.44
	High	1752.6	22.44
DC-HSDPA Subtest 3	Low	1712.4	22.01
	Mid	1732.6	21.95
	High	1752.6	21.98
DC-HSDPA Subtest 4	Low	1712.4	22.08
	Mid	1732.6	21.95
	High	1752.6	21.97
HSUPA Subtest 1	Low	1712.4	22.45
	Mid	1732.6	22.33
	High	1752.6	22.09
HSUPA Subtest 2	Low	1712.4	21.58
	Mid	1732.6	21.42
	High	1752.6	21.40
HSUPA Subtest 3	Low	1712.4	21.07
	Mid	1732.6	20.95
	High	1752.6	21.01
HSUPA Subtest 4	Low	1712.4	22.07
	Mid	1732.6	21.88
	High	1752.6	21.86
HSUPA Subtest 5	Low	1712.4	22.51
	Mid	1732.6	22.39
	High	1752.6	22.47
HSPA+ (16QAM) Subtest 1	Low	1712.4	20.71
	Mid	1732.6	20.77
	High	1752.6	20.56

*The enhanced power reduction may result in around 1dB of variance from the MPR target values depending on HSPA channel configuration (e.g. 34.121 subtest) and characteristics of hardware RF design.

RF Output Power (Conducted)

Conducted Output Power
LTE Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	20050	1720	QPSK	1	0	0	0	22.79
				1	49	0	0	22.79
				1	99	0	0	22.87
				50	0	1	1	21.99
				50	24	1	1	21.87
				50	49	1	1	21.89
				100	0	1	1	21.88
			16QAM	1	0	1	1	21.97
				1	49	1	1	22.00
				1	99	1	1	22.06
				50	0	2	2	20.99
				50	24	2	2	20.93
				50	49	2	2	20.89
				100	0	2	2	20.91
	20175	1732.5	QPSK	1	0	0	0	22.67
				1	49	0	0	22.71
				1	99	0	0	22.78
				50	0	1	1	21.74
				50	24	1	1	21.88
				50	49	1	1	21.94
				100	0	1	1	21.90
			16QAM	1	0	1	1	21.94
				1	49	1	1	21.94
				1	99	1	1	22.06
				50	0	2	2	20.81
				50	24	2	2	20.90
				50	49	2	2	20.99
				100	0	2	2	20.87
	20300	1745	QPSK	1	0	0	0	22.64
				1	49	0	0	22.78
				1	99	0	0	22.74
				50	0	1	1	21.86
				50	24	1	1	21.87
				50	49	1	1	21.79
				100	0	1	1	21.88
			16QAM	1	0	1	1	21.87
				1	49	1	1	22.00
				1	99	1	1	21.94
				50	0	2	2	20.89
				50	24	2	2	20.95
				50	49	2	2	20.91
				100	0	2	2	20.93

RF Output Power (Conducted)

Conducted Output Power
LTE Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	20025	1717.5	QPSK	1	0	0	0	22.91
				1	37	0	0	22.82
				1	74	0	0	22.84
				36	0	1	1	22.02
				36	19	1	1	21.95
				36	39	1	1	21.89
				75	0	1	1	22.02
			16QAM	1	0	1	1	21.66
				1	37	1	1	21.71
				1	74	1	1	21.70
				36	0	2	2	20.89
				36	19	2	2	20.84
				36	39	2	2	20.79
				75	0	2	2	20.93
	20175	1732.5	QPSK	1	0	0	0	22.88
				1	37	0	0	22.83
				1	74	0	0	22.91
				36	0	1	1	21.76
				36	19	1	1	21.83
				36	39	1	1	21.91
				75	0	1	1	21.94
			16QAM	1	0	1	1	21.71
				1	37	1	1	21.66
				1	74	1	1	21.64
				36	0	2	2	20.78
				36	19	2	2	20.81
				36	39	2	2	20.91
				75	0	2	2	20.89
	20325	1747.5	QPSK	1	0	0	0	22.87
				1	37	0	0	22.84
				1	74	0	0	22.85
				36	0	1	1	21.85
				36	19	1	1	21.95
				36	39	1	1	21.84
				75	0	1	1	21.83
			16QAM	1	0	1	1	21.59
				1	37	1	1	21.60
				1	74	1	1	21.60
				36	0	2	2	20.89
				36	19	2	2	20.89
				36	39	2	2	20.84
				75	0	2	2	20.86

RF Output Power (Conducted)

Conducted Output Power
LTE Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	20000	1715	QPSK	1	0	0	0	22.95
				1	24	0	0	22.89
				1	49	0	0	23.00
				25	0	1	1	21.91
				25	12	1	1	21.96
				25	24	1	1	21.87
				50	0	1	1	21.98
			16QAM	1	0	1	1	21.73
				1	24	1	1	21.64
				1	49	1	1	21.78
				25	0	2	2	20.92
				25	12	2	2	20.90
				25	24	2	2	20.91
				50	0	2	2	20.98
	20175	1732.5	QPSK	1	0	0	0	22.88
				1	24	0	0	22.88
				1	49	0	0	22.92
				25	0	1	1	21.80
				25	12	1	1	21.85
				25	24	1	1	21.87
				50	0	1	1	21.88
			16QAM	1	0	1	1	21.69
				1	24	1	1	21.65
				1	49	1	1	21.64
				25	0	2	2	20.77
				25	12	2	2	20.84
				25	24	2	2	20.91
				50	0	2	2	20.85
	20350	1750	QPSK	1	0	0	0	22.90
				1	24	0	0	22.91
				1	49	0	0	22.88
				25	0	1	1	21.78
				25	12	1	1	21.82
				25	24	1	1	21.82
				50	0	1	1	21.85
			16QAM	1	0	1	1	21.67
				1	24	1	1	21.61
				1	49	1	1	21.53
				25	0	2	2	20.83
				25	12	2	2	20.79
				25	24	2	2	20.89
				50	0	2	2	20.87

RF Output Power (Conducted)

Conducted Output Power
LTE Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	19975	1712.5	QPSK	1	0	0	0	22.93
				1	12	0	0	22.94
				1	24	0	0	22.90
				12	0	1	1	21.91
				12	6	1	1	21.97
				12	11	1	1	21.99
				25	0	1	1	21.94
			16QAM	1	0	1	1	21.72
				1	12	1	1	21.72
				1	24	1	1	21.70
				12	0	2	2	20.99
				12	6	2	2	20.99
				12	11	2	2	20.99
				25	0	2	2	21.01
	20175	1732.5	QPSK	1	0	0	0	22.78
				1	12	0	0	22.80
				1	24	0	0	22.89
				12	0	1	1	21.86
				12	6	1	1	21.78
				12	11	1	1	21.88
				25	0	1	1	21.83
			16QAM	1	0	1	1	21.60
				1	12	1	1	21.59
				1	24	1	1	21.72
				12	0	2	2	20.88
				12	6	2	2	20.91
				12	11	2	2	20.90
				25	0	2	2	20.95
	20375	1752.5	QPSK	1	0	0	0	22.82
				1	12	0	0	22.86
				1	24	0	0	22.82
				12	0	1	1	21.81
				12	6	1	1	21.79
				12	11	1	1	21.75
				25	0	1	1	21.73
			16QAM	1	0	1	1	21.60
				1	12	1	1	21.62
				1	24	1	1	21.60
				12	0	2	2	20.91
				12	6	2	2	20.90
				12	11	2	2	20.81
				25	0	2	2	20.87

RF Output Power (Conducted)

Conducted Output Power
LTE Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
3	19965	1711.5	QPSK	1	0	0	0	22.96
				1	7	0	0	22.94
				1	14	0	0	23.06
				8	0	1	1	21.94
				8	4	1	1	21.91
				8	7	1	1	21.97
				15	0	1	1	21.98
			16QAM	1	0	1	1	21.78
				1	7	1	1	21.73
				1	14	1	1	21.78
				8	0	2	2	20.95
				8	4	2	2	20.93
				8	7	2	2	20.97
				15	0	2	2	20.96
	20175	1732.5	QPSK	1	0	0	0	22.90
				1	7	0	0	22.87
				1	14	0	0	22.97
				8	0	1	1	21.87
				8	4	1	1	21.84
				8	7	1	1	21.84
				15	0	1	1	21.86
			16QAM	1	0	1	1	21.68
				1	7	1	1	21.65
				1	14	1	1	21.71
				8	0	2	2	20.87
				8	4	2	2	20.86
				8	7	2	2	20.87
				15	0	2	2	20.89
	20385	1753.5	QPSK	1	0	0	0	22.95
				1	7	0	0	22.81
				1	14	0	0	22.89
				8	0	1	1	21.77
				8	4	1	1	21.65
				8	7	1	1	21.75
				15	0	1	1	21.71
			16QAM	1	0	1	1	21.68
				1	7	1	1	21.53
				1	14	1	1	21.60
				8	0	2	2	20.88
				8	4	2	2	20.77
				8	7	2	2	20.78
				15	0	2	2	20.78

RF Output Power (Conducted)

Conducted Output Power
LTE Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
1.4	19957	1710.7	QPSK	1	0	0	0	22.98
				1	2	0	0	22.89
				1	5	0	0	22.92
				3	0	0	0	22.96
				3	1	0	0	22.97
				3	3	0	0	22.89
				6	0	1	1	22.02
			16QAM	1	0	1	1	22.03
				1	2	1	1	21.97
				1	5	1	1	22.03
				3	0	1	1	21.94
				3	1	1	1	21.90
				3	3	1	1	21.88
				6	0	2	2	21.00
	20175	1732.5	QPSK	1	0	0	0	22.86
				1	2	0	0	22.81
				1	5	0	0	22.85
				3	0	0	0	22.83
				3	1	0	0	22.83
				3	3	0	0	22.84
				6	0	1	1	21.87
			16QAM	1	0	1	1	21.85
				1	2	1	1	21.82
				1	5	1	1	21.86
				3	0	1	1	21.78
				3	1	1	1	21.77
				3	3	1	1	21.78
				6	0	2	2	20.95
	20393	1754.3	QPSK	1	0	0	0	22.84
				1	2	0	0	22.74
				1	5	0	0	22.81
				3	0	0	0	22.80
				3	1	0	0	22.78
				3	3	0	0	22.79
				6	0	1	1	21.72
			16QAM	1	0	1	1	21.86
				1	2	1	1	21.82
				1	5	1	1	21.84
				3	0	1	1	21.74
				3	1	1	1	21.73
				3	3	1	1	21.72
				6	0	2	2	20.87

RF Output Power (Conducted)

Conducted Output Power
LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
20	20850	2510	QPSK	1	0	0	0	22.83
				1	49	0	0	23.05
				1	99	0	0	22.94
				50	0	1	1	22.18
				50	24	1	1	22.20
				50	49	1	1	22.10
				100	0	1	1	22.14
			16QAM	1	0	1	1	22.32
				1	49	1	1	22.28
				1	99	1	1	22.28
				50	0	2	2	21.24
				50	24	2	2	21.23
				50	49	2	2	21.18
				100	0	2	2	21.19
	21100	2535	QPSK	1	0	0	0	22.73
				1	49	0	0	22.70
				1	99	0	0	22.91
				50	0	1	1	21.89
				50	24	1	1	21.93
				50	49	1	1	21.96
				100	0	1	1	22.01
			16QAM	1	0	1	1	22.03
				1	49	1	1	22.06
				1	99	1	1	22.18
				50	0	2	2	20.98
				50	24	2	2	20.98
				50	49	2	2	21.00
				100	0	2	2	20.97
	21350	2560	QPSK	1	0	0	0	22.73
				1	49	0	0	22.94
				1	99	0	0	23.12
				50	0	1	1	22.01
				50	24	1	1	22.12
				50	49	1	1	22.22
				100	0	1	1	22.12
			16QAM	1	0	1	1	22.02
				1	49	1	1	22.24
				1	99	1	1	22.38
				50	0	2	2	21.04
				50	24	2	2	21.12
				50	49	2	2	21.27
				100	0	2	2	21.12

RF Output Power (Conducted)

Conducted Output Power
LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
15	20825	2507.5	QPSK	1	0	0	0	23.05
				1	37	0	0	23.20
				1	74	0	0	23.04
				36	0	1	1	22.20
				36	19	1	1	22.29
				36	39	1	1	22.25
				75	0	1	1	22.24
			16QAM	1	0	1	1	22.02
				1	37	1	1	22.11
				1	74	1	1	21.88
				36	0	2	2	21.21
				36	19	2	2	21.23
				36	39	2	2	21.17
				75	0	2	2	21.24
	21100	2535	QPSK	1	0	0	0	22.84
				1	37	0	0	22.89
				1	74	0	0	22.91
				36	0	1	1	21.98
				36	19	1	1	21.97
				36	39	1	1	21.99
				75	0	1	1	22.02
			16QAM	1	0	1	1	21.69
				1	37	1	1	21.77
				1	74	1	1	21.74
				36	0	2	2	20.99
				36	19	2	2	20.94
				36	39	2	2	20.96
				75	0	2	2	20.96
	21375	2562.5	QPSK	1	0	0	0	23.11
				1	37	0	0	23.05
				1	74	0	0	23.19
				36	0	1	1	22.16
				36	19	1	1	22.13
				36	39	1	1	22.29
				75	0	1	1	22.16
			16QAM	1	0	1	1	21.83
				1	37	1	1	21.87
				1	74	1	1	22.08
				36	0	2	2	21.05
				36	19	2	2	21.08
				36	39	2	2	21.25
				75	0	2	2	21.15

RF Output Power (Conducted)

Conducted Output Power
LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	20800	2505	QPSK	1	0	0	0	23.03
				1	24	0	0	23.07
				1	49	0	0	23.51
				25	0	1	1	22.19
				25	12	1	1	22.23
				25	24	1	1	22.28
				50	0	1	1	22.24
			16QAM	1	0	1	1	22.04
				1	24	1	1	22.03
				1	49	1	1	22.02
				25	0	2	2	21.21
				25	12	2	2	21.30
				25	24	2	2	21.24
				50	0	2	2	21.27
	21100	2535	QPSK	1	0	0	0	22.85
				1	24	0	0	22.92
				1	49	0	0	22.98
				25	0	1	1	21.98
				25	12	1	1	21.95
				25	24	1	1	21.97
				50	0	1	1	21.94
			16QAM	1	0	1	1	21.69
				1	24	1	1	21.75
				1	49	1	1	21.80
				25	0	2	2	20.94
				25	12	2	2	20.98
				25	24	2	2	20.96
				50	0	2	2	20.97
	21400	2565	QPSK	1	0	0	0	23.06
				1	24	0	0	23.23
				1	49	0	0	23.24
				25	0	1	1	22.15
				25	12	1	1	22.23
				25	24	1	1	22.29
				50	0	1	1	22.26
			16QAM	1	0	1	1	21.91
				1	24	1	1	22.03
				1	49	1	1	22.07
				25	0	2	2	21.10
				25	12	2	2	21.17
				25	24	2	2	21.18
				50	0	2	2	21.22

RF Output Power (Conducted)

Conducted Output Power
LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	20775	2502.5	QPSK	1	0	0	0	22.98
				1	12	0	0	22.97
				1	24	0	0	23.05
				12	0	1	1	22.15
				12	6	1	1	22.15
				12	11	1	1	22.17
				25	0	1	1	22.13
			16QAM	1	0	1	1	22.10
				1	12	1	1	22.07
				1	24	1	1	22.17
				12	0	2	2	21.19
				12	6	2	2	21.22
				12	11	2	2	21.22
				25	0	2	2	21.25
	21100	2535	QPSK	1	0	0	0	22.81
				1	12	0	0	22.86
				1	24	0	0	22.92
				12	0	1	1	22.01
				12	6	1	1	21.92
				12	11	1	1	21.98
				25	0	1	1	21.94
			16QAM	1	0	1	1	21.63
				1	12	1	1	21.69
				1	24	1	1	21.76
				12	0	2	2	20.99
				12	6	2	2	20.97
				12	11	2	2	21.01
				25	0	2	2	21.07
	21425	2567.5	QPSK	1	0	0	0	23.19
				1	12	0	0	23.14
				1	24	0	0	23.14
				12	0	1	1	22.23
				12	6	1	1	22.20
				12	11	1	1	22.18
				25	0	1	1	22.22
			16QAM	1	0	1	1	21.98
				1	12	1	1	21.98
				1	24	1	1	22.00
				12	0	2	2	21.23
				12	6	2	2	21.24
				12	11	2	2	21.24
				25	0	2	2	21.30

RF Output Power (Conducted)

Conducted Output Power
LTE Band XVII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
10	23780	709	QPSK	1	0	0	0	22.72
				1	24	0	0	22.69
				1	49	0	0	22.76
				25	0	1	1	21.63
				25	12	1	1	21.62
				25	24	1	1	21.64
				50	0	1	1	21.69
			16QAM	1	0	1	1	21.48
				1	24	1	1	21.48
				1	49	1	1	21.48
				25	0	2	2	20.64
				25	12	2	2	20.65
				25	24	2	2	20.62
				50	0	2	2	20.68
	23790	710	QPSK	1	0	0	0	22.73
				1	24	0	0	22.72
				1	49	0	0	22.71
				25	0	1	1	21.65
				25	12	1	1	21.64
				25	24	1	1	21.64
				50	0	1	1	21.68
			16QAM	1	0	1	1	21.46
				1	24	1	1	21.47
				1	49	1	1	21.46
				25	0	2	2	20.65
				25	12	2	2	20.60
				25	24	2	2	20.61
				50	0	2	2	20.68
	23800	711	QPSK	1	0	0	0	22.69
				1	24	0	0	22.66
				1	49	0	0	22.72
				25	0	1	1	21.62
				25	12	1	1	21.61
				25	24	1	1	21.61
				50	0	1	1	21.68
			16QAM	1	0	1	1	21.47
				1	24	1	1	21.39
				1	49	1	1	21.45
				25	0	2	2	20.65
				25	12	2	2	20.64
				25	24	2	2	20.62
				50	0	2	2	20.67

RF Output Power (Conducted)

Conducted Output Power
LTE Band XVII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/15/2015
Temperature/ Humidity	24deg. C / 43% RH
Engineer	Yutaka Yoshida
Mode	Tx

BW	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	Target MPR	Meas. MPR	Avg Pwr (dBm)
5	23755	706.5	QPSK	1	0	0	0	22.71
				1	12	0	0	22.64
				1	24	0	0	22.72
				12	0	1	1	21.71
				12	6	1	1	21.65
				12	11	1	1	21.70
				25	0	1	1	21.64
			16QAM	1	0	1	1	21.46
				1	12	1	1	21.43
				1	24	1	1	21.51
				12	0	2	2	20.71
				12	6	2	2	20.72
				12	11	2	2	20.73
				25	0	2	2	20.77
	23790	710	QPSK	1	0	0	0	22.64
				1	12	0	0	22.57
				1	24	0	0	22.65
				12	0	1	1	21.65
				12	6	1	1	21.65
				12	11	1	1	21.55
				25	0	1	1	21.66
			16QAM	1	0	1	1	21.40
				1	12	1	1	21.41
				1	24	1	1	21.48
				12	0	2	2	20.68
				12	6	2	2	20.66
				12	11	2	2	20.70
				25	0	2	2	20.75
	23825	713.5	QPSK	1	0	0	0	22.63
				1	12	0	0	22.55
				1	24	0	0	22.66
				12	0	1	1	21.58
				12	6	1	1	21.59
				12	11	1	1	21.61
				25	0	1	1	21.57
			16QAM	1	0	1	1	21.36
				1	12	1	1	21.36
				1	24	1	1	21.48
				12	0	2	2	20.67
				12	6	2	2	20.65
				12	11	2	2	20.66
				25	0	2	2	20.72

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
W-CDMA Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	22deg. C / 24 % RH
Engineer	Tomoki Matsui
Mode	Tx W-CDMA (RMC 12.2kbps), All Up Bits

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1712.40	94.4	97.7	18.8	20.3	3.4	9.3	0.0	24.7	26.2	30.0	5.4	3.9	152	357	126	253	
1732.60	94.3	97.3	19.9	20.1	3.4	9.4	0.0	25.8	26.0	30.0	4.2	4.0	151	329	100	242	
1752.60	94.0	97.9	18.8	20.4	3.5	9.5	0.0	24.8	26.4	30.0	5.2	3.6	154	349	125	253	

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Detector : S/A PK (RBW: 5MHz , VBW: 50MHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	23deg. C / 35 % RH
Engineer	Takumi Shimada
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 1.4MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1710.70	90.8	95.3	15.4	18.1	3.4	9.3	0.0	21.2	23.9	30.0	8.8	6.1	159	301	100	280	RB 1-0
1732.50	90.6	94.6	15.2	17.3	3.4	9.4	0.0	21.1	23.2	30.0	8.9	6.8	159	301	100	280	RB 1-0
1754.30	90.6	93.5	15.3	16.3	3.5	9.5	0.0	21.3	22.3	30.0	8.7	7.7	159	301	100	280	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 : Spectrum Analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

[BW 1.4MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1710.70	89.5	94.3	14.1	17.1	3.4	9.3	0.0	19.9	22.9	30.0	10.1	7.1	159	301	100	280	RB 1-0
1732.50	89.4	93.7	14.0	16.4	3.4	9.4	0.0	19.9	22.3	30.0	10.1	7.7	159	301	100	280	RB 1-5
1754.30	89.5	92.5	14.2	15.3	3.5	9.5	0.0	20.2	21.3	30.0	9.8	8.7	159	301	100	280	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 : Spectrum Analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	23deg. C / 35 % RH
Engineer	Takumi Shimada
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 3MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1711.50	90.7	95.0	15.3	17.8	3.4	9.3	0.0	21.1	23.6	30.0	8.9	6.4	159	301	100	280	RB 1-14
1732.50	90.6	94.7	15.2	17.4	3.4	9.4	0.0	21.1	23.3	30.0	8.9	6.7	159	301	100	280	RB 1-14
1753.50	90.7	93.6	15.4	16.4	3.5	9.5	0.0	21.4	22.4	30.0	8.6	7.6	159	301	100	280	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 : Spectrum Analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

[BW 3MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1711.50	89.4	94.1	14.0	16.9	3.4	9.3	0.0	19.8	22.7	30.0	10.2	7.3	159	301	100	280	RB 1-0
1732.50	89.4	93.6	14.0	16.3	3.4	9.4	0.0	19.9	22.2	30.0	10.1	7.8	159	301	100	280	RB 1-14
1753.50	89.3	92.6	14.0	15.4	3.5	9.5	0.0	20.0	21.4	30.0	10.0	8.6	159	301	100	280	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 : Spectrum Analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	23deg. C / 35 % RH
Engineer	Takumi Shimada
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 5MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1712.50	90.7	95.1	15.3	17.9	3.4	9.3	0.0	21.1	23.7	30.0	8.9	6.3	159	301	100	280	RB 1-12
1732.50	90.7	94.6	15.3	17.3	3.4	9.4	0.0	21.2	23.2	30.0	8.8	6.8	159	301	100	280	RB 1-24
1752.50	90.6	93.6	15.3	16.4	3.5	9.5	0.0	21.3	22.4	30.0	8.7	7.6	159	301	100	280	RB 1-12

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 5MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1712.50	89.2	94.4	13.8	17.2	3.4	9.3	0.0	19.6	23.0	30.0	10.4	7.0	159	301	100	280	RB 1-0
1732.50	89.4	93.4	14.0	16.1	3.4	9.4	0.0	19.9	22.0	30.0	10.1	8.0	159	301	100	280	RB 1-24
1752.50	89.4	92.5	14.1	15.3	3.5	9.5	0.0	20.1	21.3	30.0	9.9	8.7	159	301	100	280	RB 1-12

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	23deg. C / 35 % RH
Engineer	Takumi Shimada
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 10MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1715.00	90.4	94.5	15.0	17.3	3.4	9.3	0.0	20.8	23.1	30.0	9.2	6.9	159	301	100	280	RB 1-49
1732.50	90.3	94.5	14.9	17.2	3.4	9.4	0.0	20.8	23.1	30.0	9.2	6.9	159	301	100	280	RB 1-49
1750.00	90.3	93.8	15.0	16.6	3.5	9.5	0.0	21.0	22.6	30.0	9.0	7.4	159	301	100	280	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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 10MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1715.00	89.4	93.4	14.0	16.2	3.4	9.3	0.0	19.8	22.0	30.0	10.2	8.0	159	301	100	280	RB 1-49
1732.50	89.5	93.3	14.1	16.0	3.4	9.4	0.0	20.0	21.9	30.0	10.0	8.1	159	301	100	280	RB 1-0
1750.00	89.1	93.3	13.8	16.1	3.5	9.5	0.0	19.8	22.1	30.0	10.2	7.9	159	301	100	280	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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	23deg. C / 35 % RH
Engineer	Takumi Shimada
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 15MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1717.50	90.8	94.9	15.4	17.7	3.4	9.3	0.0	21.2	23.5	30.0	8.8	6.5	159	301	100	280	RB 1-0
1732.50	90.3	94.3	14.9	17.0	3.4	9.4	0.0	20.8	22.9	30.0	9.2	7.1	159	301	100	280	RB 1-74
1747.50	90.5	94.2	15.2	17.0	3.5	9.5	0.0	21.2	23.0	30.0	8.8	7.0	159	301	100	280	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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 15MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1717.50	89.3	94.4	13.9	17.2	3.4	9.3	0.0	19.7	23.0	30.0	10.3	7.0	159	301	100	280	RB 1-37
1732.50	89.7	92.8	14.3	15.5	3.4	9.4	0.0	20.2	21.4	30.0	9.8	8.6	159	301	100	280	RB 1-0
1747.50	89.0	92.4	13.7	15.2	3.5	9.5	0.0	19.7	21.2	30.0	10.3	8.8	159	301	100	280	RB 1-74

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.4 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	23deg. C / 35 % RH
Engineer	Takumi Shimada
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 20MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1720.00	91.0	94.5	15.6	17.3	3.4	9.3	0.0	21.4	23.1	30.0	8.6	6.9	159	301	100	280	RB 1-99
1732.50	90.5	94.3	15.1	17.0	3.4	9.4	0.0	21.0	22.9	30.0	9.0	7.1	159	301	100	280	RB 1-99
1745.00	90.7	94.0	15.4	16.8	3.5	9.5	0.0	21.4	22.8	30.0	8.6	7.2	159	301	100	280	RB 1-49

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 20MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1720.00	89.7	93.2	14.3	16.0	3.4	9.3	0.0	20.1	21.8	30.0	9.9	8.2	159	301	100	280	RB 1-99
1732.50	89.7	93.0	14.3	15.7	3.4	9.4	0.0	20.2	21.6	30.0	9.8	8.4	159	301	100	280	RB 1-0
1745.00	89.4	93.0	14.1	15.8	3.5	9.5	0.0	20.1	21.8	30.0	9.9	8.2	159	301	100	280	RB 1-49

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band VII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/27/2015
Temperature / Humidity	22deg. C / 35 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 5MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2502.50	90.1	90.3	15.9	17.3	4.1	10.7	0.0	22.4	23.8	30.0	7.6	6.2	112	337	100	282	RB 1-0
2535.00	88.7	90.4	15.3	17.7	4.2	10.6	0.0	21.7	24.2	30.0	8.3	5.8	110	336	100	280	RB 1-12
2567.50	86.6	89.2	13.1	16.7	4.2	10.6	0.0	19.5	23.1	30.0	10.5	6.9	110	332	100	282	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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 5MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2502.50	88.8	89.3	14.7	16.3	4.1	10.7	0.0	21.2	22.8	30.0	8.8	7.2	112	337	100	282	RB 1-0
2535.00	87.5	89.2	14.1	16.5	4.2	10.6	0.0	20.5	23.0	30.0	9.5	7.0	110	336	100	280	RB 1-12
2567.50	86.0	88.6	12.4	16.1	4.2	10.6	0.0	18.9	22.6	30.0	11.1	7.4	110	332	100	282	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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band VII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/27/2015
Temperature / Humidity	22deg. C / 35 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 10MHz, QPSK, 1 RB]

Frequency	Rx SA/TR		Tx SG		Tx	Tx	Tx Ant.	Result		Limit	Margin		Horizontal		Vertical		Remarks
	Reading [dBuV]		Reading [dBm]		Cable Loss	Ant. Gain	Atten. Loss	(EIRP) [dBm]		(EIRP) [dBm]	[dB]		Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2505.00	90.2	90.4	16.0	17.4	4.1	10.7	0.0	22.6	23.9	30.0	7.4	6.1	112	337	100	282	RB 1-0
2535.00	88.8	90.4	15.3	17.7	4.2	10.6	0.0	21.8	24.2	30.0	8.2	5.8	110	336	100	280	RB 1-24
2565.00	86.8	89.4	13.2	16.8	4.2	10.6	0.0	19.7	23.3	30.0	10.3	6.7	110	332	100	282	RB 1-49

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 10MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR		Tx SG		Tx	Tx	Tx Ant.	Result		Limit	Margin		Horizontal		Vertical		Remarks
	Reading [dBuV]		Reading [dBm]		Cable Loss	Ant. Gain	Atten. Loss	(EIRP) [dBm]		(EIRP) [dBm]	[dB]		Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2505.00	88.9	89.3	14.7	16.3	4.1	10.7	0.0	21.3	22.9	30.0	8.7	7.1	112	337	100	282	RB 1-0
2535.00	87.6	89.1	14.2	16.4	4.2	10.6	0.0	20.6	22.9	30.0	9.4	7.1	110	336	100	280	RB 1-24
2565.00	86.0	88.8	12.5	16.3	4.2	10.6	0.0	18.9	22.7	30.0	11.1	7.3	110	332	100	282	RB 1-49

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band VII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/27/2015
Temperature / Humidity	22deg. C / 35 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 15MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2507.50	90.2	90.4	16.0	17.4	4.1	10.7	0.0	22.5	23.9	33.0	10.5	9.1	112	337	100	282	RB 1-0
2535.00	88.7	90.4	15.3	17.7	4.2	10.6	0.0	21.7	24.2	33.0	11.3	8.8	110	336	100	280	RB 1-37
2562.50	86.8	89.3	13.3	16.8	4.2	10.6	0.0	19.7	23.2	33.0	13.3	9.8	110	332	100	282	RB 1-74

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 15MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2507.50	89.0	89.2	14.8	16.3	4.1	10.7	0.0	21.3	22.8	33.0	11.7	10.2	112	337	100	282	RB 1-0
2535.00	87.6	89.2	14.1	16.5	4.2	10.6	0.0	20.6	23.0	33.0	12.4	10.0	110	336	100	280	RB 1-37
2562.50	86.2	88.8	12.7	16.3	4.2	10.6	0.0	19.1	22.7	33.0	13.9	10.3	110	332	100	282	RB 1-74

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Equivalent Isotropically Radiated Power(EIRP)
LTE Band VII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/27/2015
Temperature / Humidity	22deg. C / 35 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 20MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2510.00	90.1	90.3	15.9	17.3	4.1	10.7	0.0	22.4	23.8	33.0	10.6	9.2	112	337	100	282	RB 1-0
2535.00	88.7	90.4	15.3	17.8	4.2	10.6	0.0	21.7	24.3	33.0	11.3	8.7	110	336	100	280	RB 1-49
2560.00	86.7	89.2	13.2	16.7	4.2	10.6	0.0	19.6	23.2	33.0	13.4	9.8	110	332	100	282	RB 1-99

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

[BW 20MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2510.00	89.0	89.4	14.8	16.4	4.1	10.7	0.0	21.3	22.9	33.0	11.7	10.1	112	337	100	282	RB 1-0
2535.00	87.5	89.2	14.1	16.5	4.2	10.6	0.0	20.5	23.0	33.0	12.5	10.0	110	336	100	280	RB 1-49
2560.00	86.1	88.7	12.6	16.2	4.2	10.6	0.0	19.0	22.6	33.0	14.0	10.4	110	332	100	282	RB 1-99

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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz)

RF Output Power (Radiated)

Effective radiated power (ERP)
LTE Band XVII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/28/2015
Temperature / Humidity	22deg. C / 25 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 5MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
706.50	86.9	84.9	30.9	32.4	5.3	2.2	9.9	15.7	17.2	34.7	19.0	17.5	126	169	158	328	RB 1-24
710.00	86.9	85.0	31.1	33.0	5.3	2.2	9.9	15.8	17.8	34.7	18.9	16.9	126	169	158	328	RB 1-24
713.50	86.9	85.0	31.3	33.6	5.3	2.2	9.9	16.0	18.3	34.7	18.7	16.4	126	169	158	328	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-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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz), Bandpower

[BW 5MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
706.50	85.7	83.6	29.7	31.0	5.3	2.2	9.9	14.5	15.8	34.7	20.2	18.9	126	169	158	328	RB 1-24
710.00	85.7	83.7	29.9	31.7	5.3	2.2	9.9	14.6	16.5	34.7	20.1	18.2	126	169	158	328	RB 1-24
713.50	85.8	83.7	30.2	32.3	5.3	2.2	9.9	14.9	17.0	34.7	19.8	17.7	126	169	158	328	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-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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz), Bandpower

RF Output Power (Radiated)

Effective radiated power (ERP)
LTE Band XVII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/28/2015
Temperature / Humidity	22deg. C / 25 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE (QPSK), Tx LTE (16QAM)

[BW 10MHz, QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
709.00	86.7	85.1	30.7	32.5	5.3	2.2	9.9	15.5	17.3	34.7	19.2	17.4	126	169	158	328	RB 1-49
710.00	86.9	84.9	31.1	32.9	5.3	2.2	9.9	15.9	17.7	34.7	18.8	17.0	126	169	158	328	RB 1-0
711.00	86.9	83.7	31.3	32.3	5.3	2.2	9.9	16.1	17.1	34.7	18.6	17.6	126	169	158	328	RB 1-49

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-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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz), Bandpower

[BW 10MHz, 16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
709.00	85.7	83.3	29.7	30.8	5.3	2.2	9.9	14.5	15.6	34.7	20.2	19.1	126	169	158	328	RB 1-0
710.00	85.6	83.7	29.8	31.7	5.3	2.2	9.9	14.6	16.5	34.7	20.1	18.2	126	169	158	328	RB 1-24
711.00	87.1	83.5	31.5	32.0	5.3	2.2	9.9	16.2	16.8	34.7	18.5	17.9	126	169	158	328	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-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 : Spectrum Analyzer RMS Average (RBW: 200kHz , VBW: 620kHz), Bandpower

Peak to Average power Ratio (Conducted)

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/05/2015
Temperature/ Humidity	21deg. C / 34% RH
Engineer	Yutaka Yoshida
Mode	Tx W-CDMA(RMC12.2kbps), All Up Bits

Mode	Channel	Frequency [MHz]	Peak to Average Power Ratio [dB]	Limit [dB]
W-CDMA *)	1312	1712.4	3.22	13
	1413	1732.6	3.13	13
	1513	1752.6	3.08	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 W-CDMA Signals.

Peak to Average power Ratio (Conducted)
LTE PAPR Worst Mode RB configurations

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	03/17/2015
Temperature/ Humidity	21deg.C / 45% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE (QPSK / 16QAM)

LTE Band IV

Channel	Frequency [MHz]	Bandwidth [MHz]	Moduration	RB Config.	Peak to Average Power Ratio [dB]	Worst Mode
20175	1732.50	20	QPSK	100-0	4.54	QPSK Worst
				50-24	4.38	
				1-49	4.54	
			16QAM	100-0	5.54	16QAM Worst
				50-24	5.32	
				1-49	4.40	

LTE Band VII

Channel	Frequency [MHz]	Bandwidth [MHz]	Moduration	RB Config.	Peak to Average Power Ratio [dB]	Worst Mode
21100	2535.00	20	QPSK	100-0	4.81	QPSK Worst
				50-24	4.66	
				1-49	3.87	
			16QAM	100-0	5.74	16QAM Worst
				50-24	5.60	
				1-49	4.82	

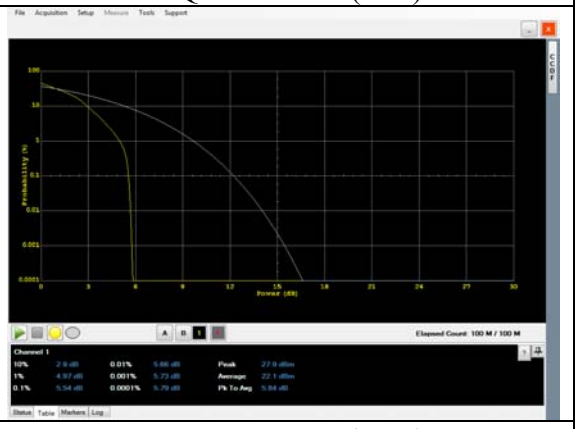
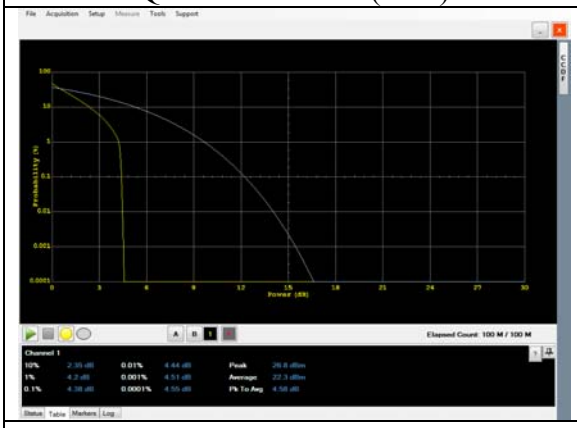
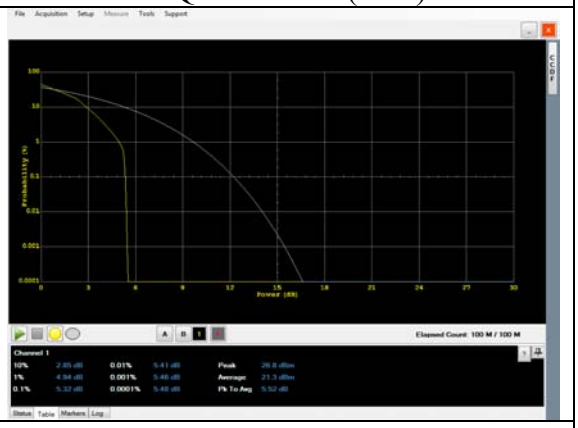
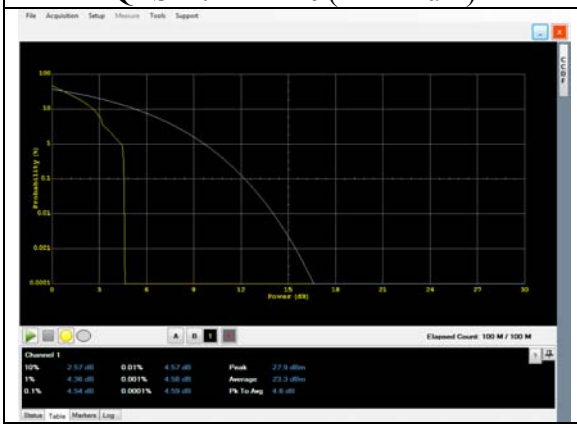
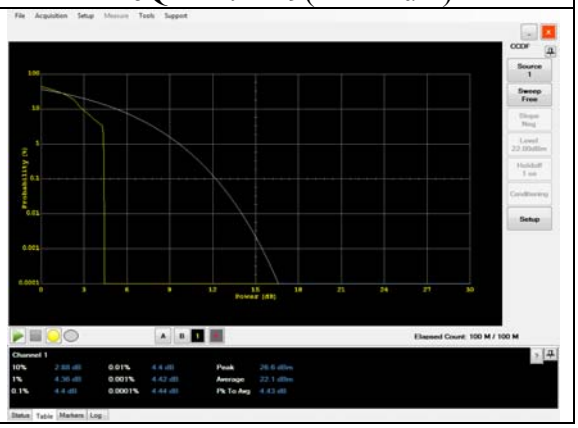
LTE Band XVII

Channel	Frequency [MHz]	Bandwidth [MHz]	Moduration	RB Config.	Peak to Average Power Ratio [dB]	Worst Mode
23790	710.00	10	QPSK	50-0	5.07	QPSK Worst
				25-12	4.84	
				1-24	4.10	
			16QAM	50-0	5.97	16QAM Worst
				25-12	5.71	
				1-24	5.07	

*In order to decide the largest deviation between the average and the peak power of the EUT in a bandwidth,
*1) Complementary Cumulative Distribution Function (CCDF) option in wideband power meter was used for LTE Signals.

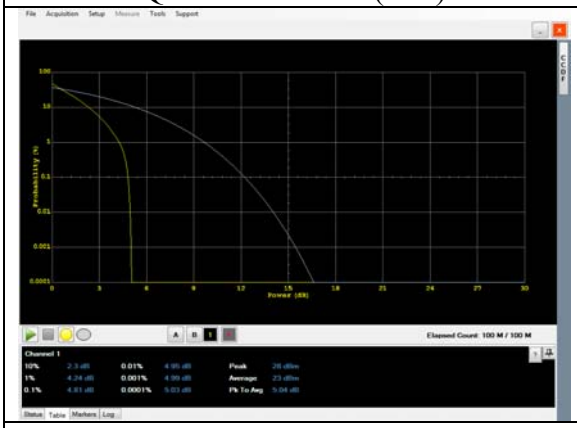
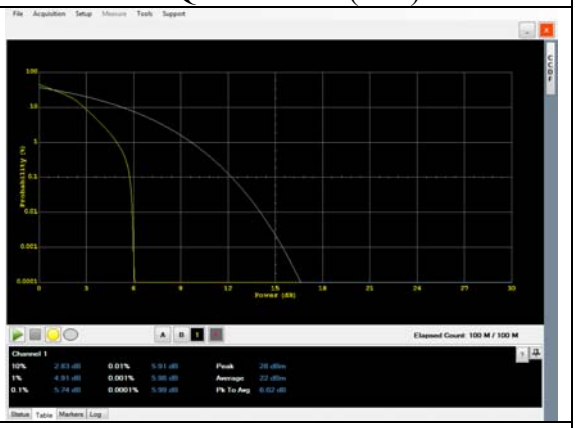
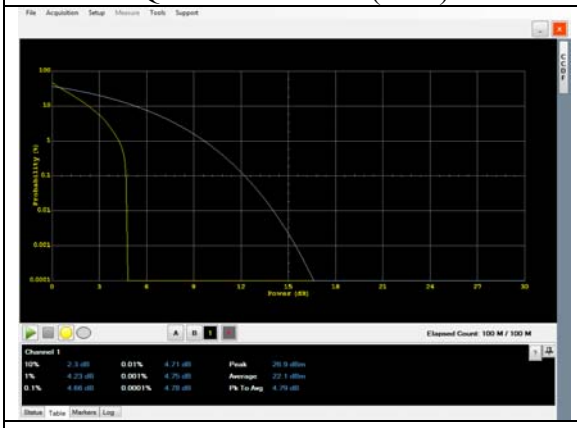
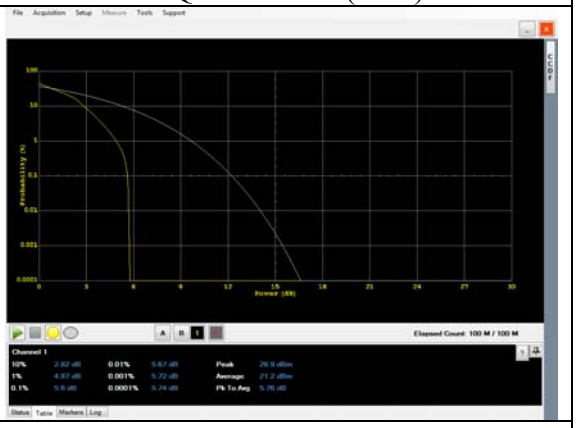
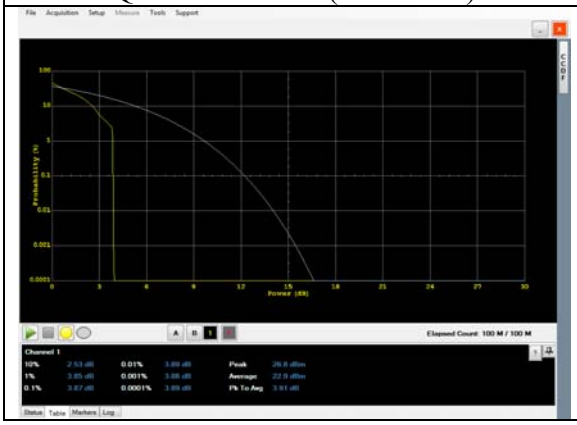
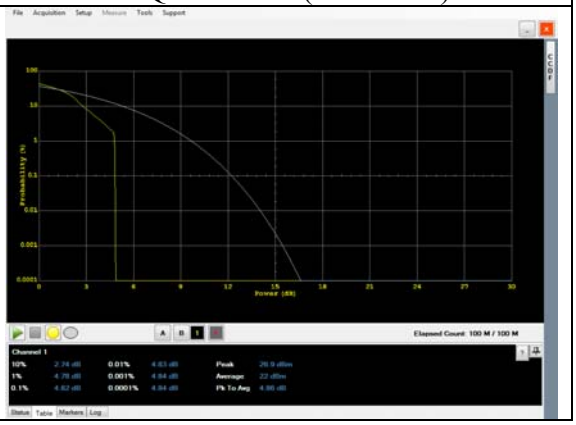
Peak to Average power Ratio (Conducted)
LTE PAPR Worst Mode RB configurations

LTE Band IV

20MHz BW	
1732.5MHz	
QPSK : RB 100-0(Full)	16QAM : 100-0(Full)
	
QPSK : RB 50-24(50%)	16QAM : 50-24(50%)
	
QPSK : RB 1-49(Minimum)	16QAM : 1-49(Minimum)
	

Peak to Average power Ratio (Conducted)
LTE PAPR Worst Mode RB configurations

LTE Band VII

20MHz BW	
2535.0MHz	
QPSK : RB 100-0(Full)	16QAM : 100-0(Full)
	
QPSK : RB 50-24(50%)	16QAM : 50-24(50%)
	
QPSK : RB 1-49(Minimum)	16QAM : 1-49(Minimum)
	

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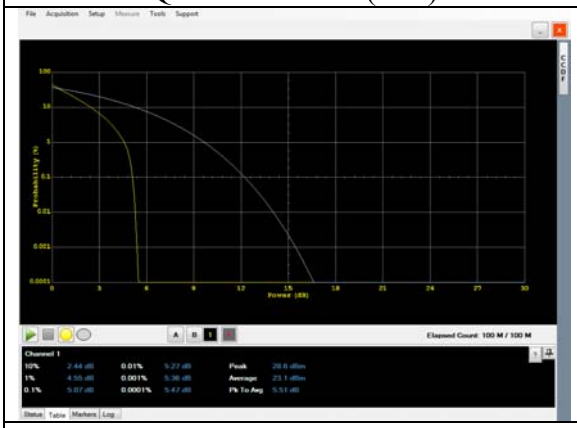
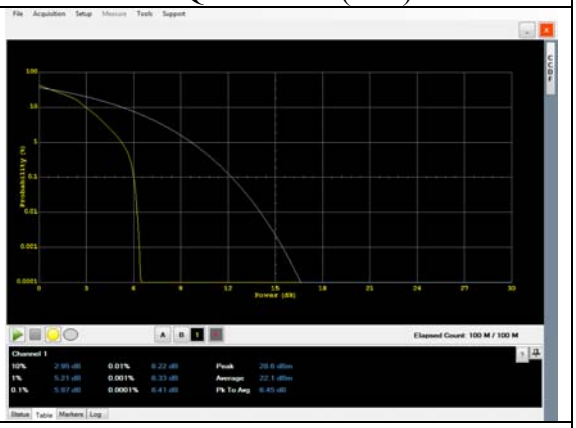
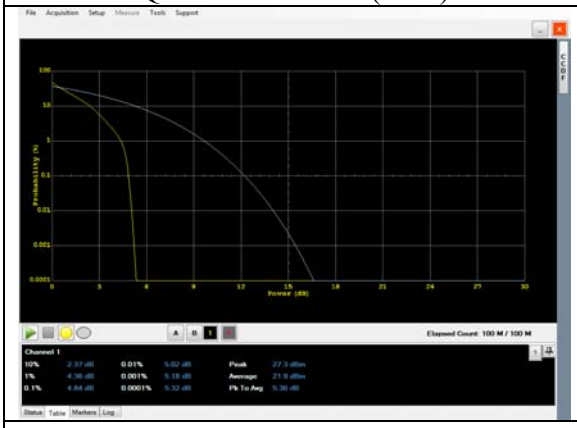
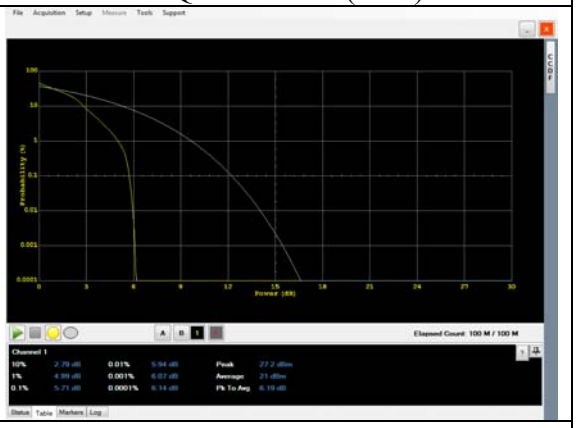
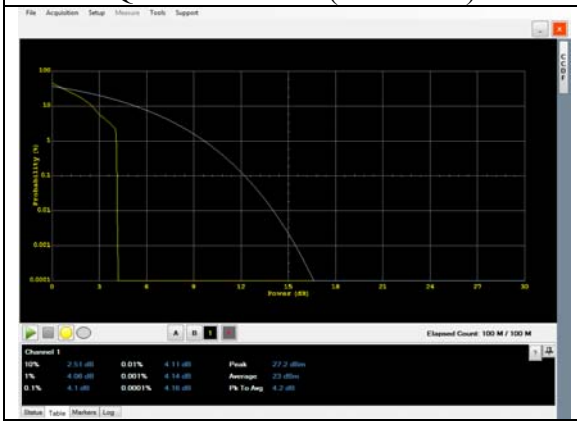
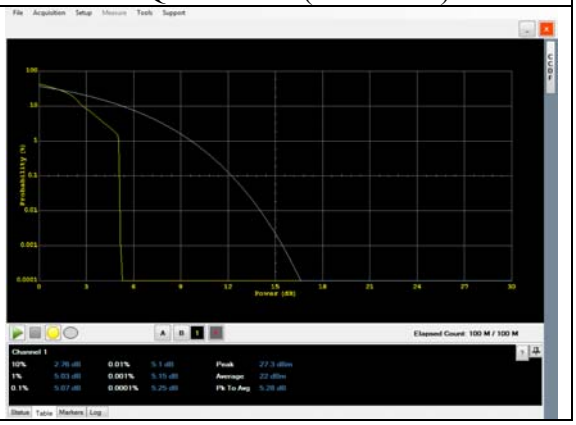
Peak to Average power Ratio (Conducted)
LTE PAPR Worst Mode RB configurations

LTE Band XVII

10MHz BW	
710.0MHz	
QPSK : RB 50-0(Full)	16QAM : 50-0(Full)
	
QPSK : RB 25-12(50%)	16QAM : 25-12(50%)
	
QPSK : RB 1-24(Minimum)	16QAM : 1-24(Minimum)
	

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Peak to Average power Ratio (Conducted)

Report No. 10636726H
Test place Ise EMC Lab. No.6 Measurement Room
Date 01/27/2015
Temperature / Humidity 20 deg. C / 49 % RH
Engineer Yutaka Yoshida
Mode Tx LTE
(QPSK / 16QAM)

Band IV

Mode	Channel	Frequency [MHz]	Peak to Average power Ratio [dB]
LTE	20050	1720.00	4.68
20MHz BW	20175	1732.50	4.54
QPSK	20300	1745.00	4.69
LTE	20050	1720.00	5.65
20MHz BW	20175	1732.50	5.54
16QAM	20300	1745.00	5.66
LTE	20025	1717.50	4.84
15MHz BW	20175	1732.50	4.57
QPSK	20325	1747.50	4.86
LTE	20025	1717.50	5.82
15MHz BW	20175	1732.50	5.51
16QAM	20325	1747.50	5.82
LTE	20000	1715.00	4.98
10MHz BW	20175	1732.50	4.46
QPSK	20350	1750.00	4.73
LTE	20000	1715.00	5.96
10MHz BW	20175	1732.50	5.44
16QAM	20350	1750.00	5.72
LTE	19975	1712.50	5.14
5MHz BW	20175	1732.50	4.47
QPSK	20375	1752.50	4.56
LTE	19975	1712.50	6.15
5MHz BW	20175	1732.50	5.47
16QAM	20375	1752.50	5.52
LTE	19965	1711.50	5.16
3MHz BW	20175	1732.50	4.47
QPSK	20385	1753.50	5.32
LTE	19965	1711.50	6.16
3MHz BW	20175	1732.50	5.46
16QAM	20385	1753.50	6.11
LTE	19957	1710.70	5.01
1.4MHz BW	20175	1732.50	5.36
QPSK	20393	1754.30	5.3
LTE	19957	1710.70	6.06
1.4MHz BW	20175	1732.50	5.99
16QAM	20393	1754.30	6.11

Peak to Average power Ratio (Conducted)

Report No.	10636726H
Test place	Ise EMC Lab. No.6 Measurement Room
Date	01/27/2015
Temperature / Humidity	20 deg. C / 49 % RH
Engineer	Yutaka Yoshida
Mode	Tx LTE (QPSK / 16QAM)

Band VII

Mode	Channel	Frequency [MHz]	Peak to Average power Ratio [dB]
LTE	20850	2510.00	4.64
20MHz BW	21100	2535.00	4.81
QPSK	21350	2560.00	4.74
LTE	20850	2510.00	5.63
20MHz BW	21100	2535.00	5.74
16QAM	21350	2560.00	5.68
LTE	20825	2507.50	4.56
15MHz BW	21100	2535.00	4.84
QPSK	21375	2562.50	4.8
LTE	20825	2507.50	5.52
15MHz BW	21100	2535.00	5.79
16QAM	21375	2562.50	5.71
LTE	20800	2505.00	4.36
10MHz BW	21100	2535.00	4.84
QPSK	21400	2565.00	4.55
LTE	20800	2505.00	5.91
10MHz BW	21100	2535.00	5.79
16QAM	21400	2565.00	5.49
LTE	20775	2502.50	4.32
5MHz BW	21100	2535.00	4.79
QPSK	21425	2567.50	4.36
LTE	20775	2502.50	5.28
5MHz BW	21100	2535.00	5.77
16QAM	21425	2567.50	5.38

Peak to Average power Ratio (Conducted)

Report No.	10636726H
Test place	Ise EMC Lab. No.6 Measurement Room
Date	01/27/2015
Temperature / Humidity	20 deg. C / 49 % RH
Engineer	Yutaka Yoshida
Mode	Tx LTE (QPSK / 16QAM)

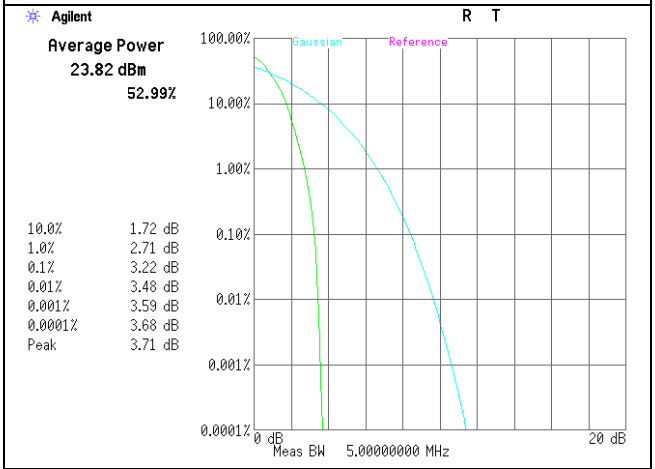
Band XVII

Mode	Channel	Frequency [MHz]	Peak to Average power Ratio [dB]
LTE	23780	709.00	5.06
10MHz BW	23790	710.00	5.07
QPSK	23800	711.00	5.04
LTE	23780	709.00	5.97
10MHz BW	23790	710.00	5.97
16QAM	23800	711.00	5.98
LTE	23755	706.50	5.01
5MHz BW	23790	710.00	4.7
QPSK	23825	713.50	4.78
LTE	23755	706.50	5.99
5MHz BW	23790	710.00	5.63
16QAM	23825	713.50	5.79

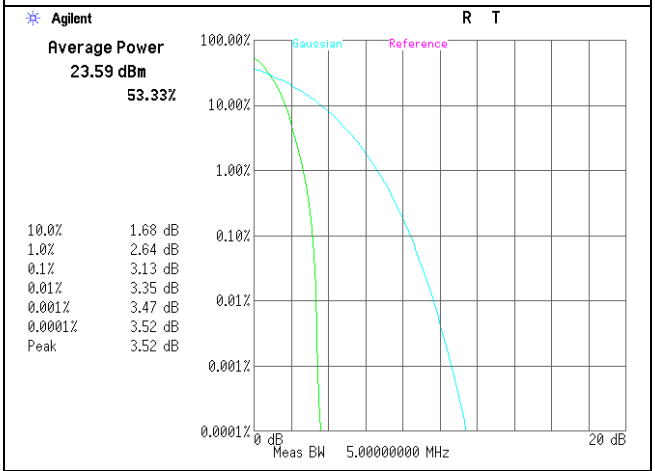
Peak to Average power Ratio (Conducted)
W-CDMA Band IV

W-CDMA

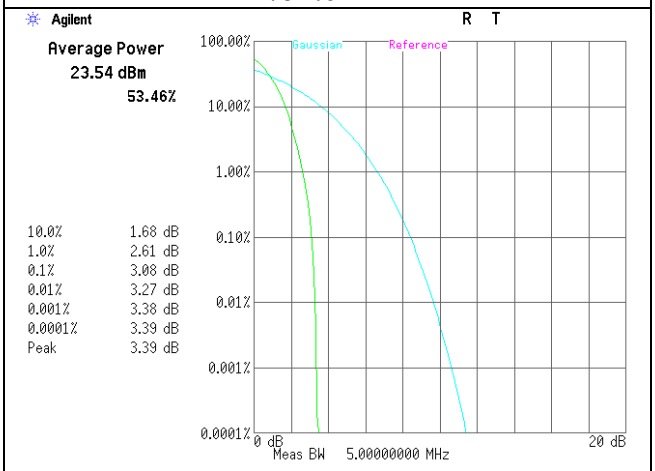
1712.4MHz



1732.6MHz

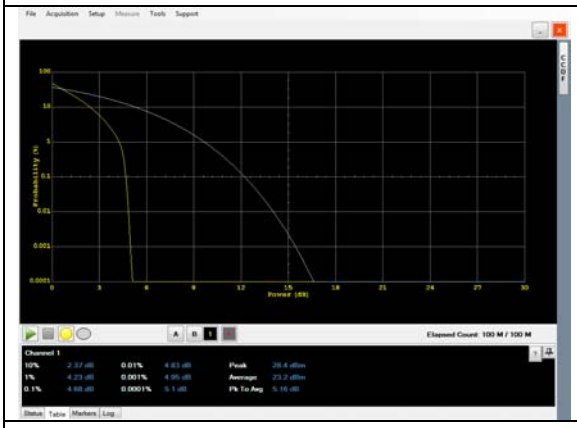
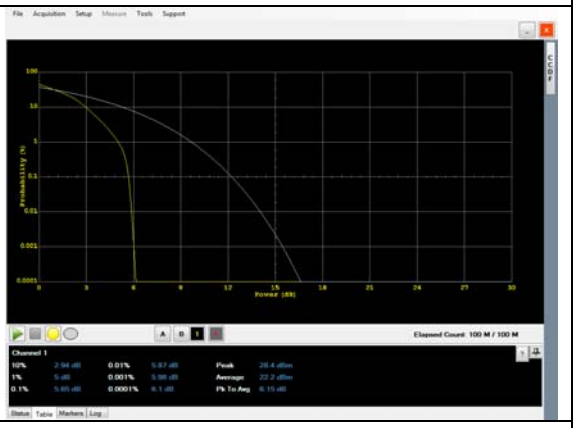
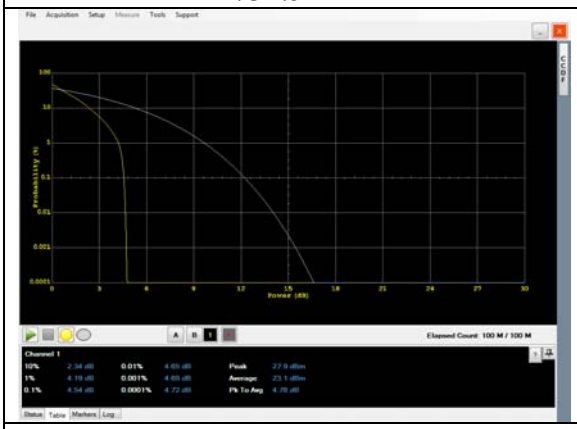
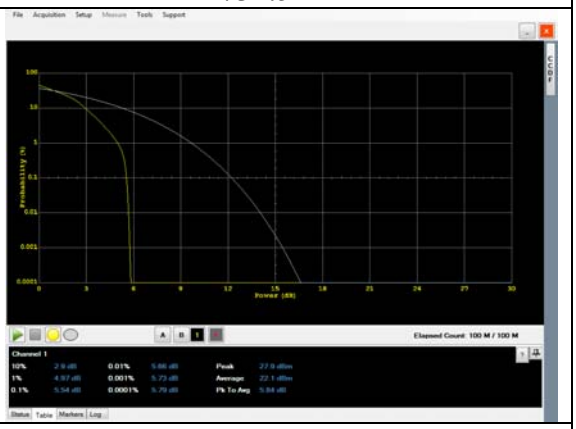
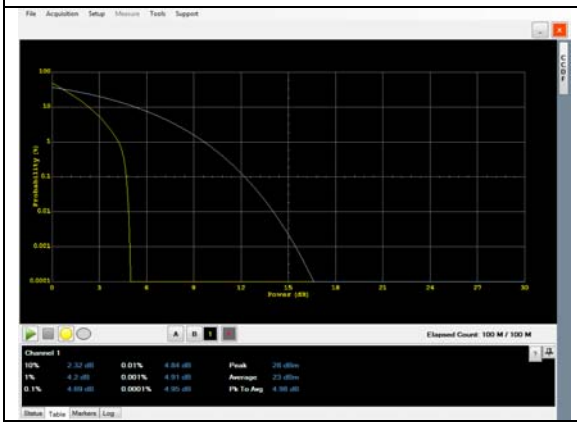
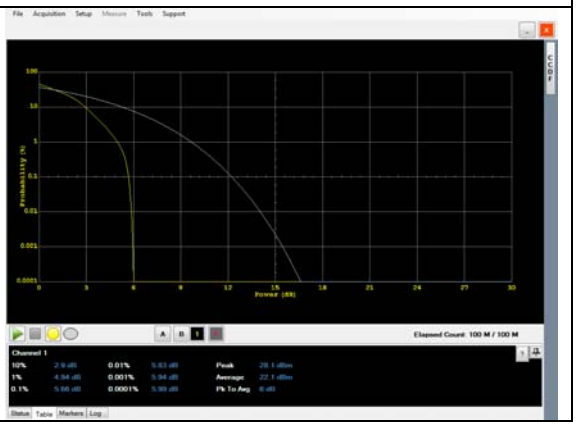


1752.6MHz



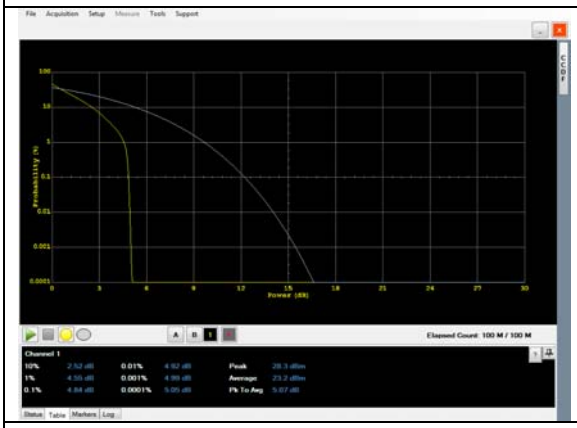
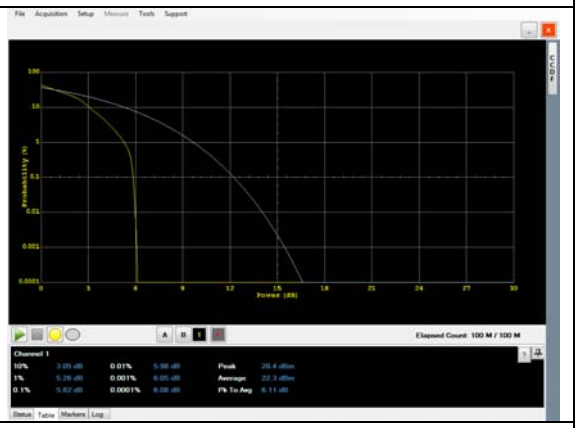
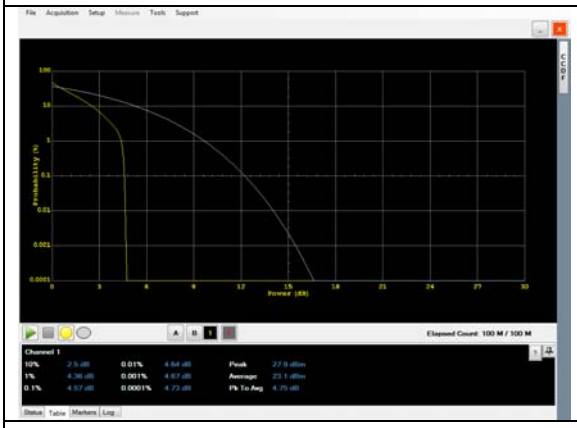
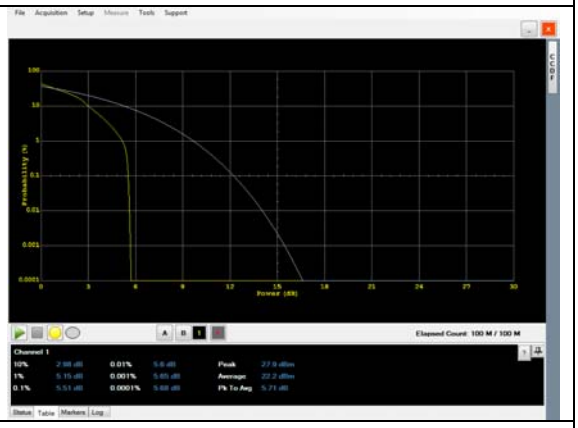
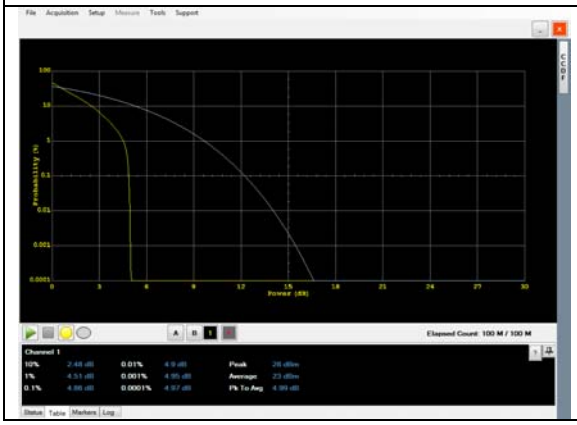
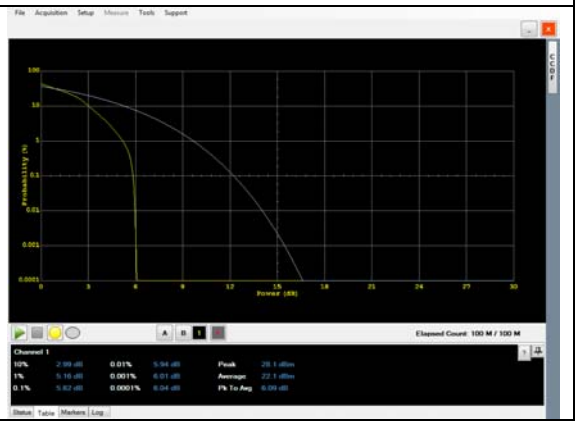
*Set the spectrum analyzer radio mode to 3GPP W-CDMA (Power Stat CCDF)

Peak to Average power Ratio (Conducted)
LTE Band IV

20MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
1720.0MHz	1720.0MHz
	
1732.5MHz	1732.5MHz
	
1745.0MHz	1745.0MHz
	

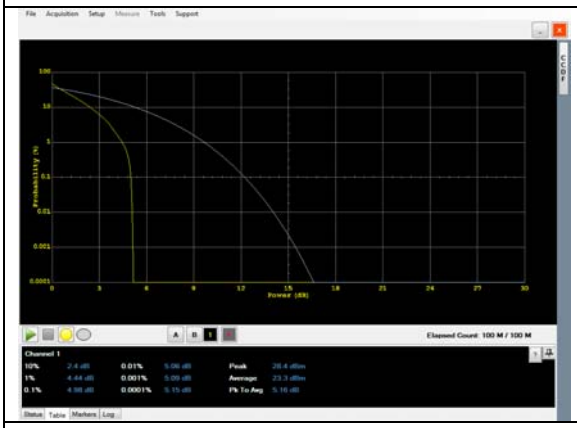
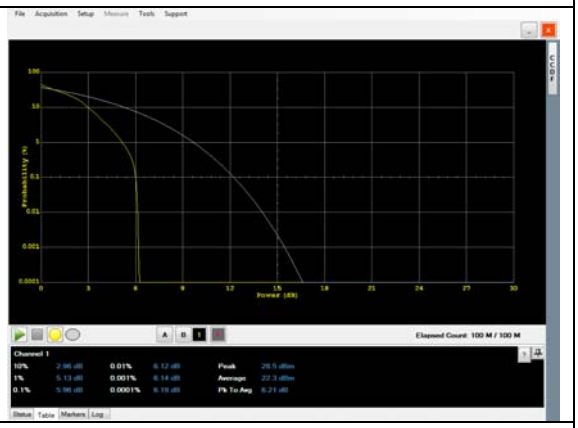
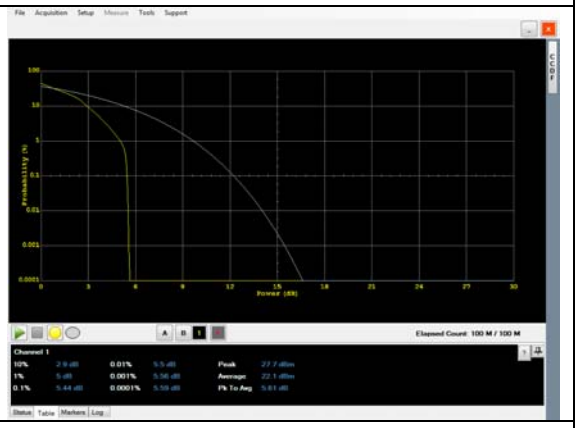
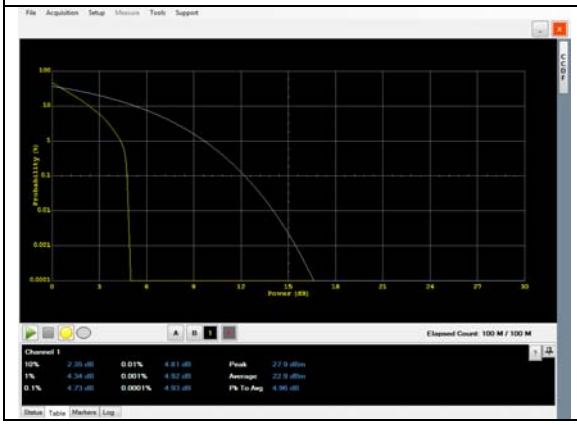
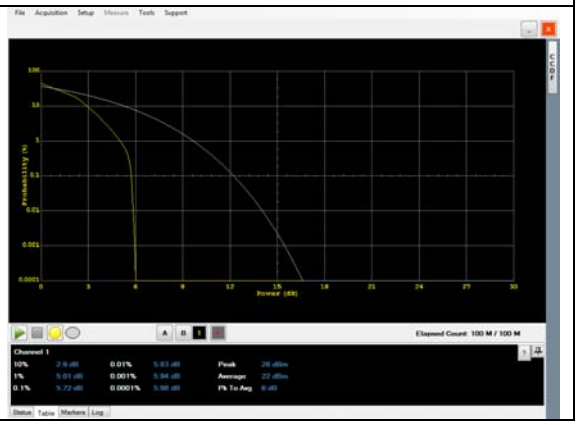
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band IV

15MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
1717.5MHz	1717.5MHz
	
1732.5MHz	1732.5MHz
	
1747.5MHz	1747.5MHz
	

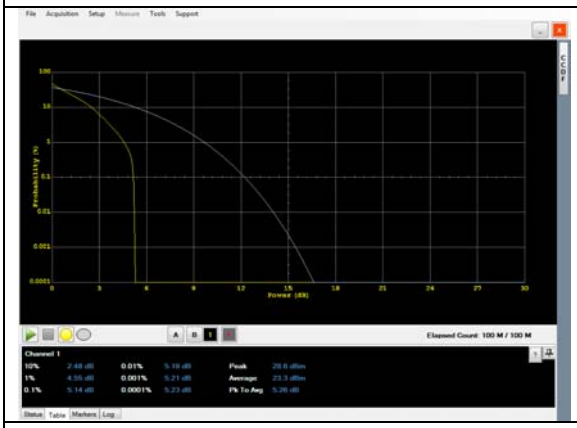
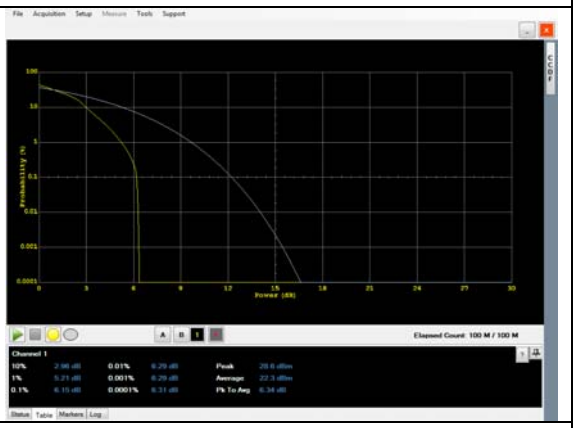
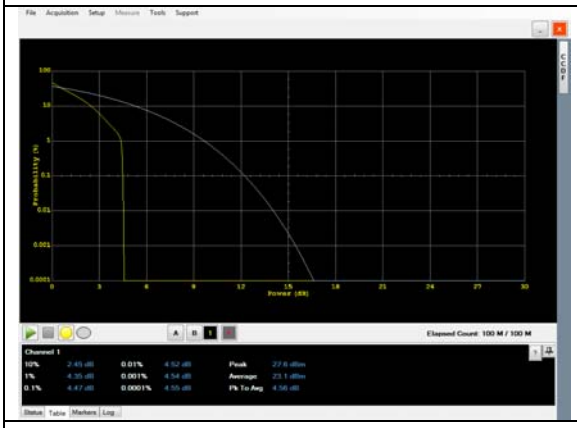
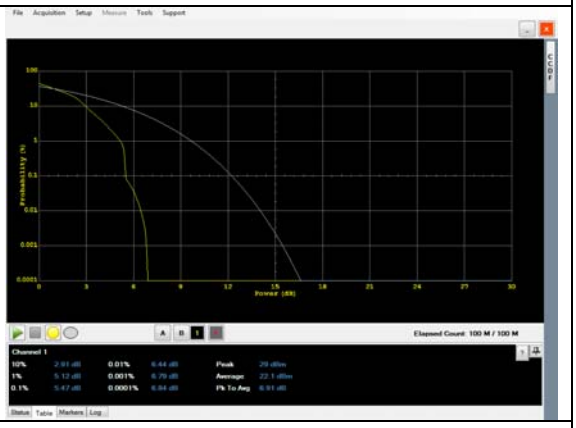
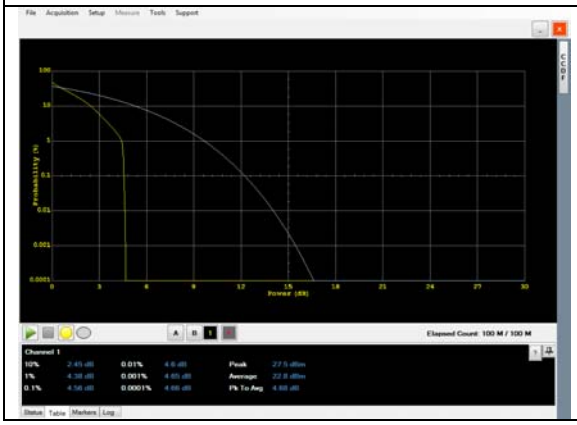
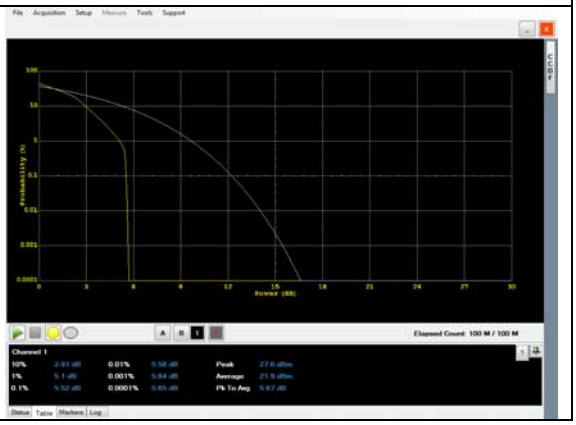
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band IV

10MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
1715.0MHz	1715.0MHz
	
1732.5MHz	1732.5MHz
	
1750.0MHz	1750.0MHz
	

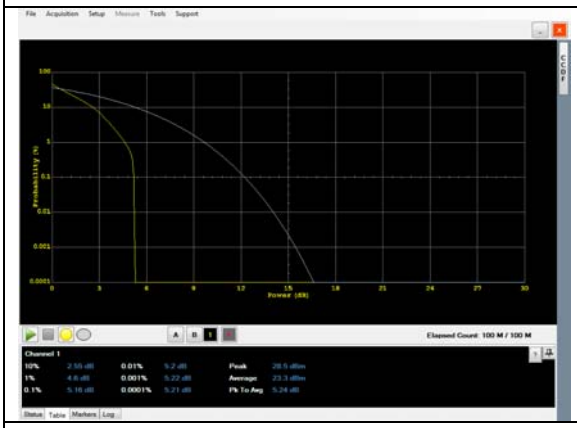
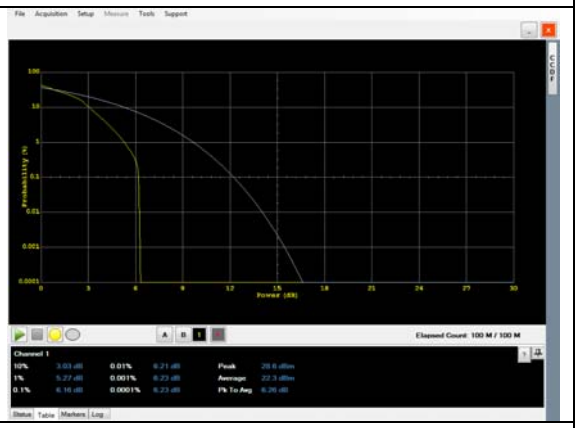
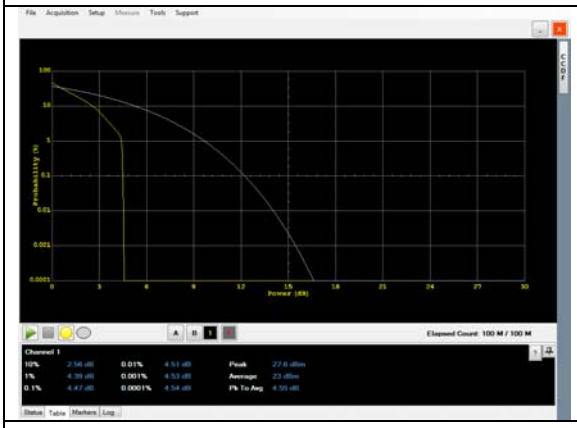
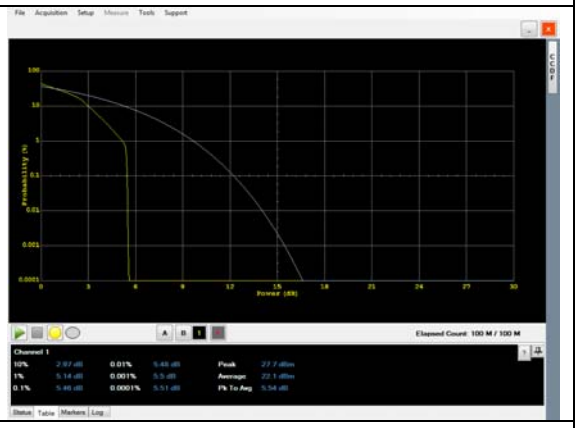
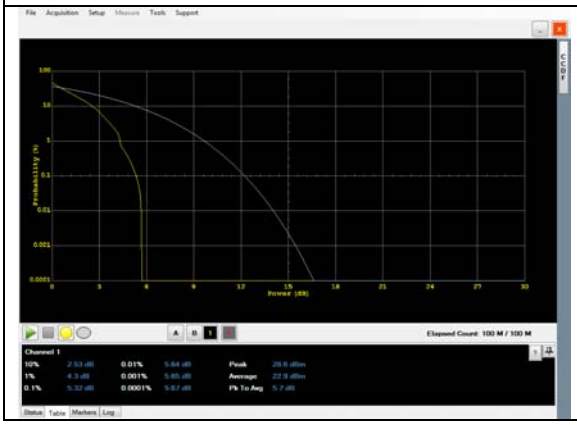
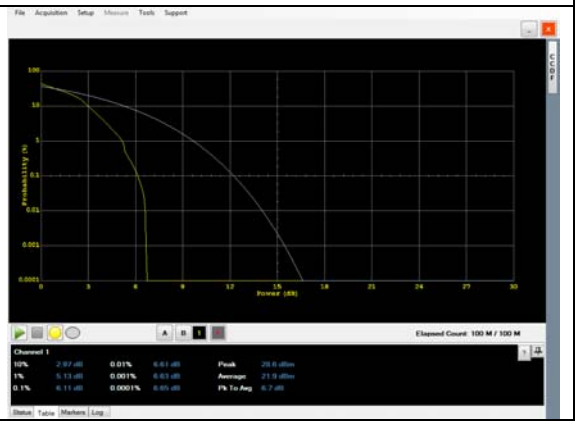
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band IV

5MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
1712.5MHz	1712.5MHz
	
1732.5MHz	1732.5MHz
	
1752.5MHz	1752.5MHz
	

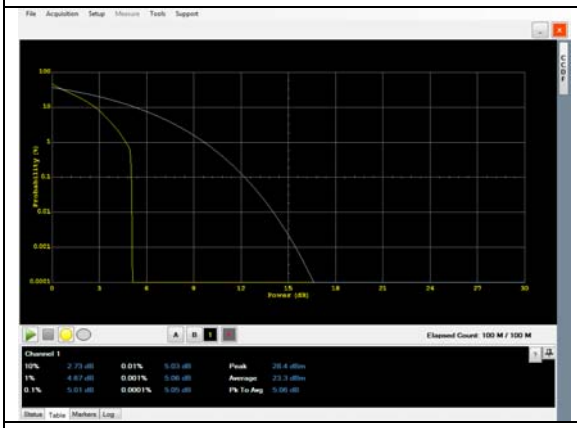
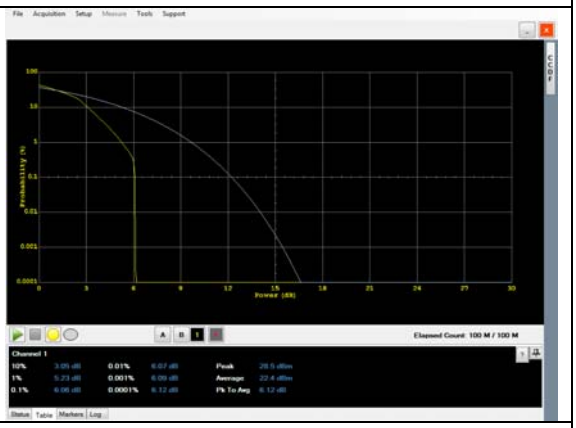
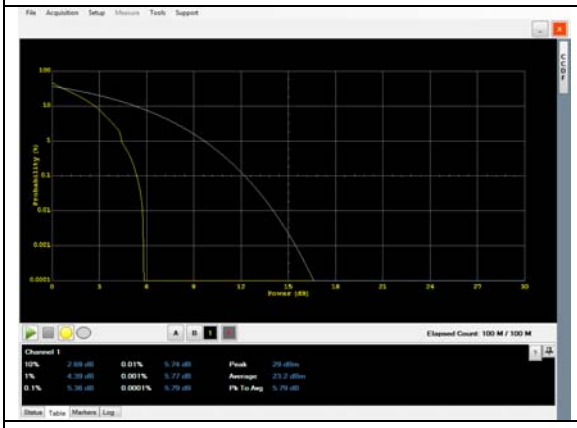
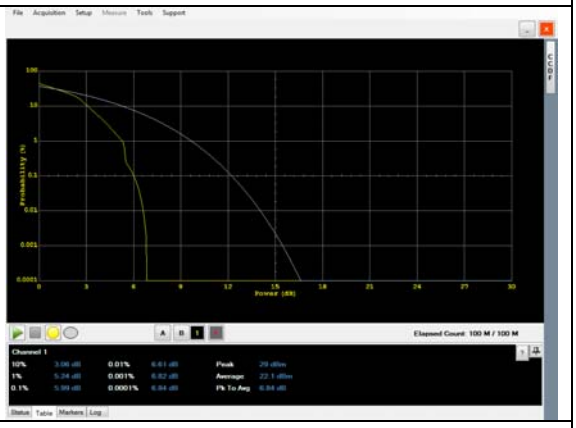
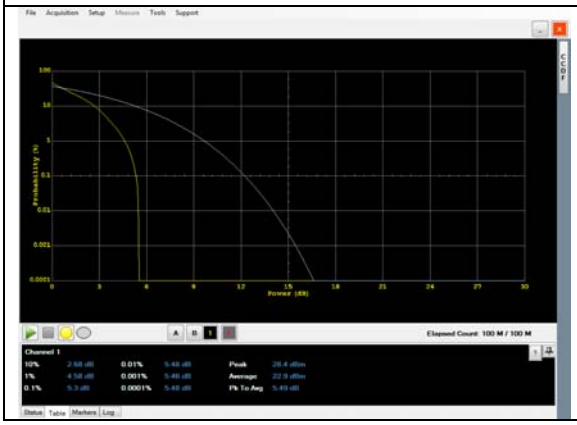
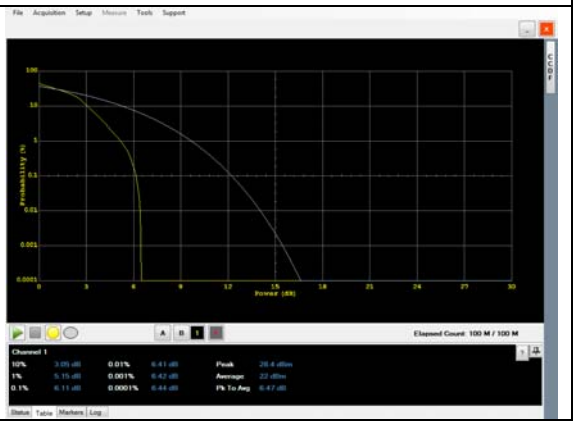
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band IV

3MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
1711.5MHz	1711.5MHz
	
1732.5MHz	1732.5MHz
	
1753.5MHz	1753.5MHz
	

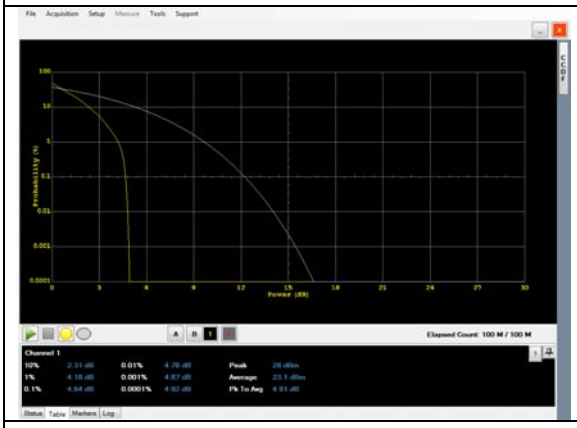
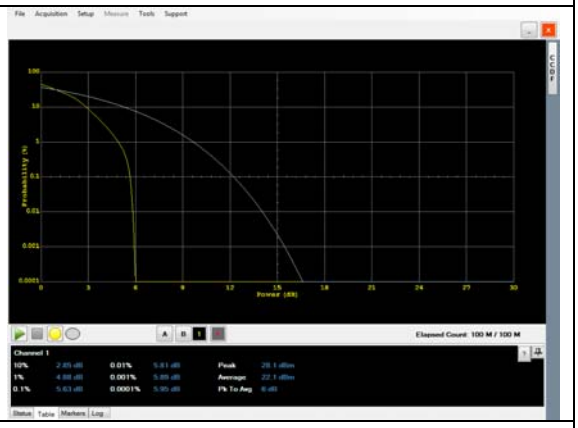
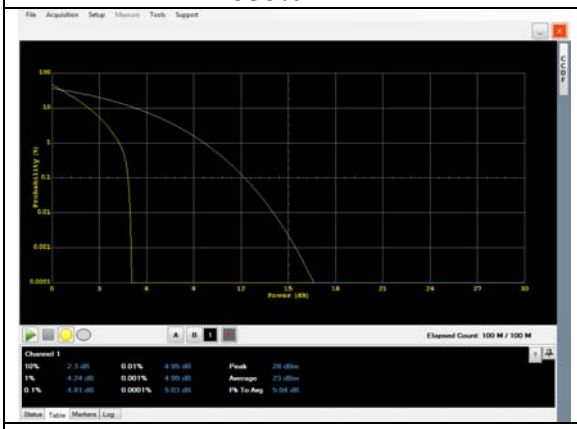
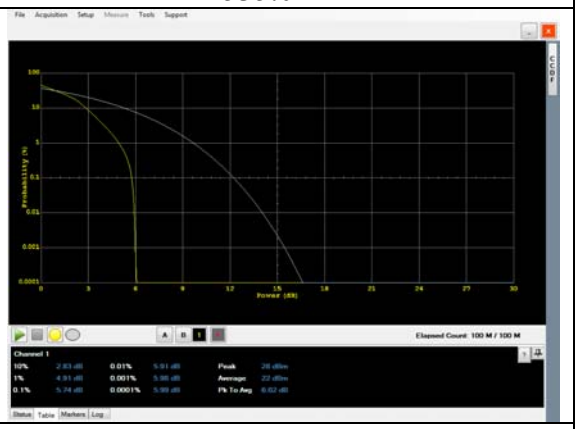
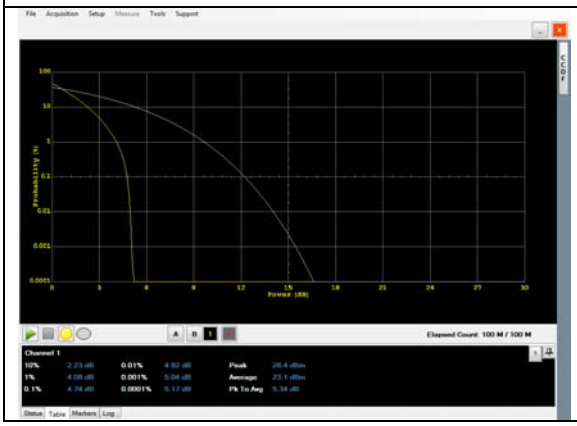
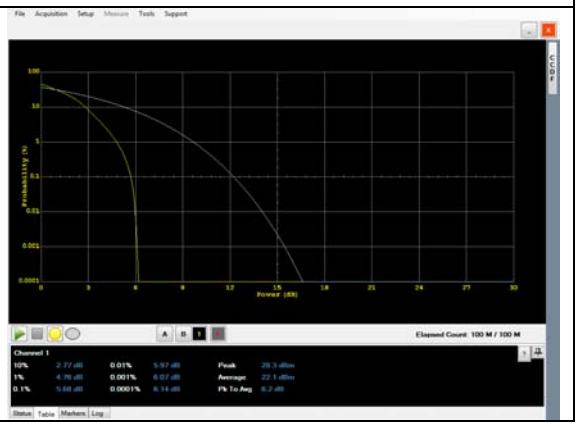
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band IV

1.4MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
1710.7MHz	1710.7MHz
	
1732.5MHz	1732.5MHz
	
1754.3MHz	1754.3MHz
	

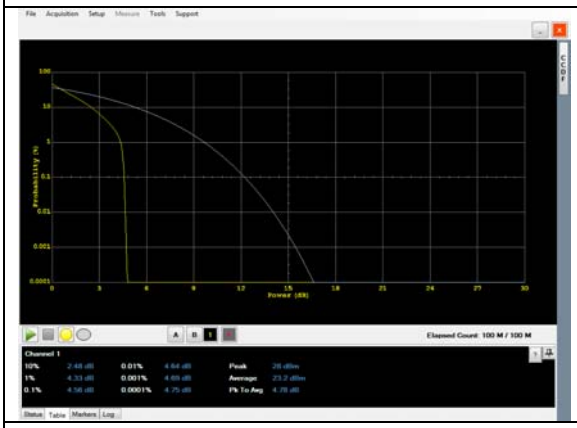
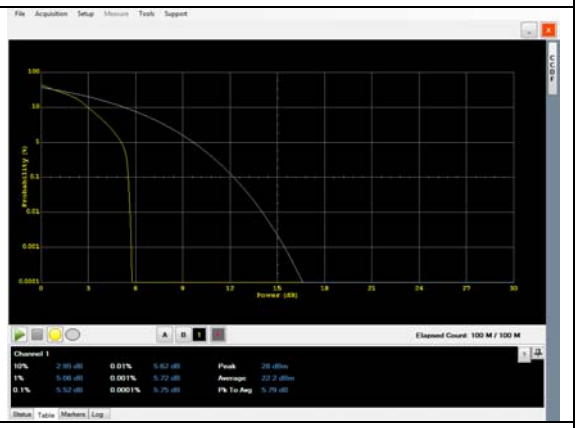
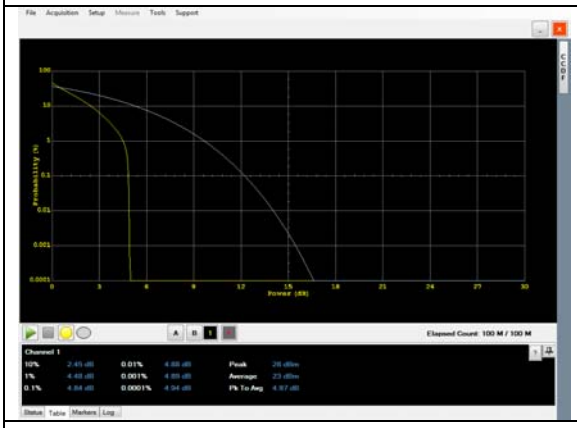
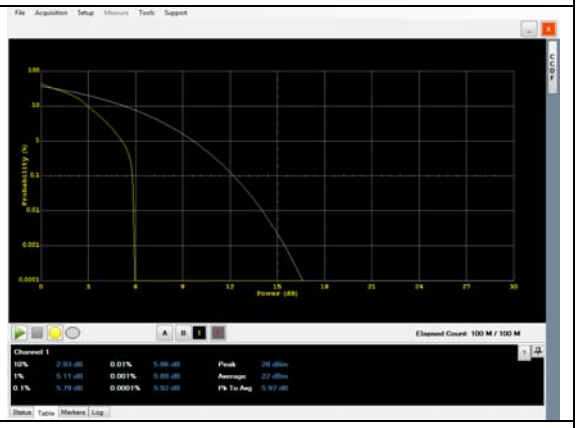
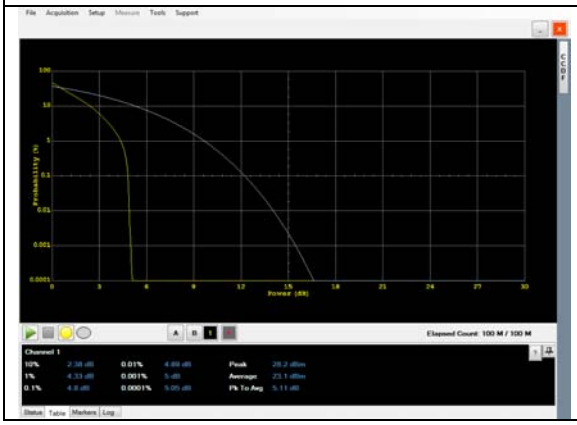
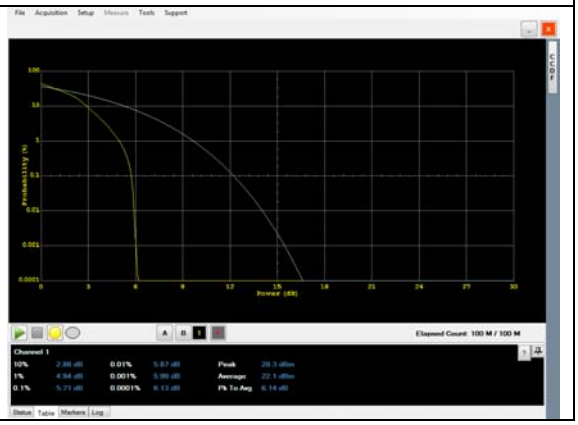
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band VII

20MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
2510.0MHz	2510.0MHz
	
2535.0MHz	2535.0MHz
	
2560.0MHz	2560.0MHz
	

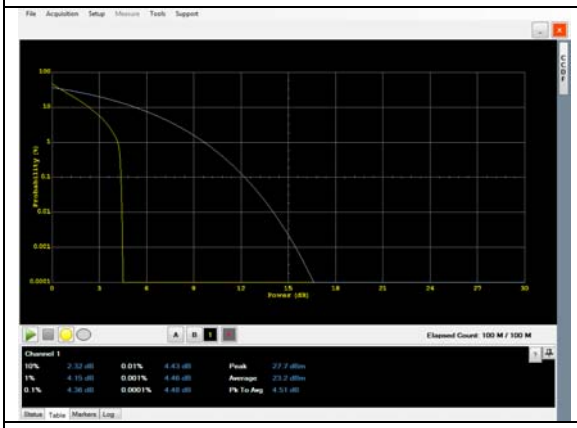
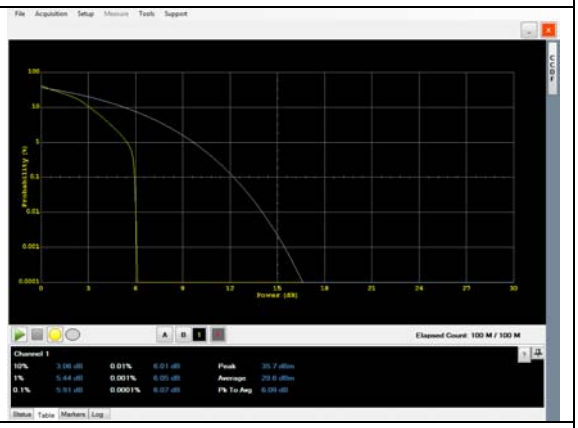
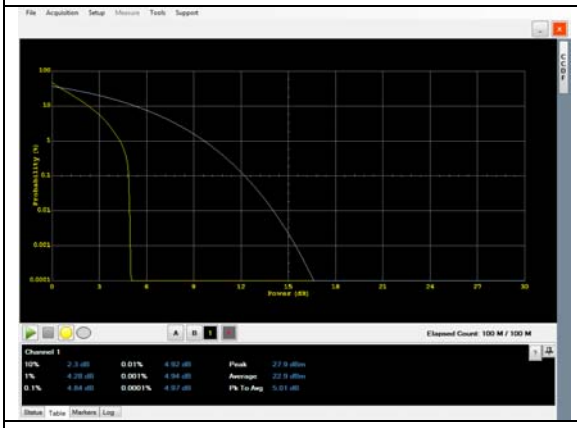
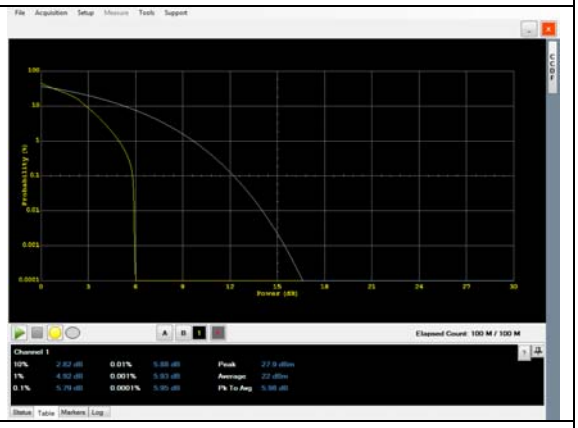
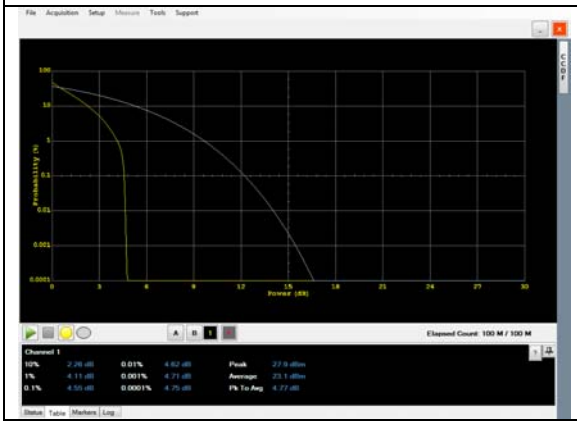
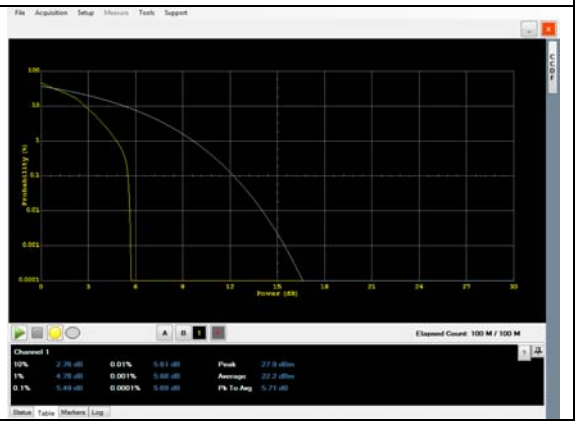
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band VII

15MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
2507.5MHz	2507.5MHz
	
2535.0MHz	2535.0MHz
	
2562.5MHz	2562.5MHz
	

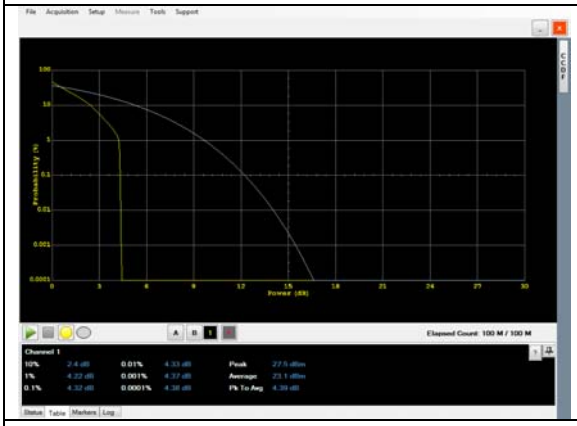
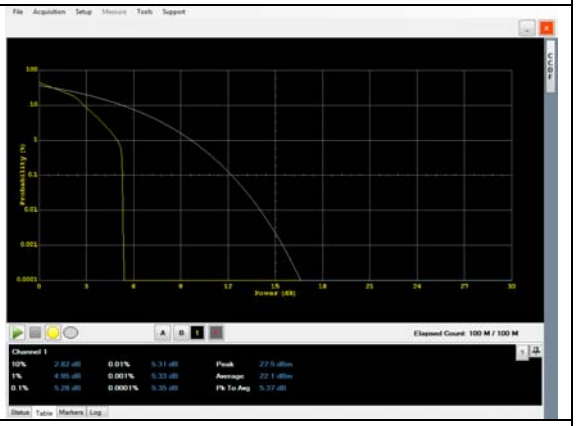
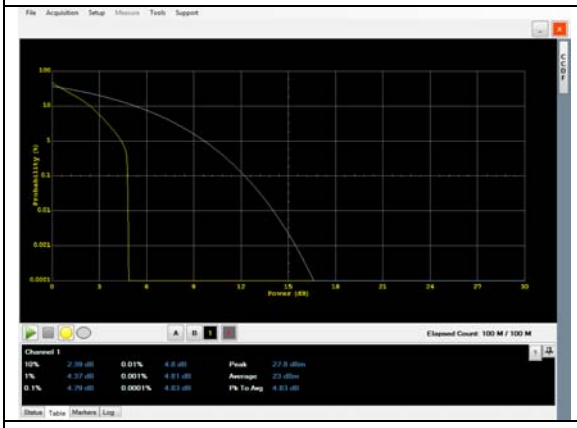
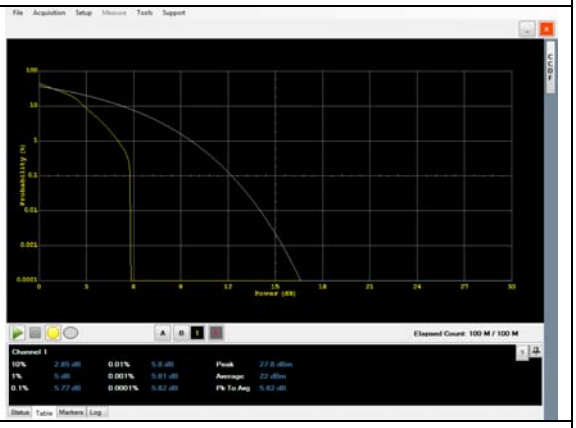
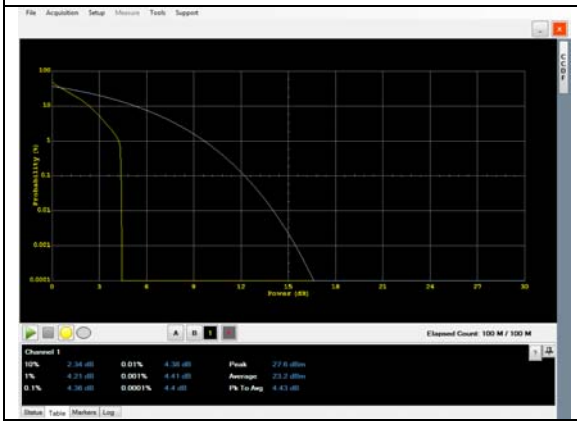
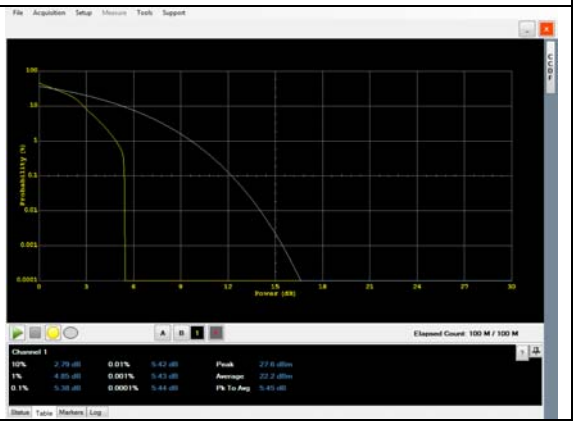
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band VII

10MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
2505.0MHz	2505.0MHz
	
2535.0MHz	2535.0MHz
	
2565.0MHz	2565.0MHz
	

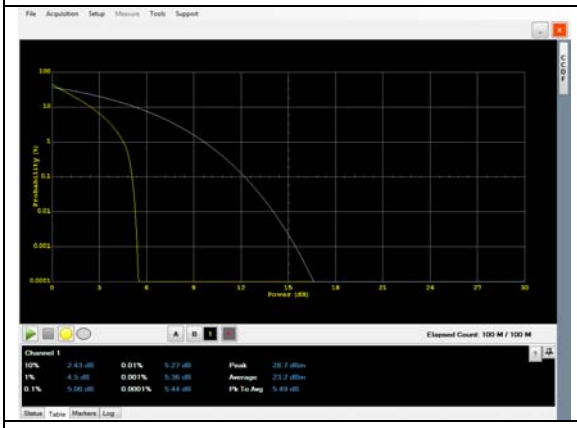
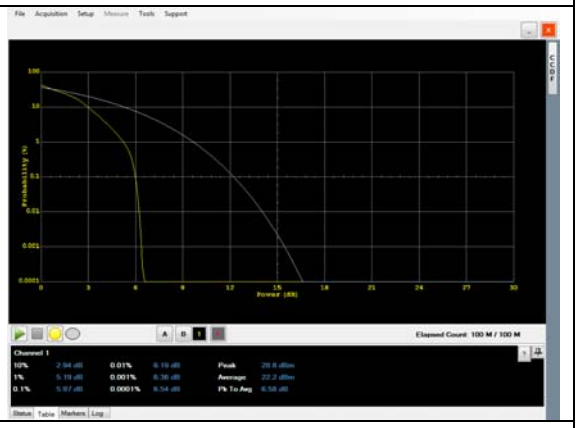
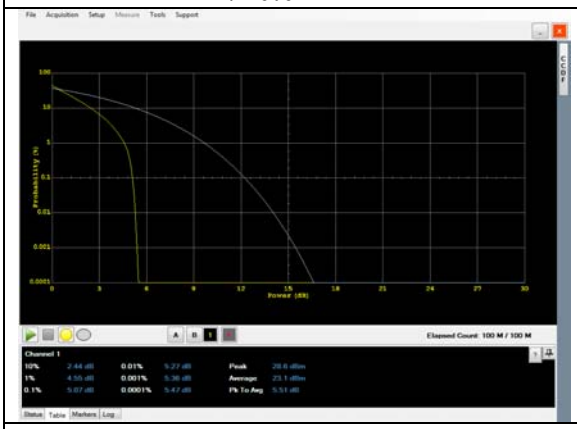
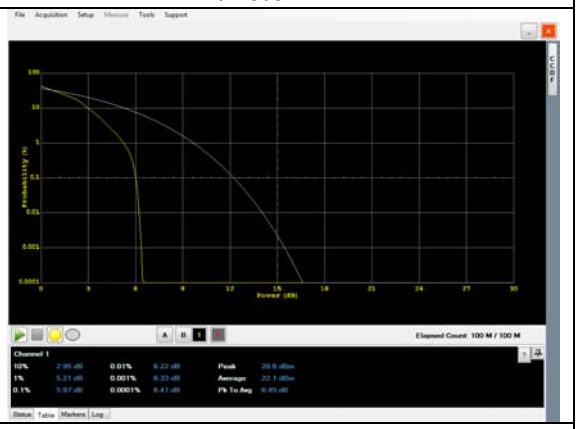
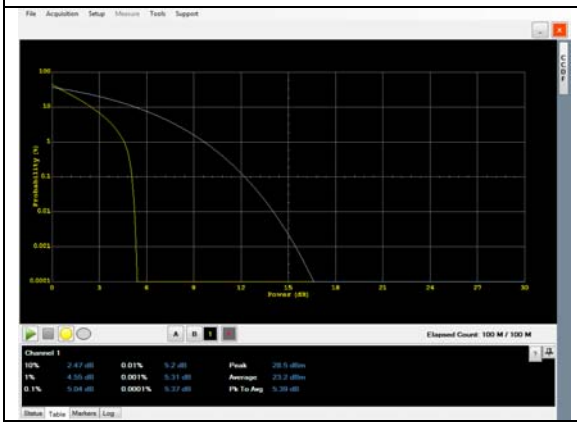
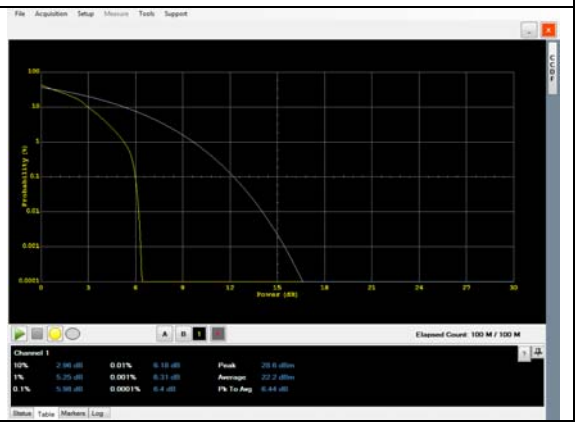
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band VII

5MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
2502.5MHz	2502.5MHz
	
2535.0MHz	2535.0MHz
	
2567.5MHz	2567.5MHz
	

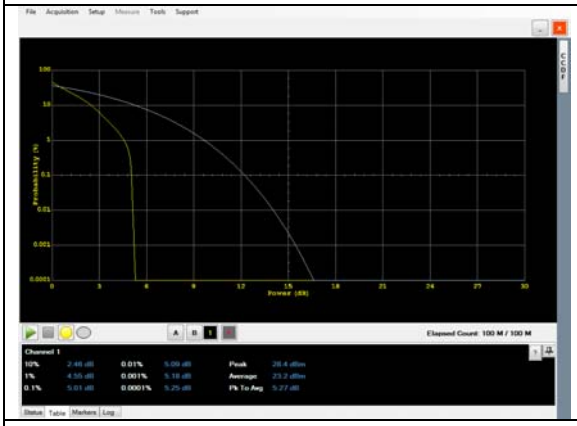
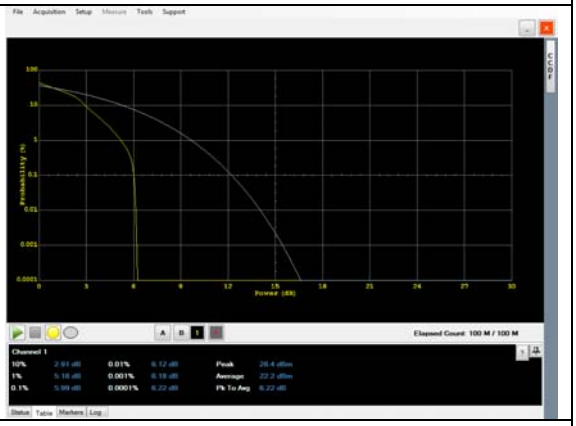
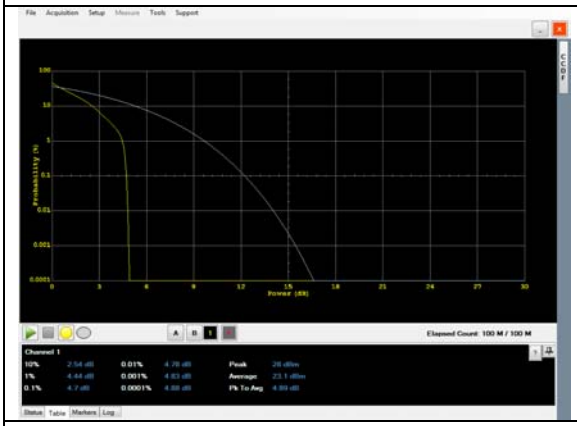
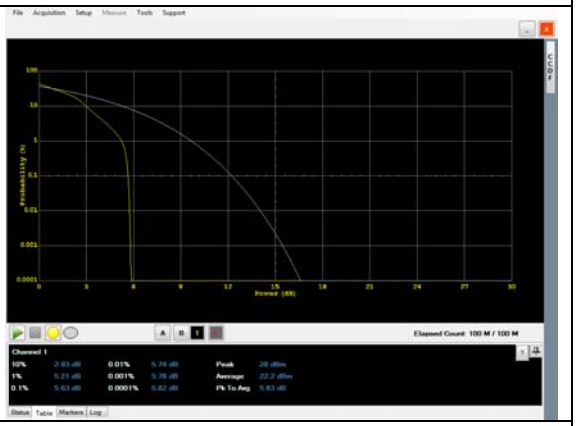
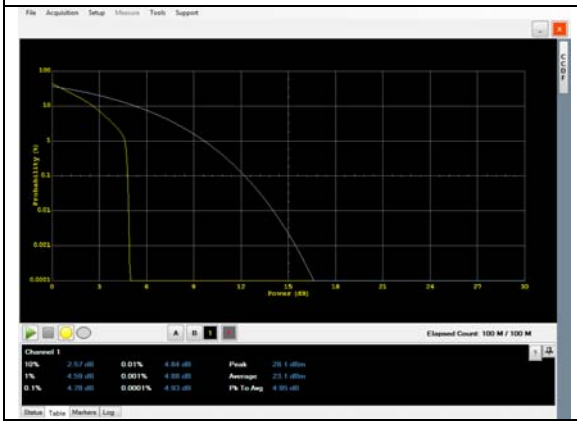
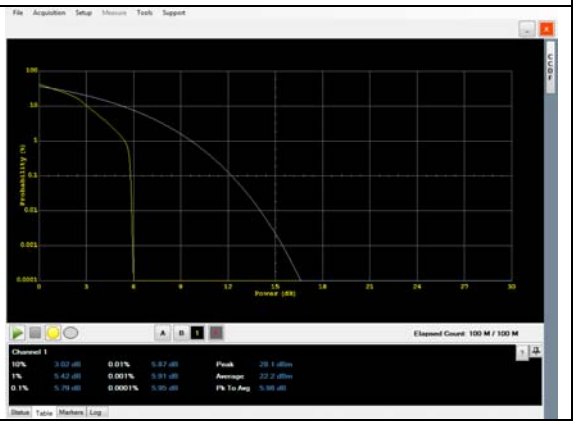
*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band XVII

10MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
709.0MHz	709.0MHz
	
710.0MHz	710.0MHz
	
711.0MHz	711.0MHz
	

*Set the wideband power meter to CCDF measurement mode

Peak to Average power Ratio (Conducted)
LTE Band XVII

5MHz BW	
QPSK : RB full(100%)	16QAM : RB full(100%)
706.5MHz	706.5MHz
	
710.0MHz	710.0MHz
	
713.5MHz	713.5MHz
	

*Set the wideband power meter to CCDF measurement mode

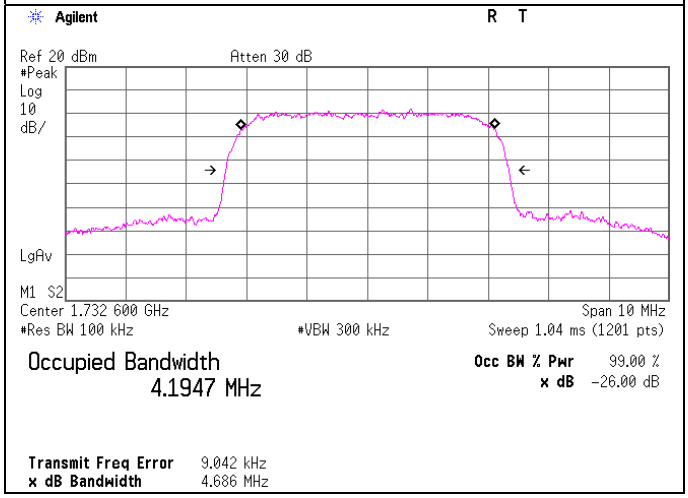
Bandwidth(Conducted)

W-CDMA Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/05/2015
Temperature/ Humidity	21deg. C / 34% RH
Engineer	Yutaka Yoshida
Mode	Tx W-CDMA(RMC12.2kbps), All Up Bits

CH	FREQ [MHz]	26dB Bandwidth [MHz]	99% OBW [MHz]	Limit [kHz]
Mid	1732.6	4.686	4.1947	-

Tx: 1732.6MHz



Bandwidth(Conducted)

LTE Band IV

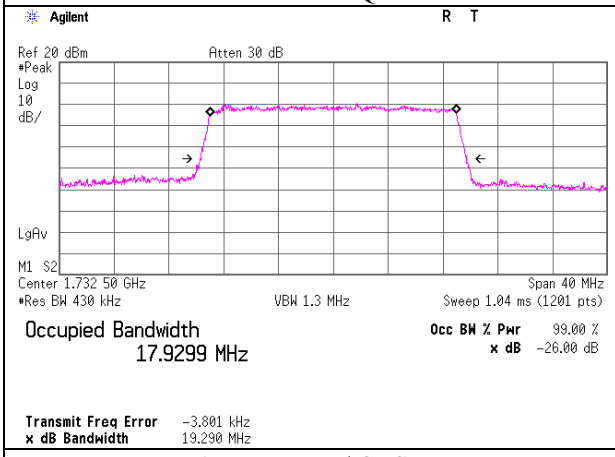
Report No.	10636726H
Test place	Ise EMC Lab. No.6 Measurement Room
Date	01/27/2015
Temperature / Humidity	20 deg. C / 49 % RH
Engineer	Yutaka Yoshida
Mode	Tx LTE (QPSK / 16QAM)

BW	UL RB Allocation	UL RB Start	Frequency [MHz]	Mode	26dB Bandwidth [MHz]	99% OBW [MHz]
20MHz	100	0	1732.5	QPSK	19.290	17.9299
				16QAM	19.467	17.9594
15MHz	75	0	1732.5	QPSK	14.661	13.4490
				16QAM	14.559	13.4221
10MHz	50	0	1732.5	QPSK	9.895	8.9970
				16QAM	9.816	8.9910
5MHz	25	0	1732.5	QPSK	4.962	4.5099
				16QAM	4.944	4.5082
3MHz	15	0	1732.5	QPSK	2.990	2.7090
				16QAM	2.968	2.7035
1.4MHz	6	0	1732.5	QPSK	1.293	1.0910
				16QAM	1.296	1.0992

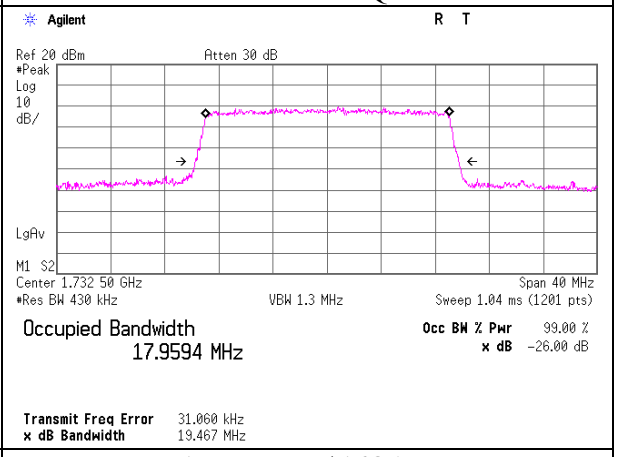
Bandwidth(Conducted)

LTE Band IV

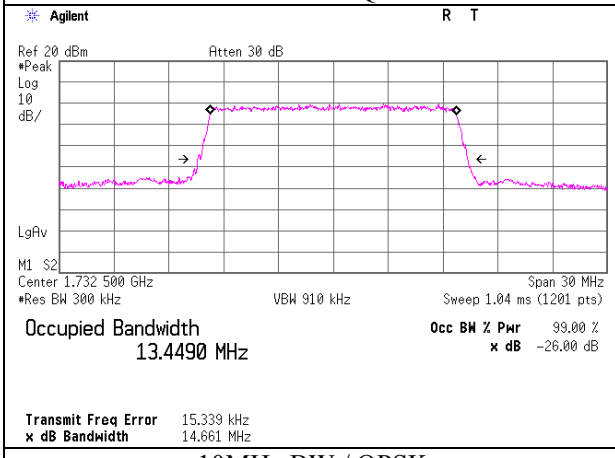
20MHz BW / QPSK



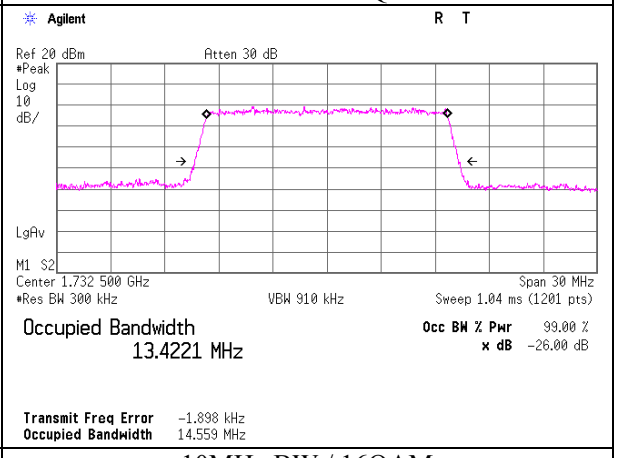
20MHz BW / 16QAM



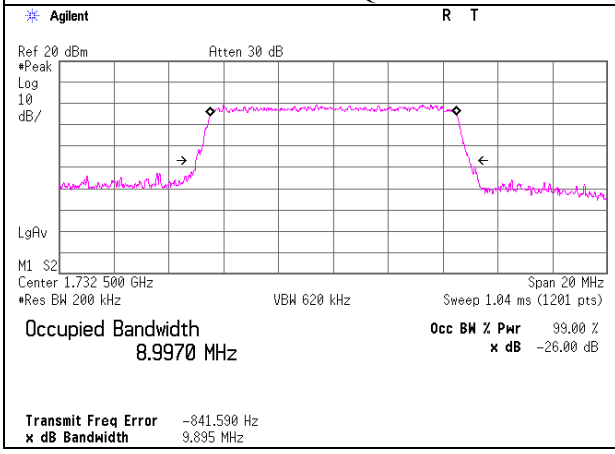
15MHz BW / QPSK



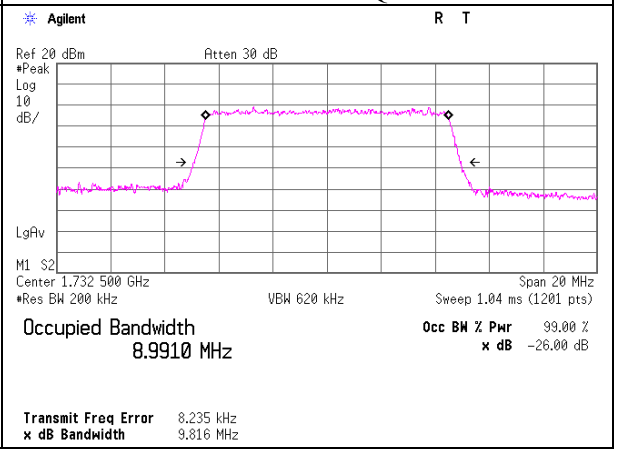
15MHz BW / 16QAM



10MHz BW / QPSK



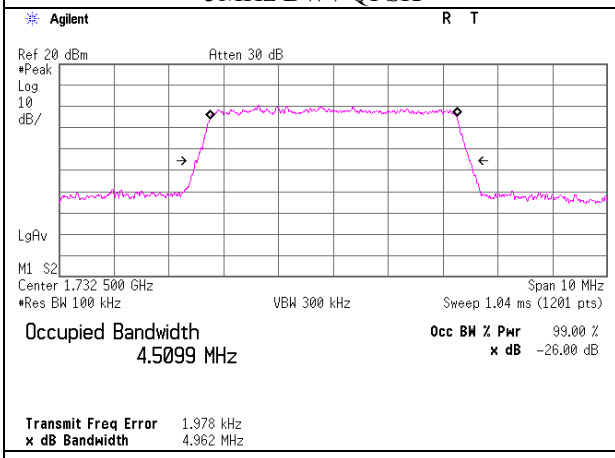
10MHz BW / 16QAM



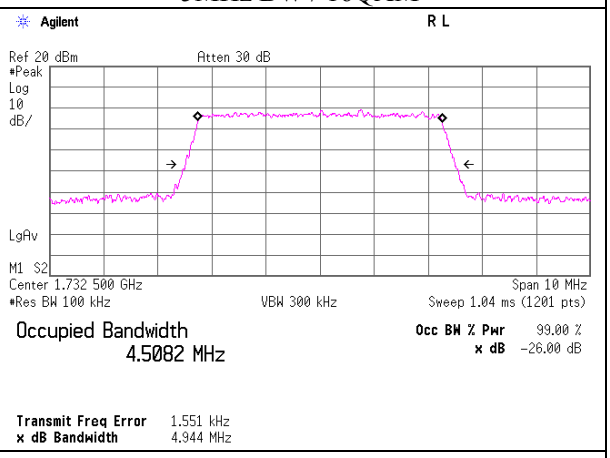
Bandwidth(Conducted)

LTE Band IV

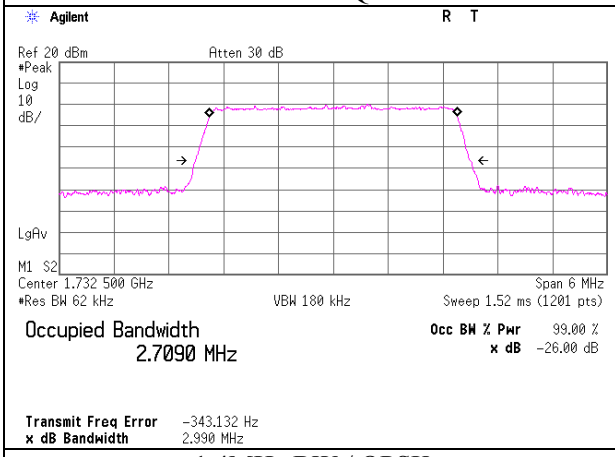
5MHz BW / QPSK



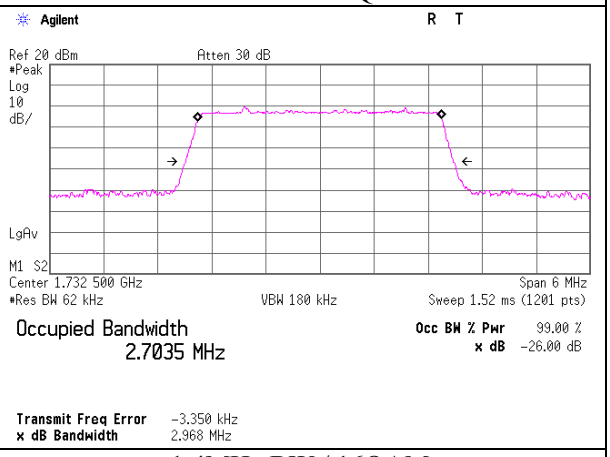
5MHz BW / 16QAM



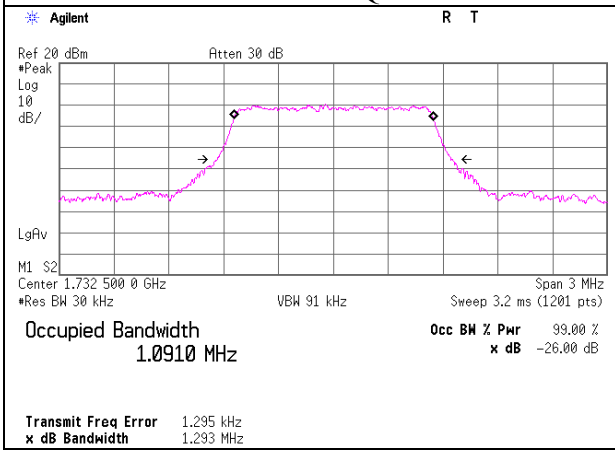
3MHz BW / QPSK



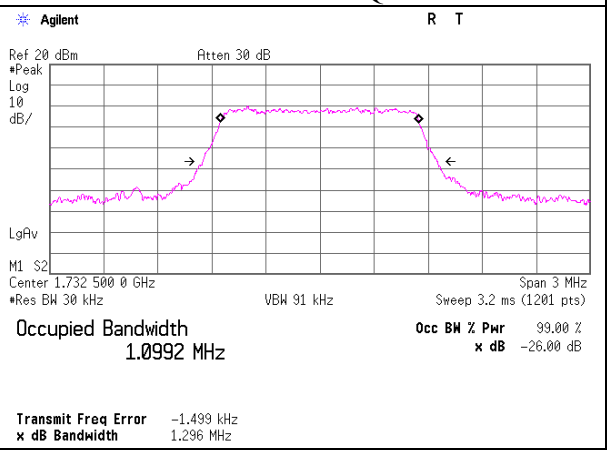
3MHz BW / 16QAM



1.4MHz BW / QPSK



1.4MHz BW / 16QAM



Bandwidth(Conducted)

LTE Band VII

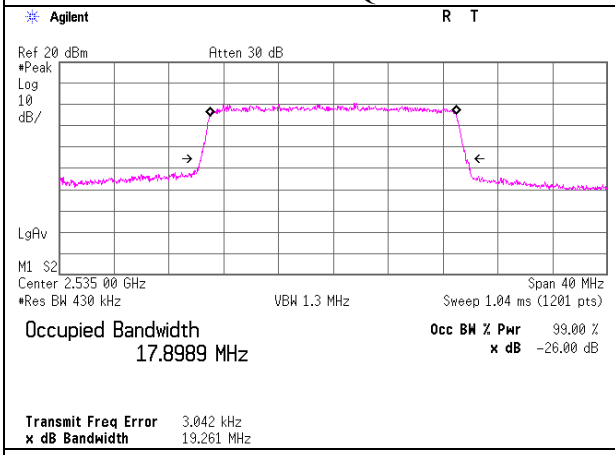
Report No. 10636726H
Test place Ise EMC Lab. No.6 Measurement Room
Date 01/27/2015
Temperature / Humidity 20 deg. C / 49 % RH
Engineer Yutaka Yoshida
Mode Tx LTE
(QPSK / 16QAM)

BW	UL RB Allocation	UL RB Start	Frequency [MHz]	Mode	26dB Bandwidth [MHz]	99% OBW [MHz]
20MHz	100	0	2535.0	QPSK	19.261	17.8989
				16QAM	19.384	17.9242
15MHz	75	0	2535.0	QPSK	14.610	13.4334
				16QAM	14.658	13.4290
10MHz	50	0	2535.0	QPSK	9.865	8.9959
				16QAM	9.837	8.9886
5MHz	25	0	2535.0	QPSK	4.977	4.5176
				16QAM	4.989	4.5140

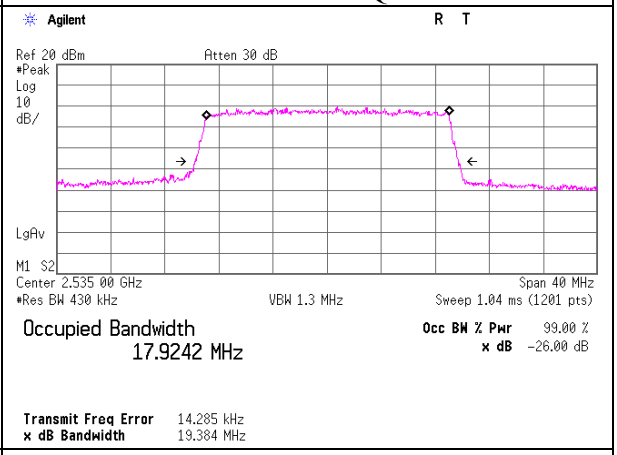
Bandwidth(Conducted)

LTE Band VII

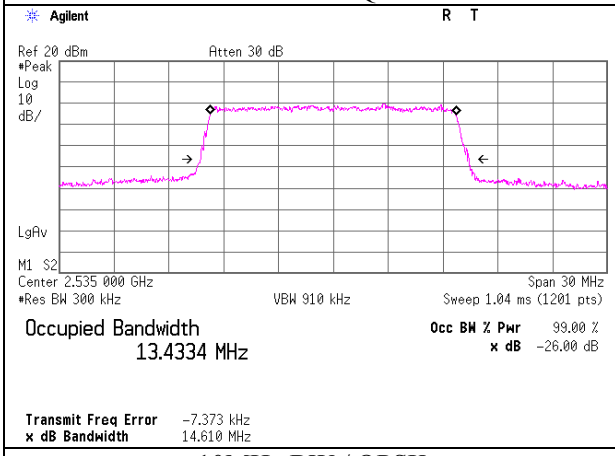
20MHz BW / QPSK



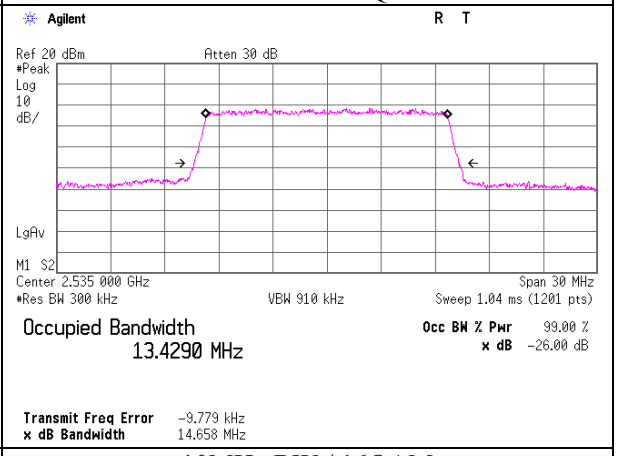
20MHz BW / 16QAM



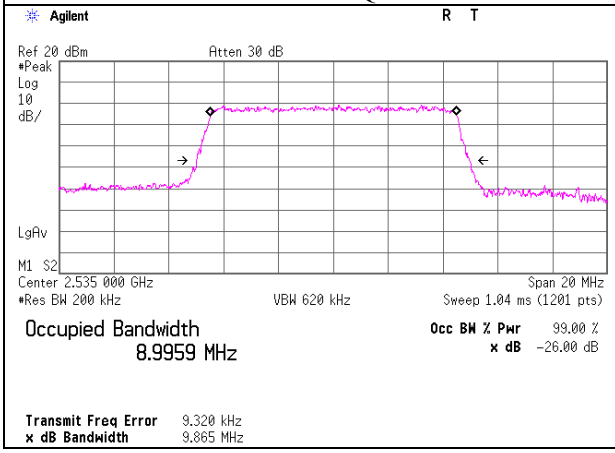
15MHz BW / QPSK



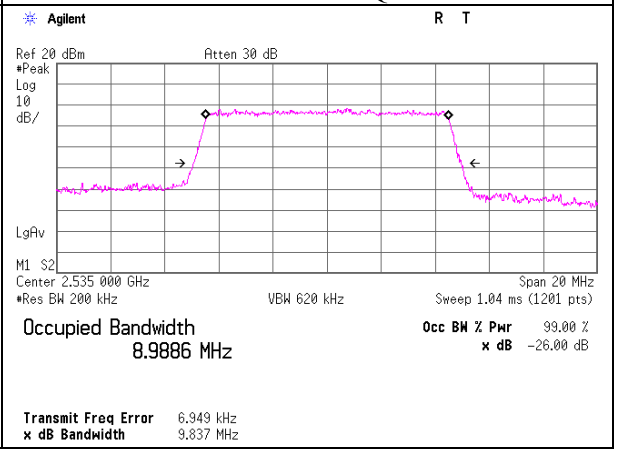
15MHz BW / 16QAM



10MHz BW / QPSK

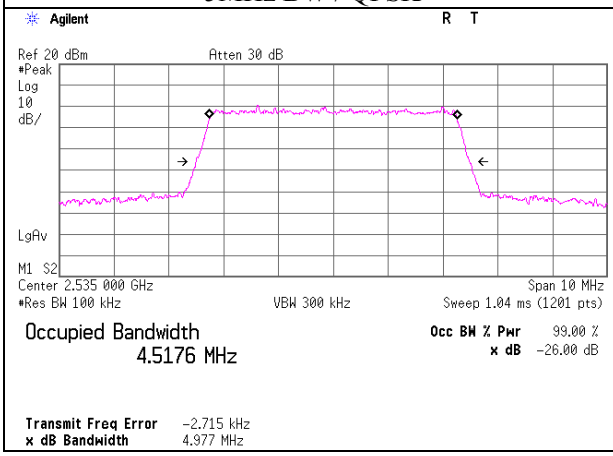
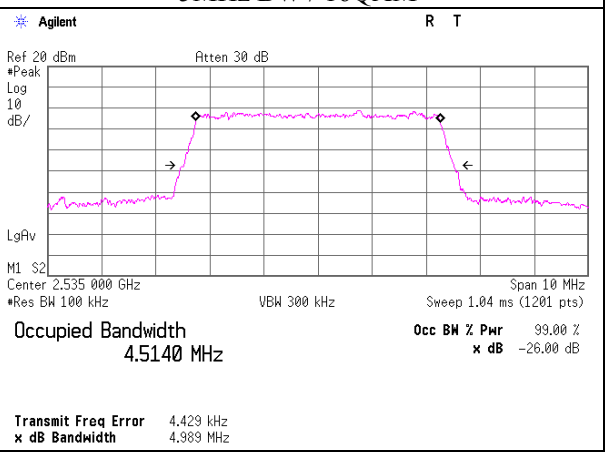


10MHz BW / 16QAM



Bandwidth(Conducted)

LTE Band VII

5MHz BW / QPSK	5MHz BW / 16QAM
	

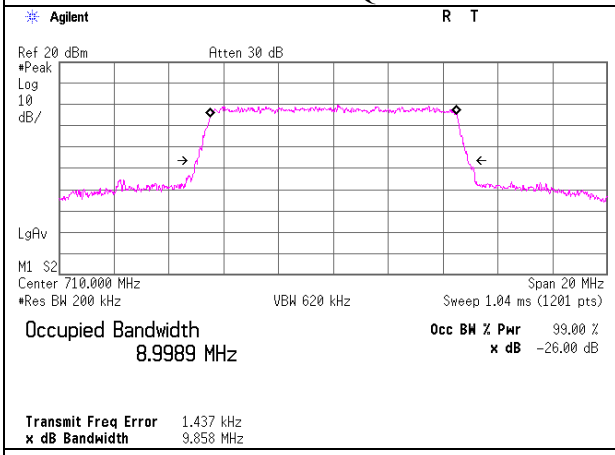
Bandwidth(Conducted)

LTE Band XVII

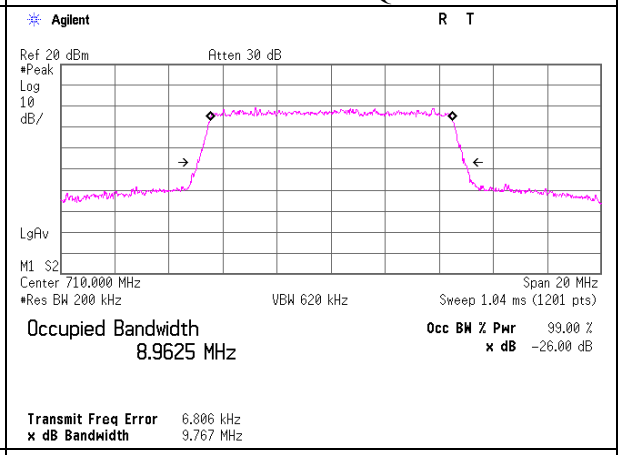
Report No.	10636726H
Test place	Ise EMC Lab. No.6 Measurement Room
Date	01/27/2015
Temperature / Humidity	20 deg. C / 49 % RH
Engineer	Yutaka Yoshida
Mode	Tx LTE (QPSK / 16QAM)

BW	UL RB Allocation	UL RB Start	Frequency [MHz]	Mode	26dB Bandwidth [MHz]	99% OBW [MHz]
10MHz	50	0	710.0	QPSK	9.858	8.9989
				16QAM	9.767	8.9625
5MHz	25	0	710.0	QPSK	4.955	4.5123
				16QAM	4.994	4.5023

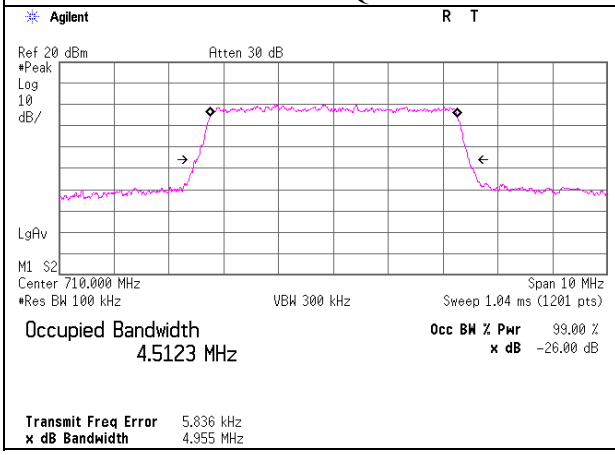
10MHz BW / QPSK



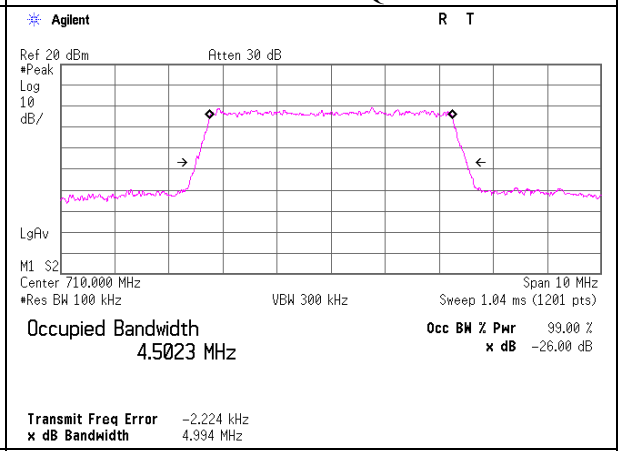
10MHz BW / 16QAM



5MHz BW / QPSK



5MHz BW / 16QAM



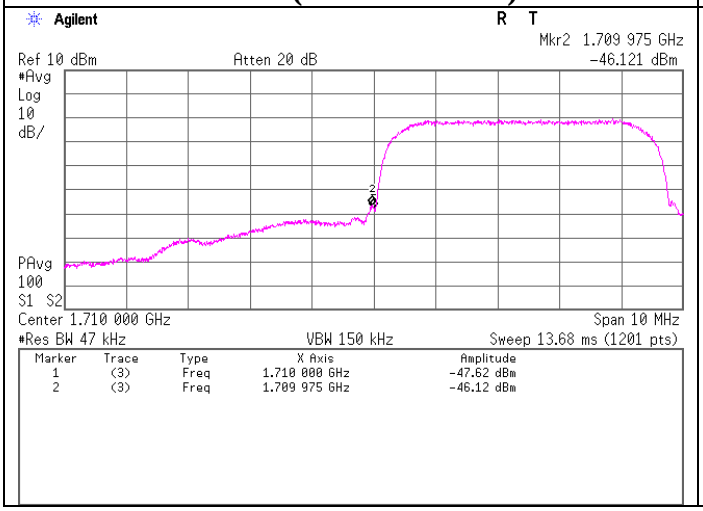
Band-Edge(Conducted)

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/05/2015
Temperature/ Humidity	21deg.C / 34% RH
Engineer	Yutaka Yoshida
Mode	Tx W-CDMA(RMC12.2kbps), All Up Bits

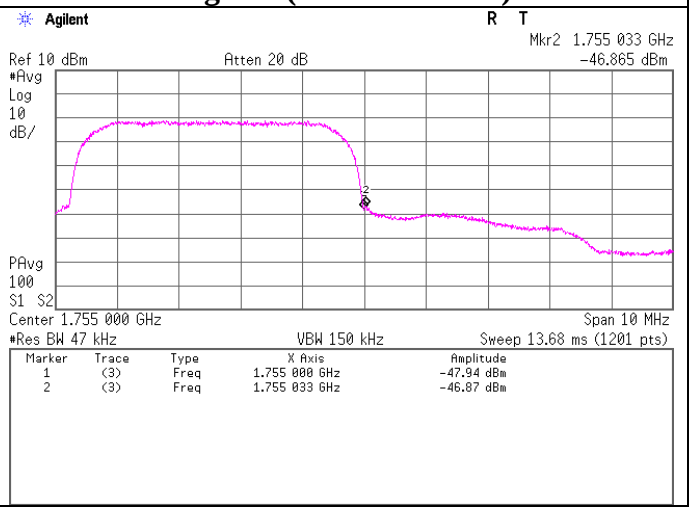
Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
1709.975	-46.12	10.02	6.78	-29.32	-13.0	16.32
1710.000	-47.62	10.02	6.78	-30.82	-13.0	17.82
1755.000	-47.94	10.02	6.79	-31.13	-13.0	18.13
1755.033	-46.87	10.02	6.79	-30.06	-13.0	17.06

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

Low ch (Tx:1712.4MHz)



High ch (Tx:1752.6MHz)



Band-Edge(Conducted)

LTE Band IV

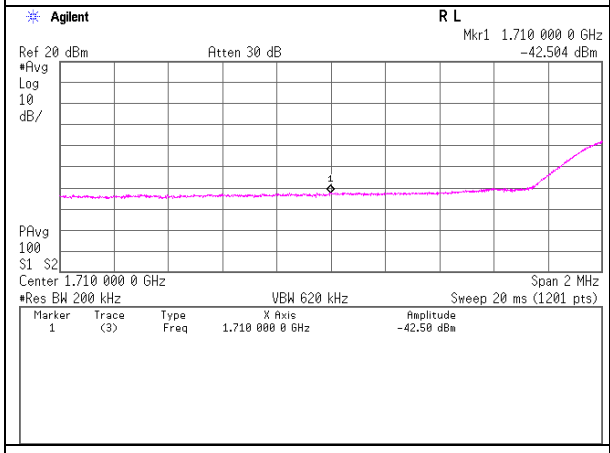
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 20MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
100	0	1710.00	-42.50	10.02	6.78	-25.70	-13.0	12.70
	0	1755.00	-47.98	10.02	6.79	-31.17	-13.0	18.17
1	0	1710.00	-48.98	10.02	6.78	-32.18	-13.0	19.18
	99	1755.00	-49.50	10.02	6.79	-32.69	-13.0	19.69

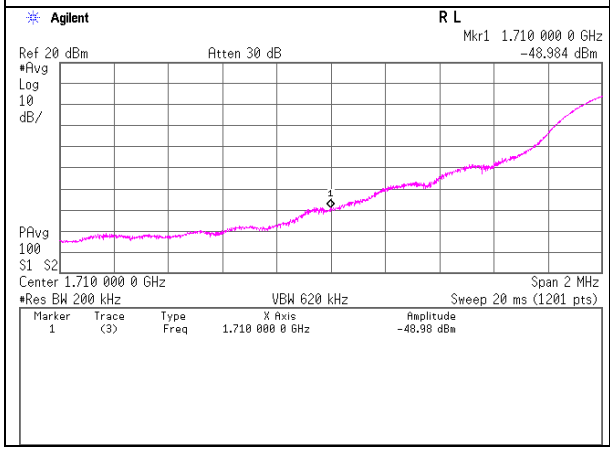
Sample Calculation : Result = Reading + Atten. + Cable Loss

Low ch (Tx:1720.0MHz)

RB 100-0

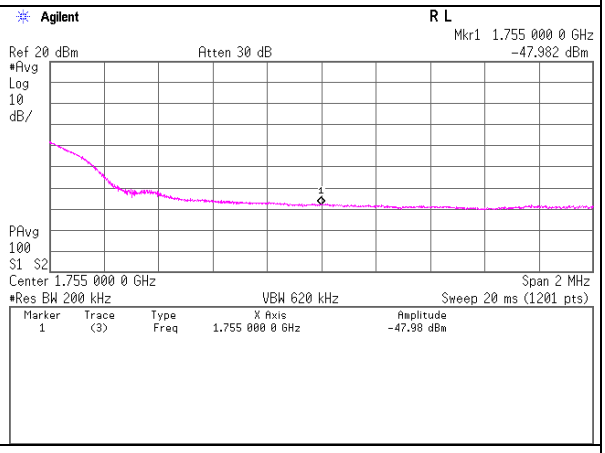


RB 1-0

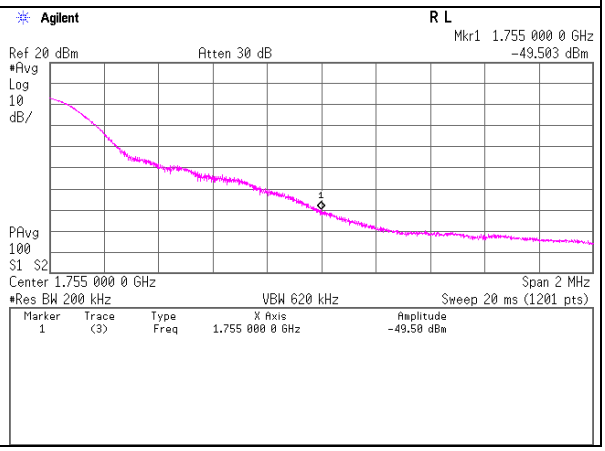


High ch (Tx:1745.0MHz)

RB 100-0



RB 1-99



Band-Edge(Conducted)

LTE Band IV

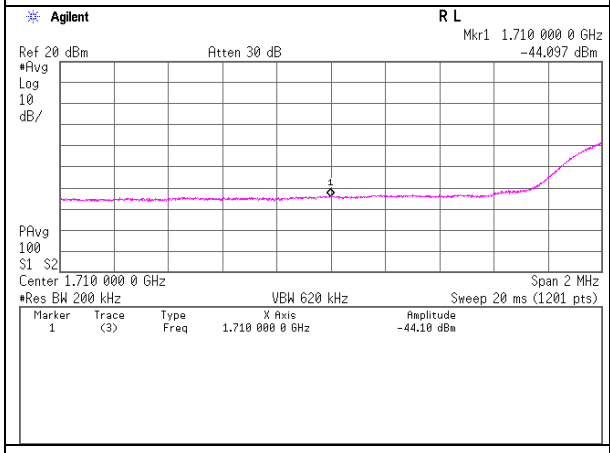
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 20MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
100	0	1710.00	-44.10	10.02	6.78	-27.30	-13.0	14.30
	0	1755.00	-48.62	10.02	6.79	-31.81	-13.0	18.81
1	0	1710.00	-49.39	10.02	6.78	-32.59	-13.0	19.59
	99	1755.00	-50.07	10.02	6.79	-33.26	-13.0	20.26

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

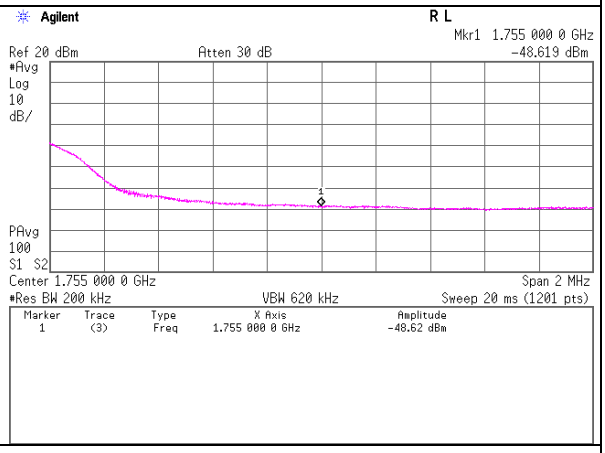
Low ch (Tx:1720.0MHz)

RB 100-0

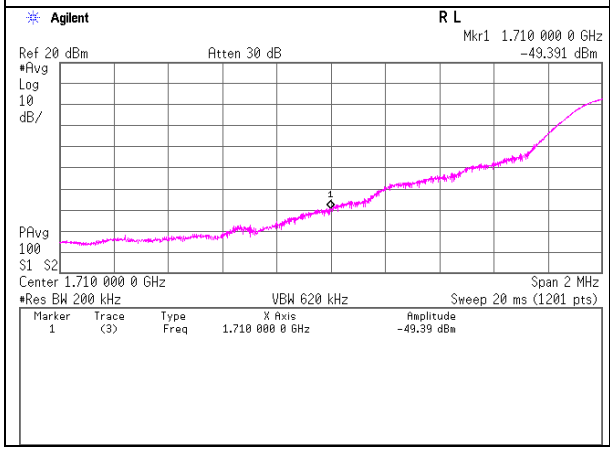


High ch (Tx:1745.0MHz)

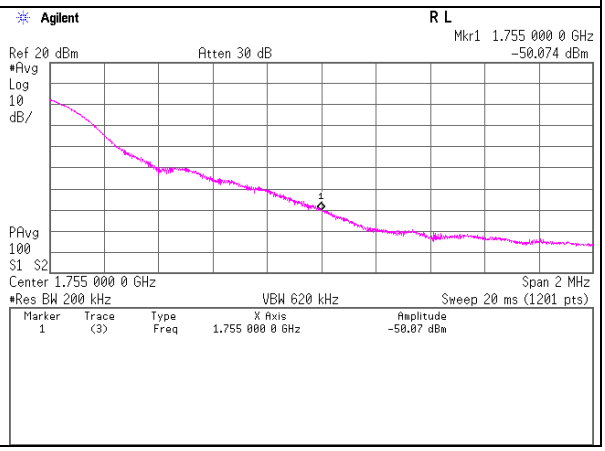
RB 100-0



RB 1-0



RB 1-99



Band-Edge(Conducted)

LTE Band IV

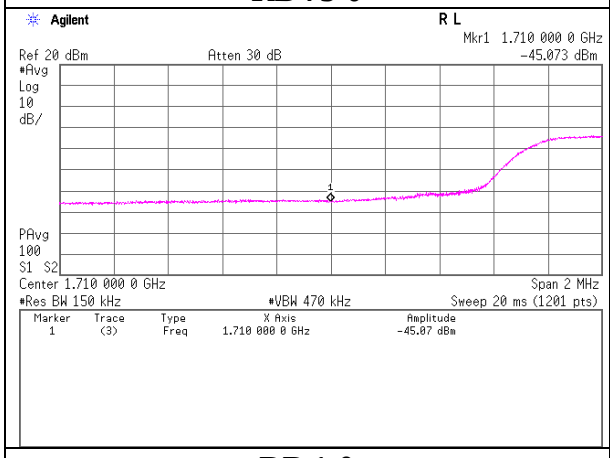
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 15MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
75	0	1710.00	-45.07	10.02	6.78	-28.27	-13.0	15.27
	0	1755.00	-49.84	10.02	6.79	-33.03	-13.0	20.03
1	0	1710.00	-45.36	10.02	6.78	-28.56	-13.0	15.56
	74	1755.00	-44.98	10.02	6.79	-28.17	-13.0	15.17

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

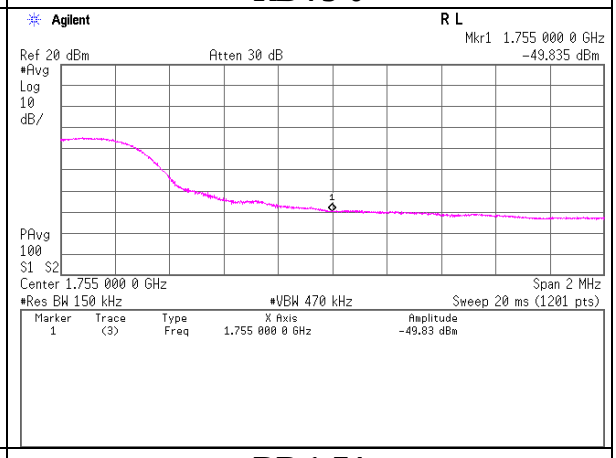
Low ch (Tx:1717.5MHz)

RB 75-0

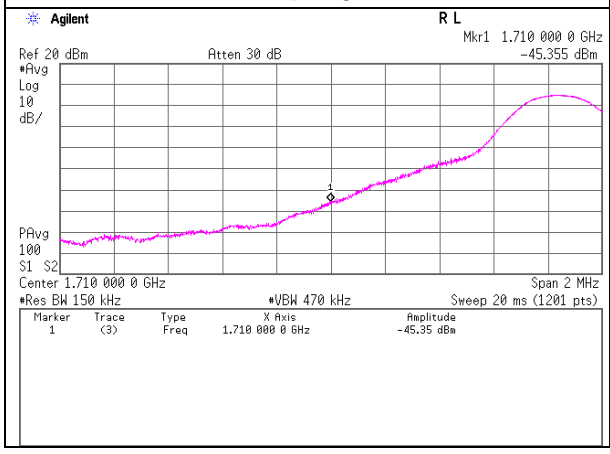


High ch (Tx:1747.5MHz)

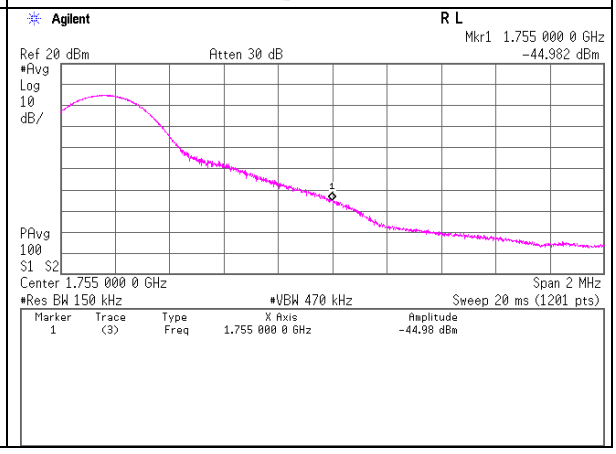
RB 75-0



RB 1-0



RB 1-74



Band-Edge(Conducted)

LTE Band IV

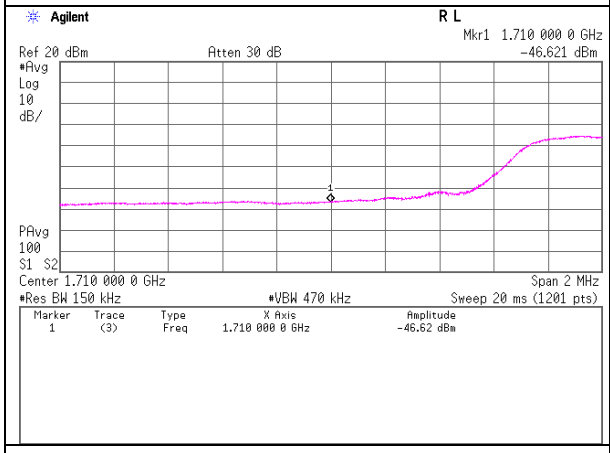
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 15MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
75	0	1710.00	-46.62	10.02	6.78	-29.82	-13.0	16.82
	0	1755.00	-51.17	10.02	6.79	-34.36	-13.0	21.36
1	0	1710.00	-46.23	10.02	6.78	-29.43	-13.0	16.43
	74	1755.00	-45.74	10.02	6.79	-28.93	-13.0	15.93

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

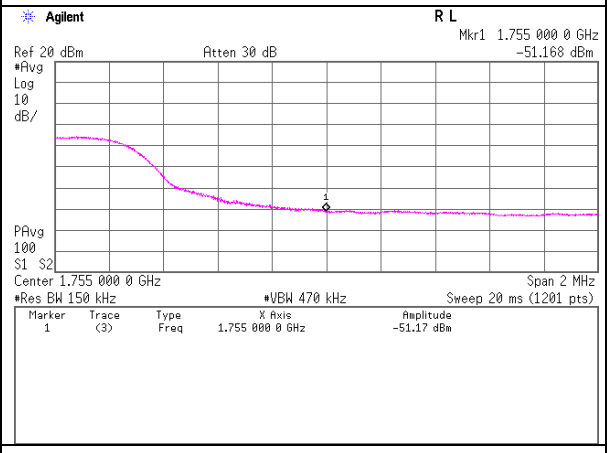
Low ch (Tx:1717.5MHz)

RB 75-0

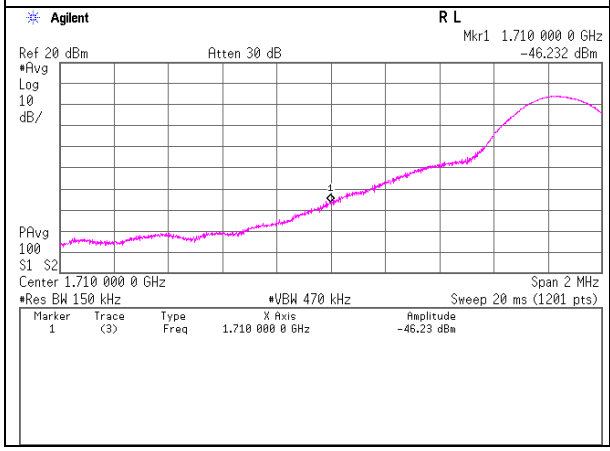


High ch (Tx:1747.5MHz)

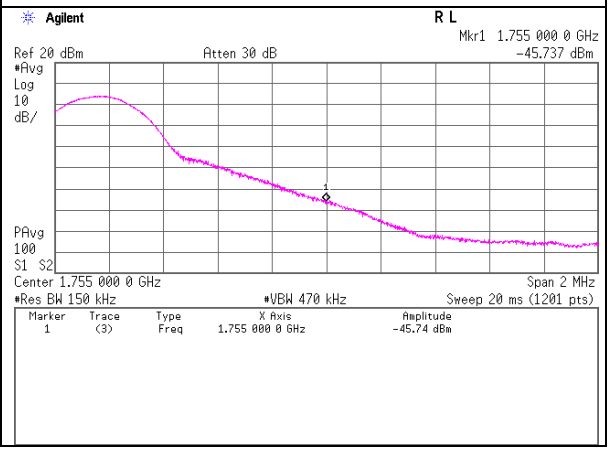
RB 75-0



RB 1-0



RB 1-74



Band-Edge(Conducted)

LTE Band IV

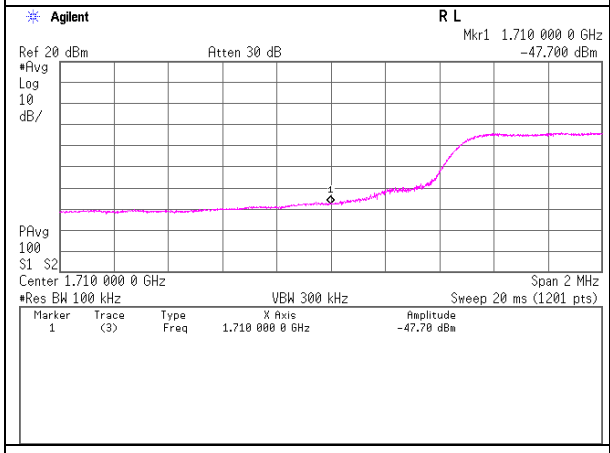
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 10MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
50	0	1710.00	-47.70	10.02	6.78	-30.90	-13.0	17.90
	0	1755.00	-46.59	10.02	6.79	-29.78	-13.0	16.78
1	0	1710.00	-48.86	10.02	6.78	-32.06	-13.0	19.06
	49	1755.00	-48.51	10.02	6.79	-31.70	-13.0	18.70

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

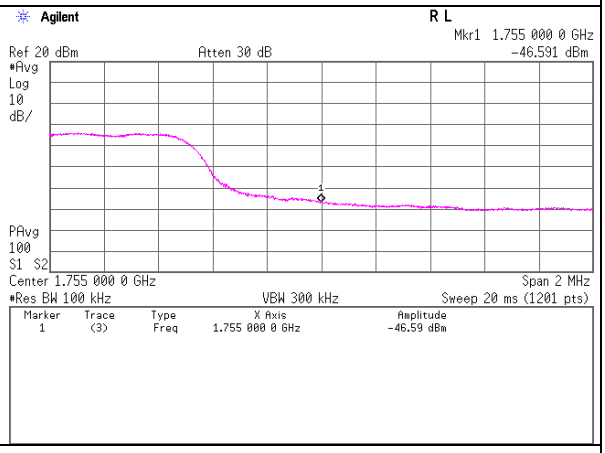
Low ch (Tx:1715.0MHz)

RB 50-0

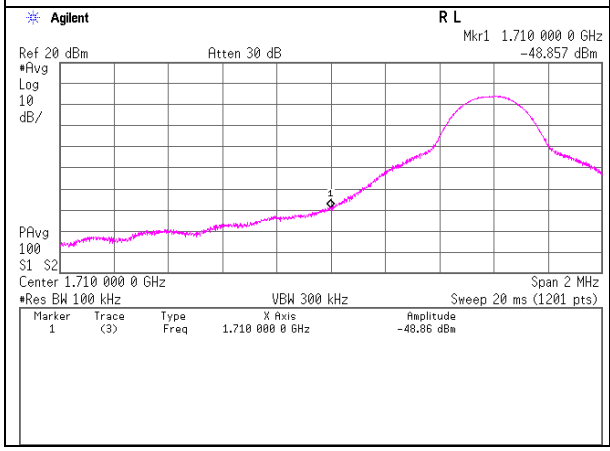


High ch (Tx:1750.0MHz)

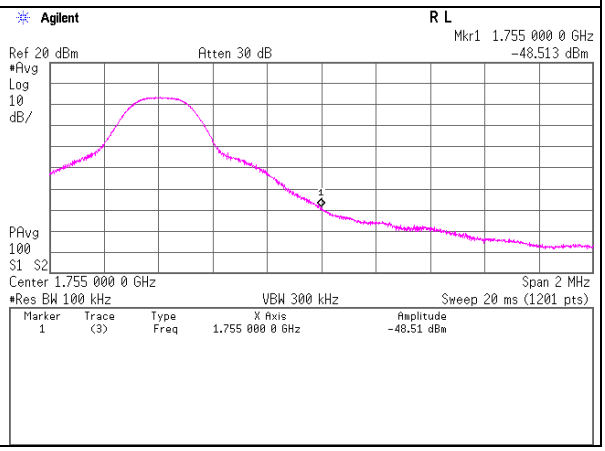
RB 50-0



RB 1-0



RB 1-49



Band-Edge(Conducted)

LTE Band IV

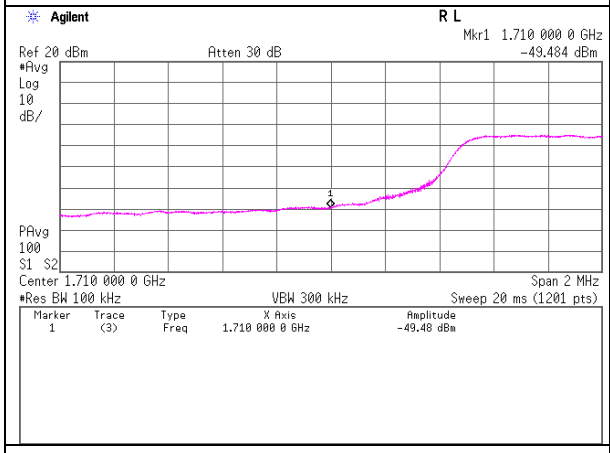
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 10MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
50	0	1710.00	-49.48	10.02	6.78	-32.68	-13.0	19.68
	0	1755.00	-46.92	10.02	6.79	-30.11	-13.0	17.11
1	0	1710.00	-49.17	10.02	6.78	-32.37	-13.0	19.37
	49	1755.00	-49.65	10.02	6.79	-32.84	-13.0	19.84

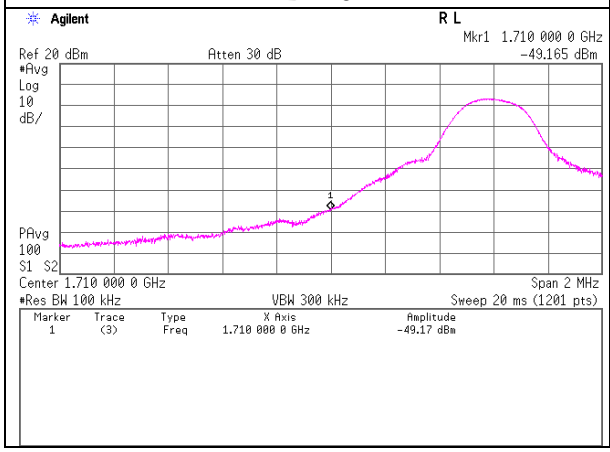
Sample Calculation : Result = Reading + Atten. + Cable Loss

Low ch (Tx:1715.0MHz)

RB 50-0

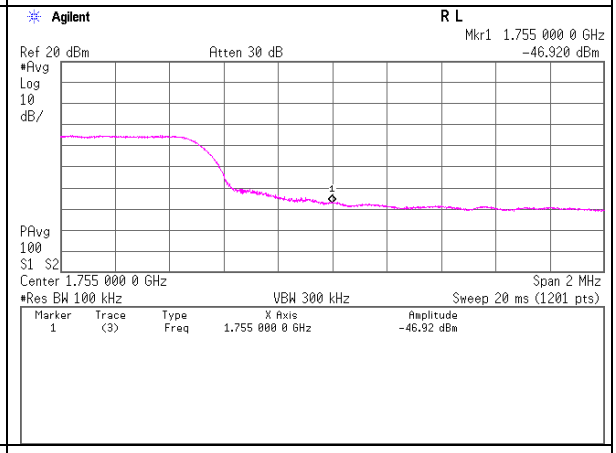


RB 1-0

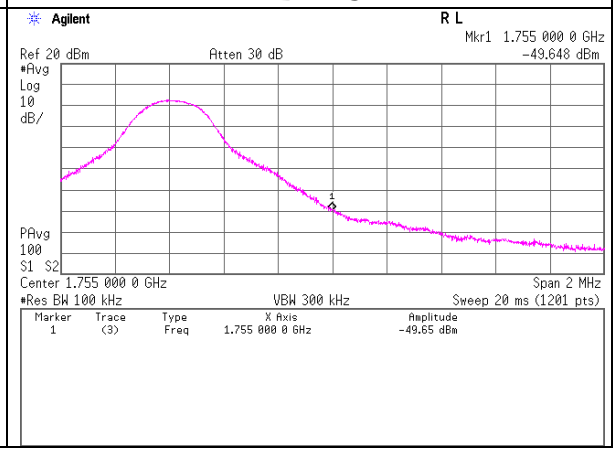


High ch (Tx:1750.0MHz)

RB 50-0



RB 1-49



Band-Edge(Conducted)

LTE Band IV

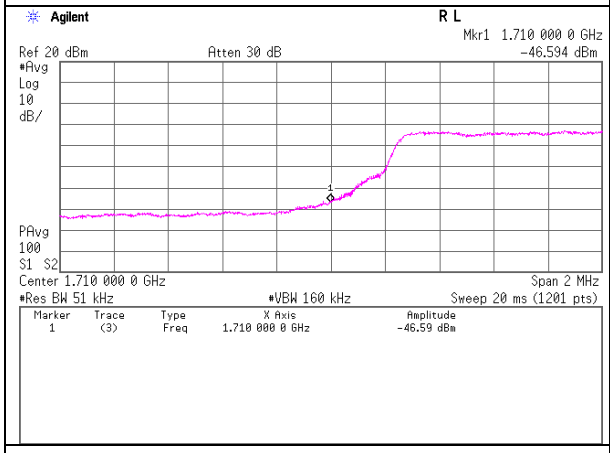
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 5MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
25	0	1710.00	-46.59	10.02	6.78	-29.79	-13.0	16.79
	0	1755.00	-44.97	10.02	6.79	-28.16	-13.0	15.16
1	0	1710.00	-38.06	10.02	6.78	-21.26	-13.0	8.26
	24	1755.00	-38.43	10.02	6.79	-21.62	-13.0	8.62

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

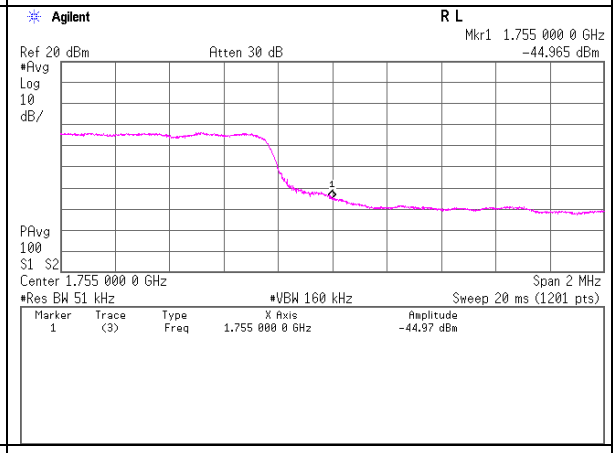
Low ch (Tx:1712.5MHz)

RB 25-0

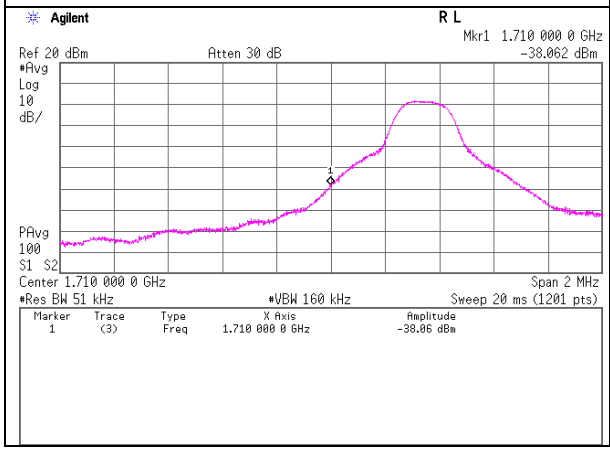


High ch (Tx:1752.5MHz)

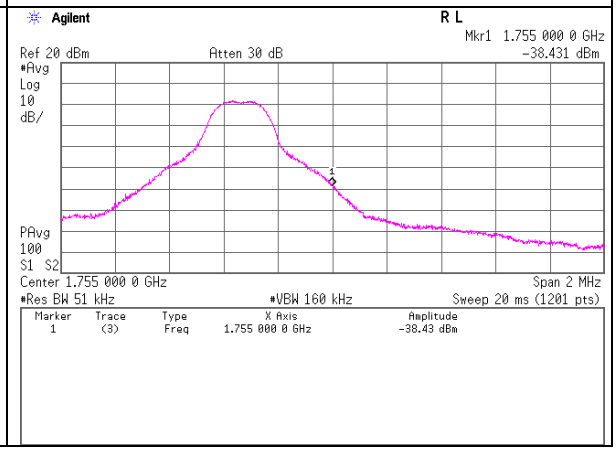
RB 25-0



RB 1-0



RB 1-24



Band-Edge(Conducted)

LTE Band IV

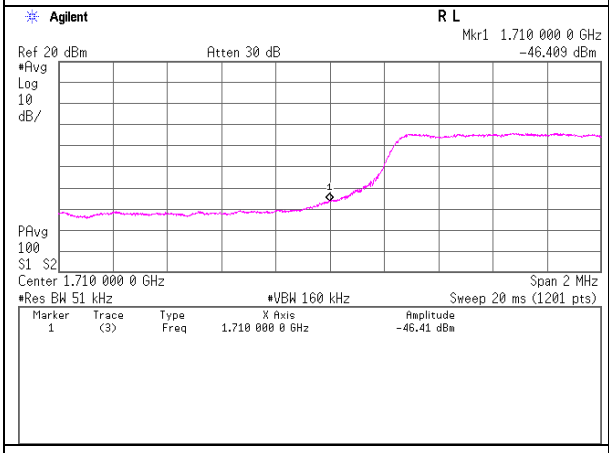
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 5MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
25	0	1710.00	-46.41	10.02	6.78	-29.61	-13.0	16.61
	0	1755.00	-45.97	10.02	6.79	-29.16	-13.0	16.16
1	0	1710.00	-39.70	10.02	6.78	-22.90	-13.0	9.90
	24	1755.00	-39.90	10.02	6.79	-23.09	-13.0	10.09

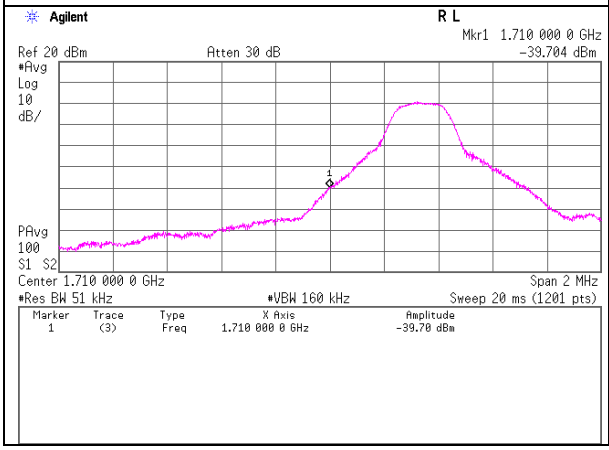
Sample Calculation : Result = Reading + Atten. + Cable Loss

Low ch (Tx:1712.5MHz)

RB 25-0

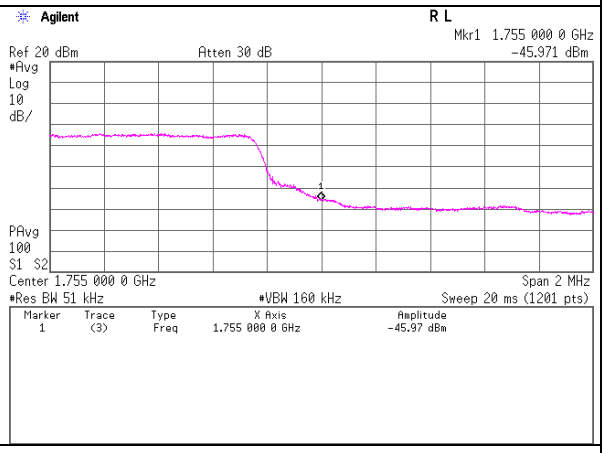


RB 1-0

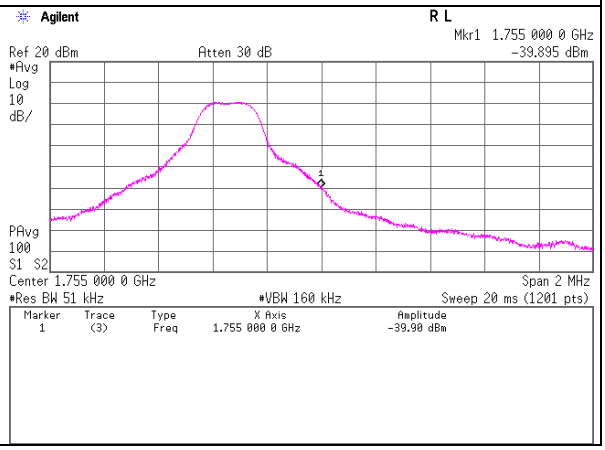


High ch (Tx:1752.5MHz)

RB 25-0



RB 1-24



Band-Edge(Conducted)

LTE Band IV

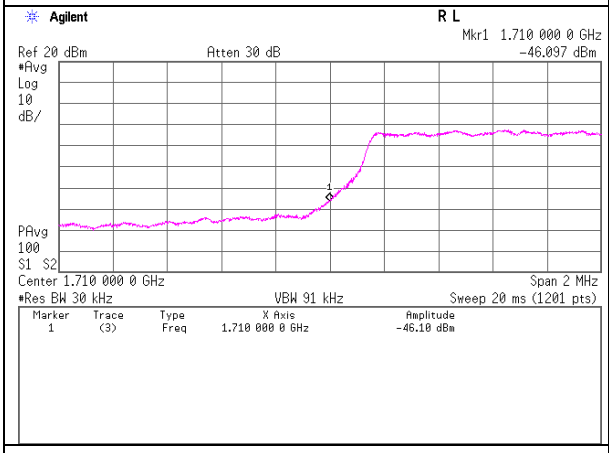
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 3MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
15	0	1710.00	-46.10	10.02	6.78	-29.30	-13.0	16.30
	0	1755.00	-45.05	10.02	6.79	-28.24	-13.0	15.24
1	0	1710.00	-36.64	10.02	6.78	-19.84	-13.0	6.84
	14	1755.00	-38.18	10.02	6.79	-21.37	-13.0	8.37

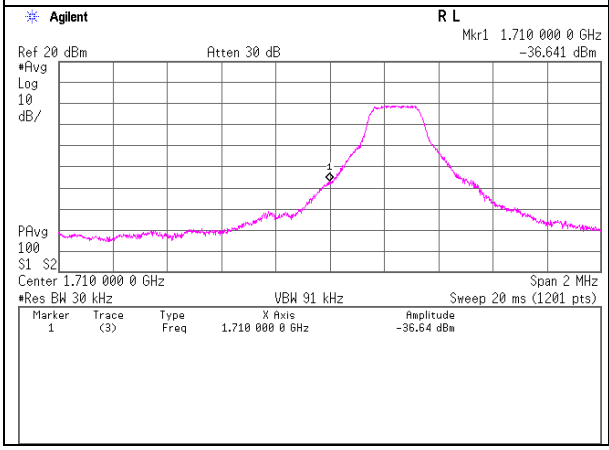
Sample Calculation : Result = Reading + Atten. + Cable Loss

Low ch (Tx:1711.5MHz)

RB 15-0

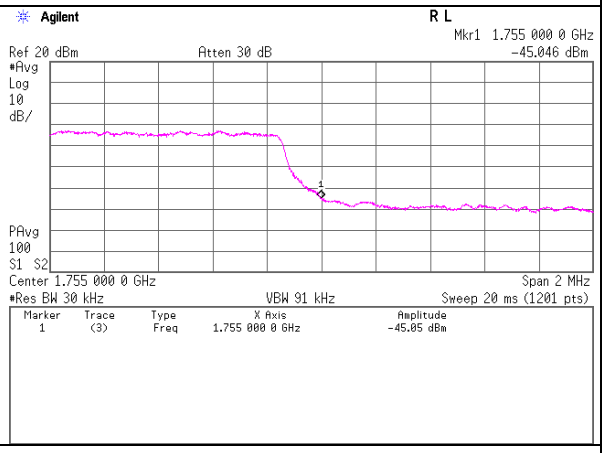


RB 1-0

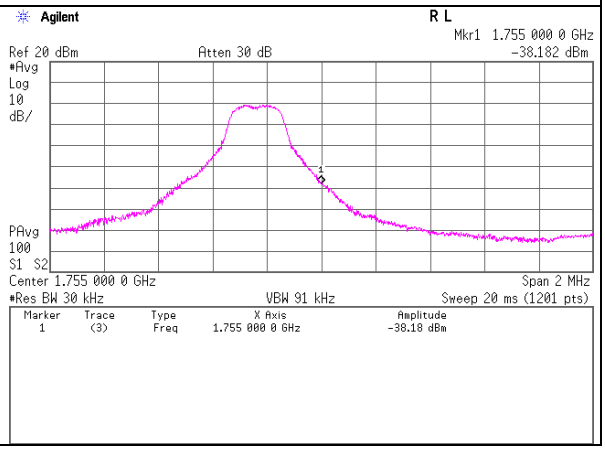


High ch (Tx:1753.5MHz)

RB 15-0



RB 1-14



Band-Edge(Conducted)

LTE Band IV

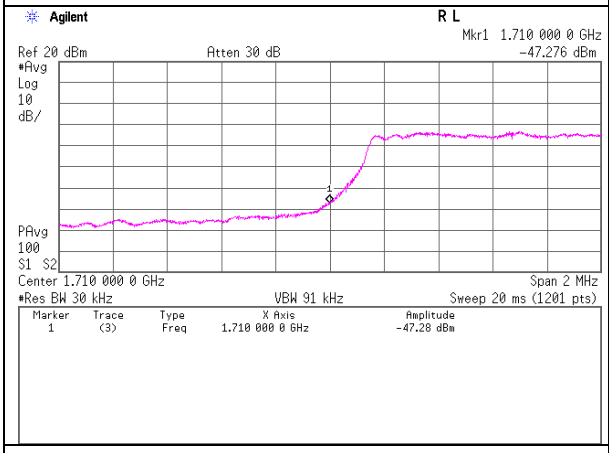
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 3MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
15	0	1710.00	-47.28	10.02	6.78	-30.48	-13.0	17.48
	0	1755.00	-43.98	10.02	6.79	-27.17	-13.0	14.17
1	0	1710.00	-37.77	10.02	6.78	-20.97	-13.0	7.97
	14	1755.00	-37.45	10.02	6.79	-20.64	-13.0	7.64

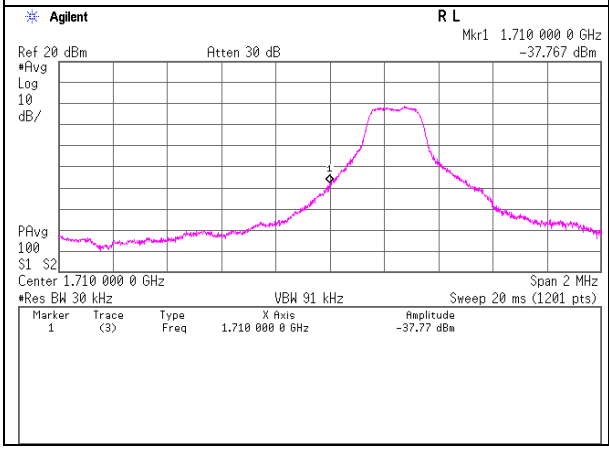
Sample Calculation : Result = Reading + Atten. + Cable Loss

Low ch (Tx:1711.5MHz)

RB 15-0

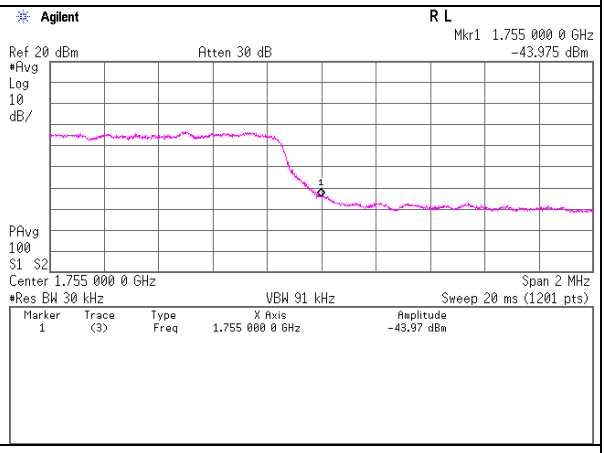


RB 1-0

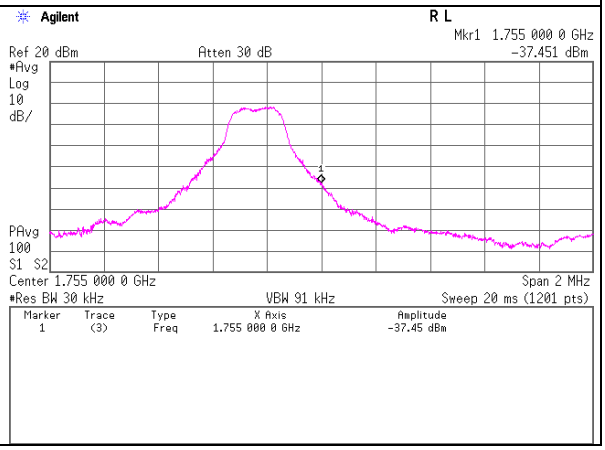


High ch (Tx:1753.5MHz)

RB 15-0



RB 1-14



Band-Edge(Conducted)

LTE Band IV

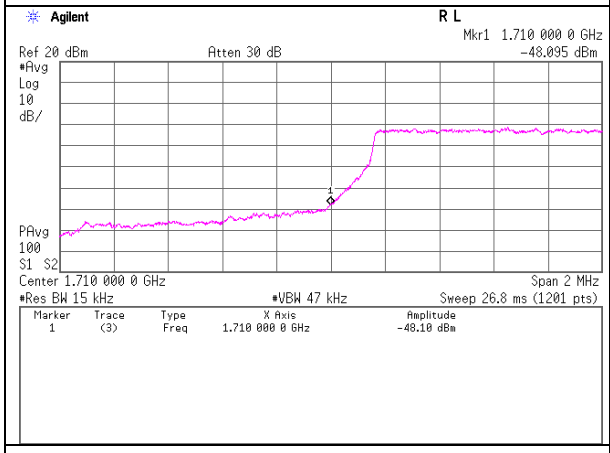
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 1.4MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
6	0	1710.00	-48.10	10.02	6.78	-31.30	-13.0	18.30
	0	1755.00	-45.85	10.02	6.79	-29.04	-13.0	16.04
1	0	1710.00	-41.06	10.02	6.78	-24.26	-13.0	11.26
	5	1755.00	-41.11	10.02	6.79	-24.30	-13.0	11.30

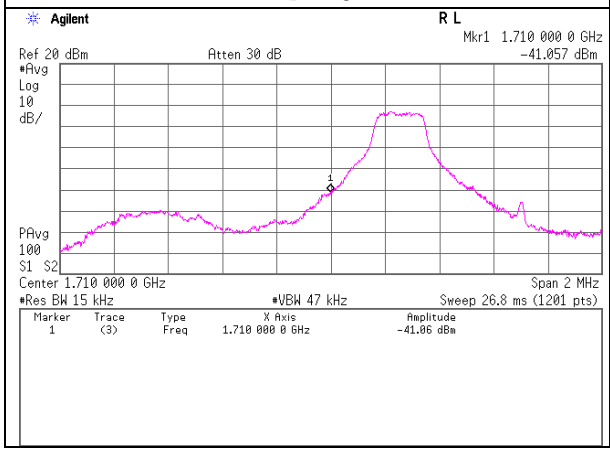
Sample Calculation : Result = Reading + Atten. + Cable Loss

Low ch (Tx:1710.7MHz)

RB 6-0

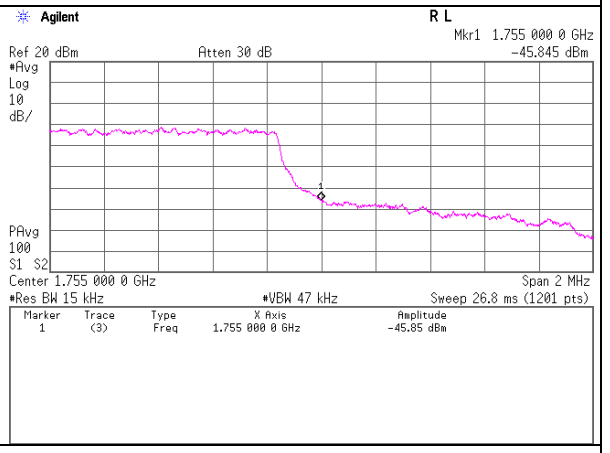


RB 1-0

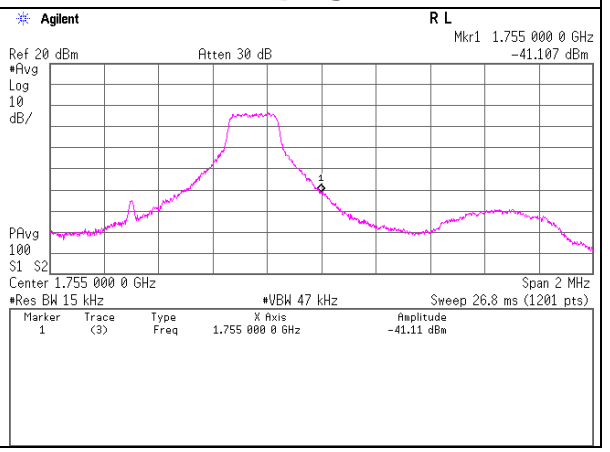


High ch (Tx:1754.3MHz)

RB 6-0



RB 1-5



Band-Edge(Conducted)

LTE Band IV

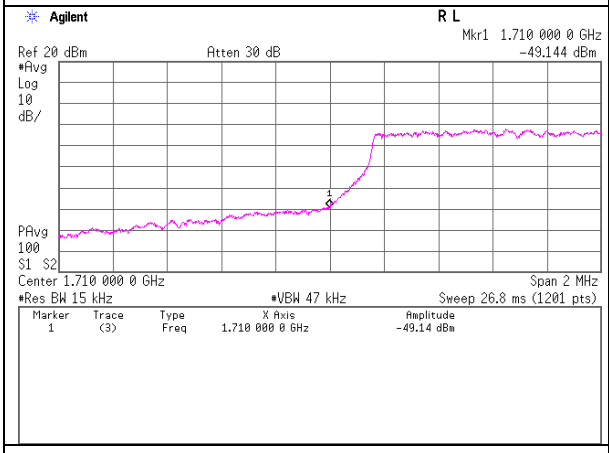
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 1.4MHz

RB Size	RB Start	Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
6	0	1710.00	-49.14	10.02	6.78	-32.34	-13.0	19.34
	0	1755.00	-46.83	10.02	6.79	-30.02	-13.0	17.02
1	0	1710.00	-42.15	10.02	6.78	-25.35	-13.0	12.35
	5	1755.00	-42.29	10.02	6.79	-25.48	-13.0	12.48

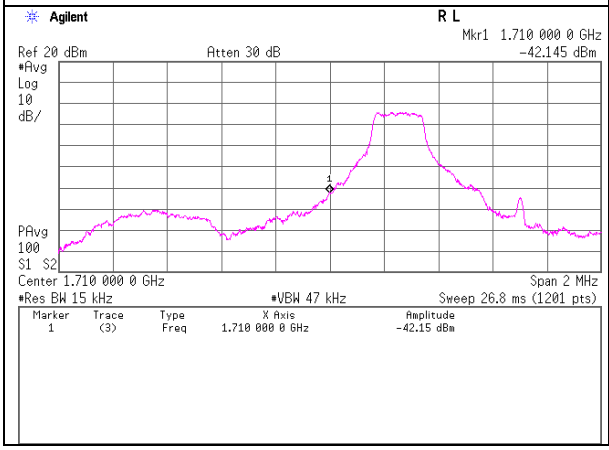
Sample Calculation : Result = Reading + Atten. + Cable Loss

Low ch (Tx:1710.7MHz)

RB 6-0

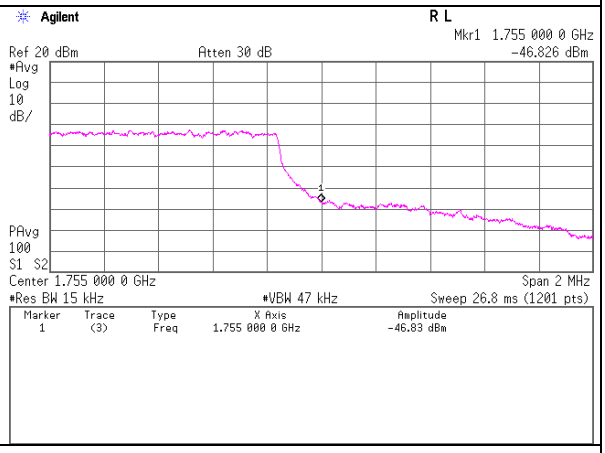


RB 1-0

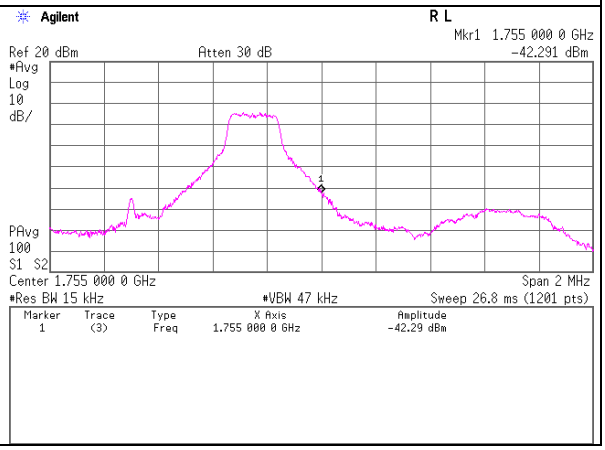


High ch (Tx:1754.3MHz)

RB 6-0



RB 1-5



Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 20MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
100	0	Lower	2500.00	-30.22	-10.0	20.22
	0		2499.00	-27.52	-10.0	17.52
	0		2490.60	-28.53	-13.0	15.53
	0		2490.40	-29.28	-25.0	4.28
	0	Upper	2570.60	-25.71	-10.0	15.71
	0		2571.00	-21.98	-10.0	11.98
	0		2575.70	-24.33	-13.0	11.33
	0		2590.00	-42.45	-25.0	17.45
1	0	Lower	2500.00	-27.05	-10.0	17.05
	0		2499.00	-40.88	-10.0	30.88
	0		2492.30	-34.74	-13.0	21.74
	0		2489.70	-41.50	-25.0	16.50
	99	Upper	2570.00	-27.15	-10.0	17.15
	99		2571.00	-41.73	-10.0	31.73
	99		2577.80	-36.34	-13.0	23.34
	99		2594.10	-45.35	-25.0	20.35

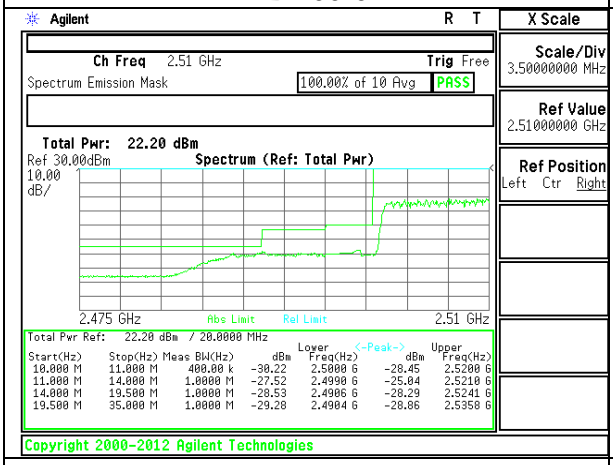
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

LTE Band VII (QPSK)

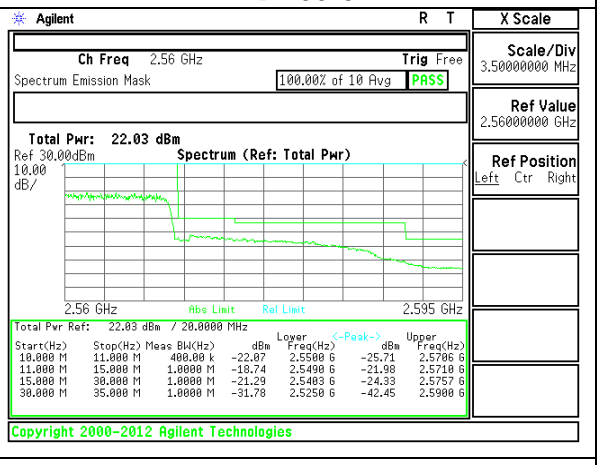
Low ch (Tx:2510.0MHz)

RB 100-0

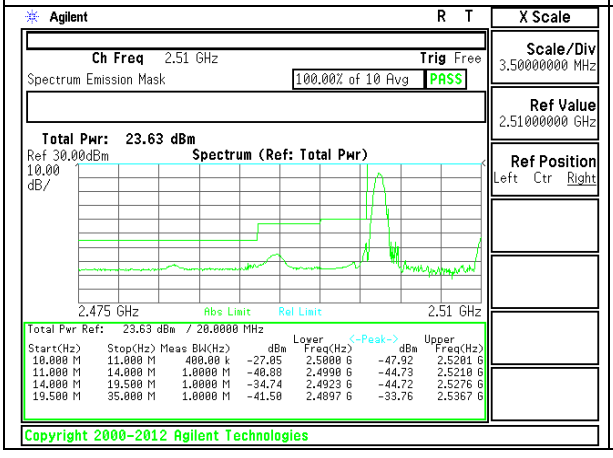


High ch (Tx:2560.0MHz)

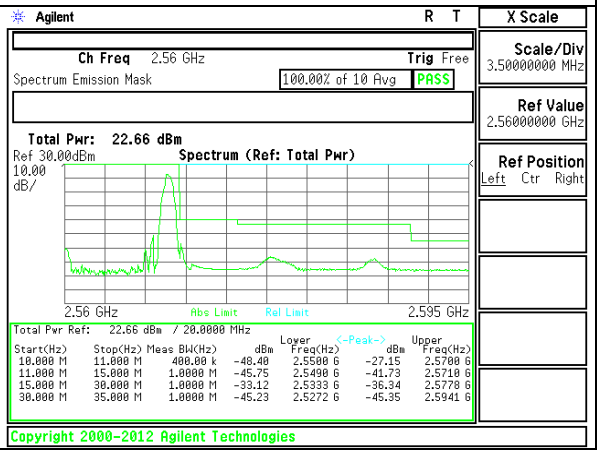
RB 100-0



RB 1-0



RB 1-99



Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 20MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
100	0	Lower	2500.00	-32.12	-10.0	22.12
	0		2498.80	-29.34	-10.0	19.34
	0		2495.80	-30.42	-13.0	17.42
	0		2490.50	-31.07	-25.0	6.07
	0	Upper	2570.40	-27.09	-10.0	17.09
	0		2571.00	-23.51	-10.0	13.51
	0		2575.40	-25.00	-13.0	12.00
	0		2590.10	-40.17	-25.0	15.17
1	0	Lower	2500.00	-27.61	-10.0	17.61
	0		2499.00	-42.93	-10.0	32.93
	0		2492.20	-34.77	-13.0	21.77
	0		2490.50	-43.38	-25.0	18.38
	99	Upper	2570.00	-26.01	-10.0	16.01
	99		2571.00	-42.46	-10.0	32.46
	99		2577.70	-37.03	-13.0	24.03
	99		2593.90	-45.31	-25.0	20.31

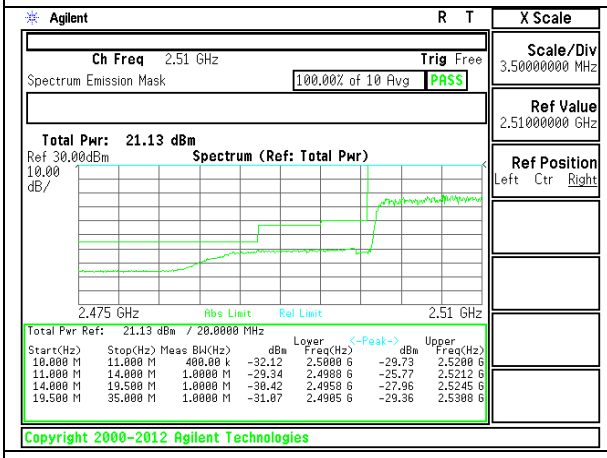
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

LTE Band VII (16QAM)

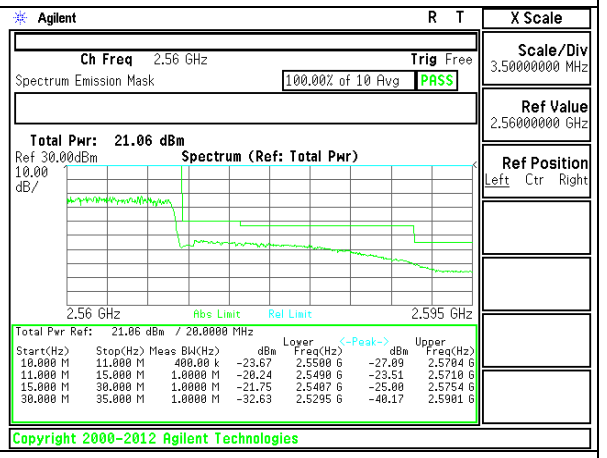
Low ch (Tx:2510.0MHz)

RB 100-0

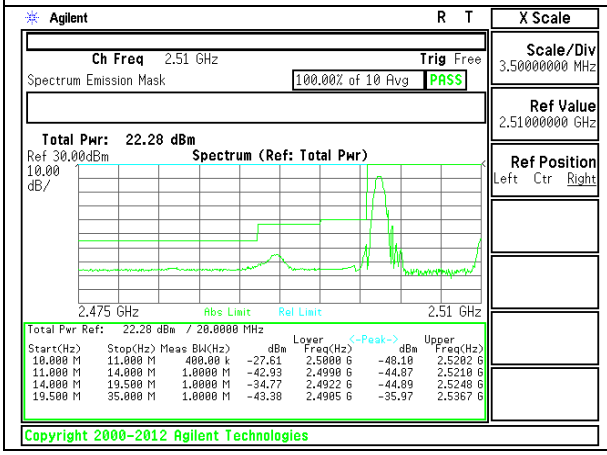


High ch (Tx:2560.0MHz)

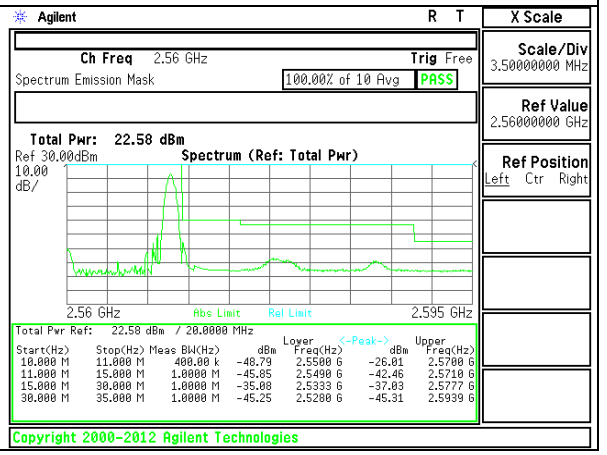
RB 100-0



RB 1-0



RB 1-99



Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 15MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
75	0	Lower	2500.00	-27.09	-10.0	17.09
	0		2497.10	-24.24	-10.0	14.24
	0		2495.50	-26.39	-13.0	13.39
	0		2490.50	-30.35	-25.0	5.35
	0	Upper	2570.10	-26.78	-10.0	16.78
	0		2572.80	-23.91	-10.0	13.91
	0		2575.10	-27.62	-13.0	14.62
	0		2585.00	-37.78	-25.0	12.78
1	0	Lower	2500.00	-22.33	-10.0	12.33
	0		2499.00	-39.94	-10.0	29.94
	0		2494.10	-33.57	-13.0	20.57
	0		2487.40	-35.62	-25.0	10.62
	74	Upper	2570.00	-22.91	-10.0	12.91
	74		2571.00	-39.78	-10.0	29.78
	74		2582.40	-36.42	-13.0	23.42
	74		2586.10	-44.16	-25.0	19.16

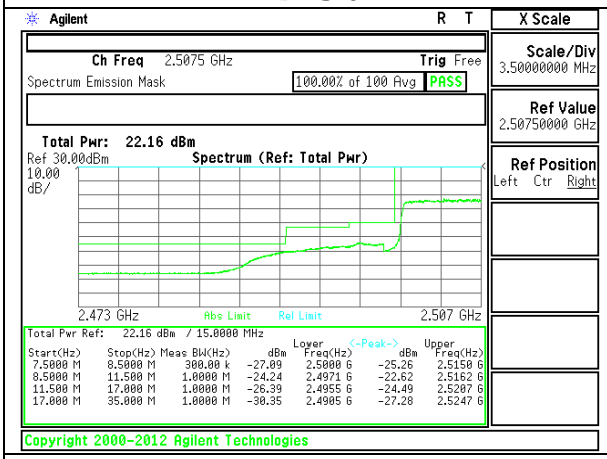
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

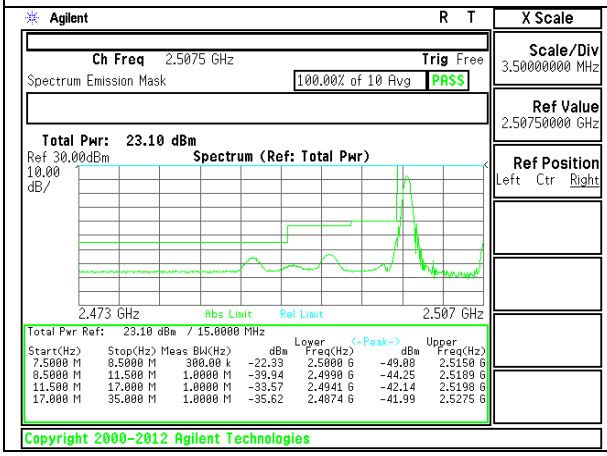
LTE Band VII (QPSK)

Low ch (Tx:2507.5MHz)

RB 75-0

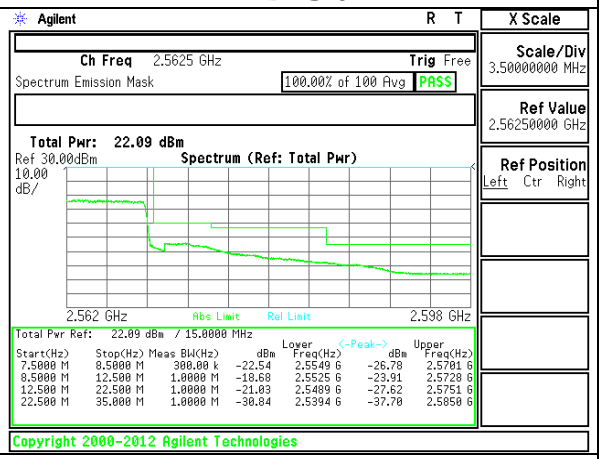


RB 1-0

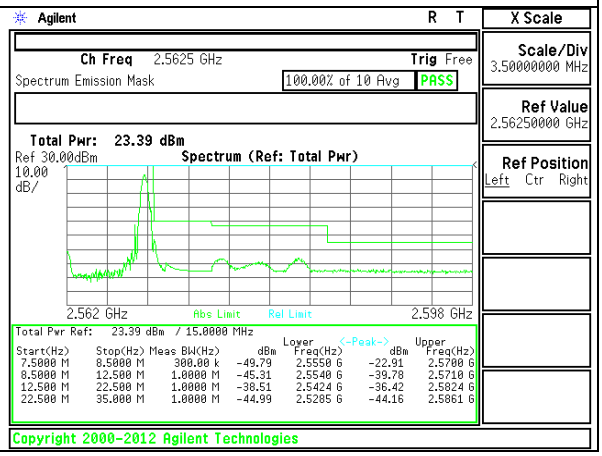


High ch (Tx:2562.5MHz)

RB 75-0



RB 1-74



Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 15MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
75	0	Lower	2500.00	-28.35	-10.0	18.35
	0		2497.40	-25.24	-10.0	15.24
	0		2495.90	-26.93	-13.0	13.93
	0		2490.50	-32.13	-25.0	7.13
	0	Upper	2570.00	-29.23	-10.0	19.23
	0		2572.30	-25.66	-10.0	15.66
	0		2575.00	-30.15	-13.0	17.15
	0		2585.40	-38.42	-25.0	13.42
1	0	Lower	2500.00	-23.23	-10.0	13.23
	0		2499.00	-42.48	-10.0	32.48
	0		2494.10	-34.23	-13.0	21.23
	0		2487.50	-36.95	-25.0	11.95
	74	Upper	2570.00	-25.08	-10.0	15.08
	74		2571.00	-42.33	-10.0	32.33
	74		2582.40	-36.91	-13.0	23.91
	74		2585.50	-44.78	-25.0	19.78

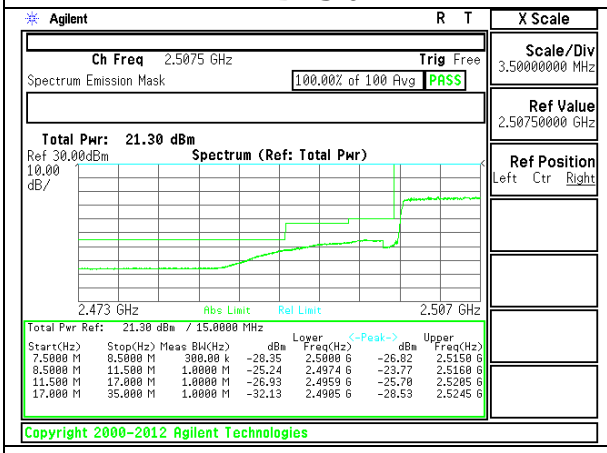
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

LTE Band VII (16QAM)

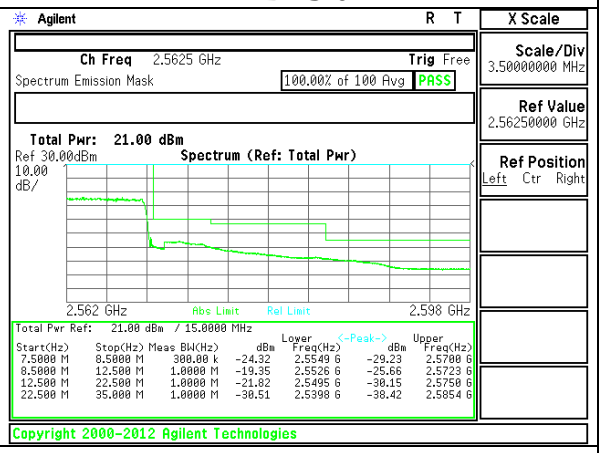
Low ch (Tx:2507.5MHz)

RB 75-0

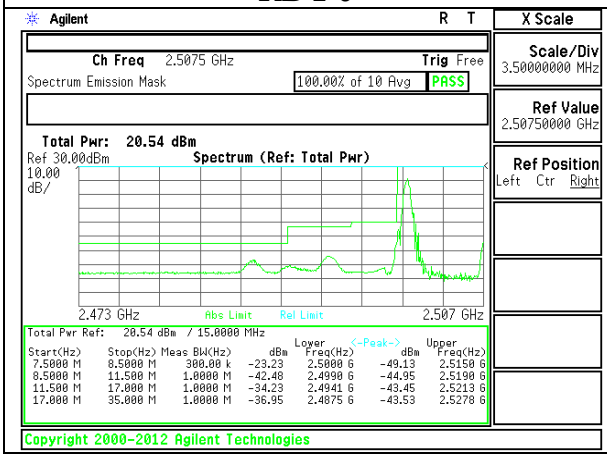


High ch (Tx:2562.5MHz)

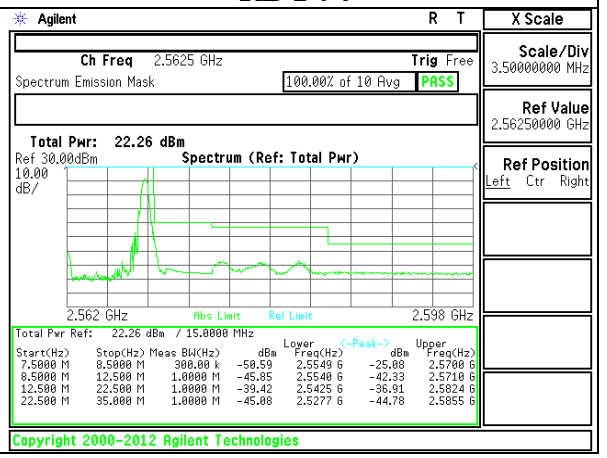
RB 75-0



RB 1-0



RB 1-74



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Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 10MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
50	0	Lower	2500.00	-26.44	-10.0	16.44
	0		2499.00	-22.99	-10.0	12.99
	0		2495.70	-26.18	-13.0	13.18
	0		2490.50	-37.05	-25.0	12.05
	0	Upper	2570.00	-26.11	-10.0	16.11
	0		2571.00	-22.46	-10.0	12.46
	0		2575.00	-27.69	-13.0	14.69
	0		2580.10	-36.33	-25.0	11.33
1	0	Lower	2500.00	-21.37	-10.0	11.37
	0		2499.00	-34.01	-10.0	24.01
	0		2491.60	-33.27	-13.0	20.27
	0		2490.50	-41.36	-25.0	16.36
	49	Upper	2570.00	-26.62	-10.0	16.62
	49		2573.70	-35.10	-10.0	25.10
	49		2578.20	-35.09	-13.0	22.09
	49		2580.00	-41.22	-25.0	16.22

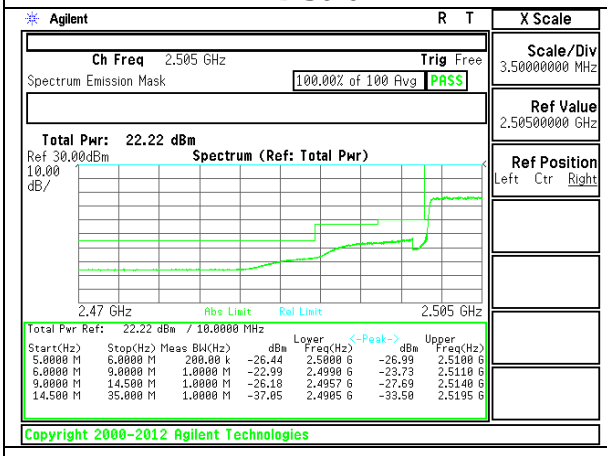
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

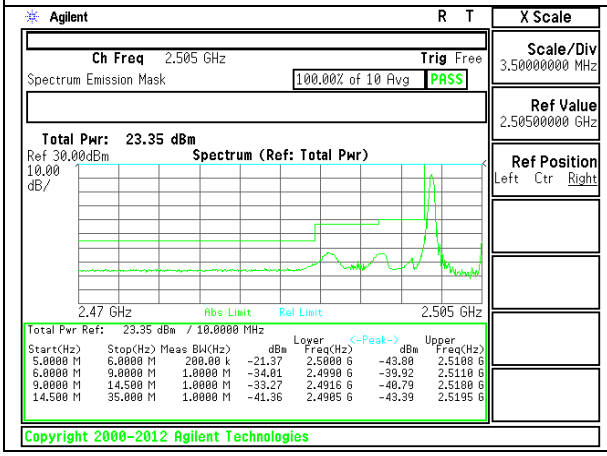
LTE Band VII (QPSK)

Low ch (Tx:2505.0MHz)

RB 50-0

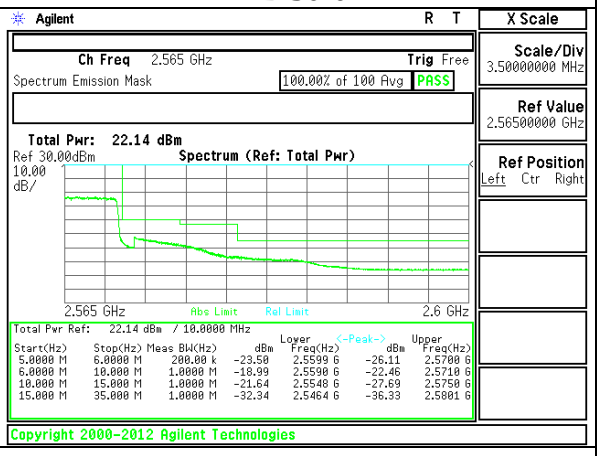


RB 1-0

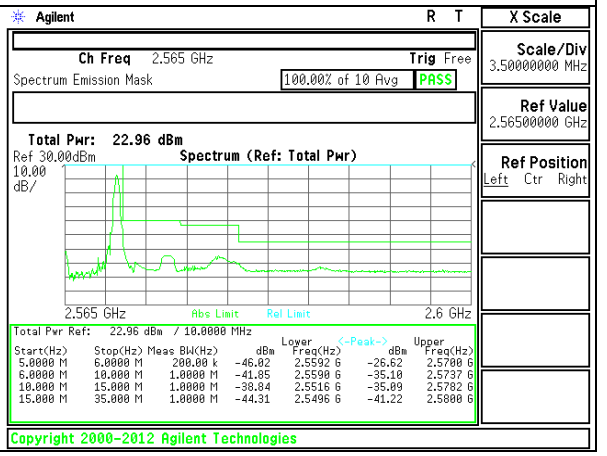


High ch (Tx:2565.0MHz)

RB 50-0



RB 1-49



Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 10MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
50	0	Lower	2500.00	-27.29	-10.0	17.29
	0		2499.00	-23.42	-10.0	13.42
	0		2496.00	-27.08	-13.0	14.08
	0		2490.50	-36.40	-25.0	11.40
	0	Upper	2570.00	-27.92	-10.0	17.92
	0		2571.00	-23.56	-10.0	13.56
	0		2575.00	-30.51	-13.0	17.51
	0		2580.60	-38.44	-25.0	13.44
1	0	Lower	2500.00	-22.70	-10.0	12.70
	0		2499.00	-34.83	-10.0	24.83
	0		2491.70	-34.55	-13.0	21.55
	0		2490.20	-41.32	-25.0	16.32
	49	Upper	2570.00	-27.50	-10.0	17.50
	49		2573.80	-36.44	-10.0	26.44
	49		2578.10	-35.59	-13.0	22.59
	49		2580.00	-40.44	-25.0	15.44

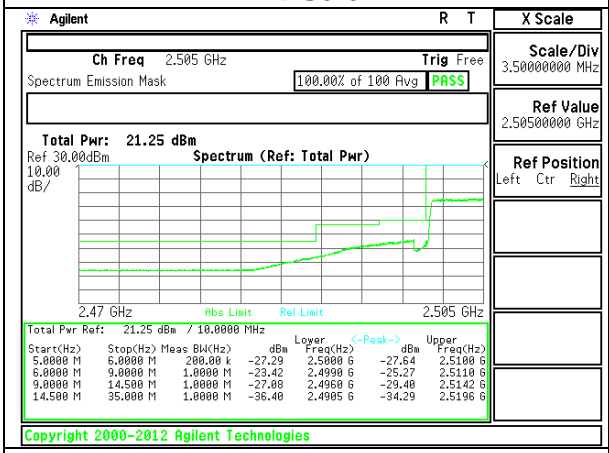
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

LTE Band VII (16QAM)

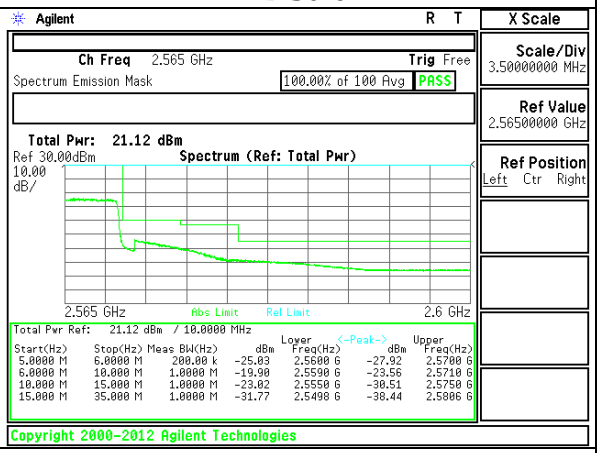
Low ch (Tx:2505.0MHz)

RB 50-0

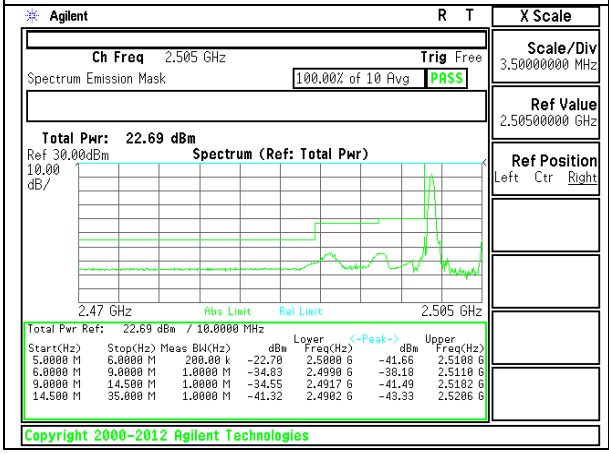


High ch (Tx:2565.0MHz)

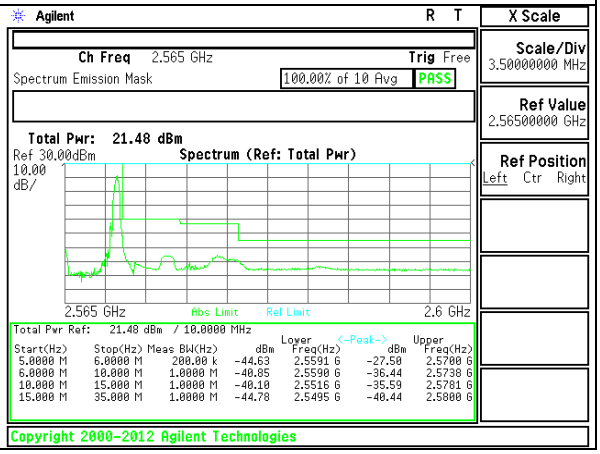
RB 50-0



RB 1-0



RB 1-49



Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 5MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
25	0	Lower	2500.00	-21.18	-10.0	11.18
	0		2499.00	-31.24	-10.0	21.24
	0		2495.90	-32.24	-13.0	19.24
	0		2492.50	-33.04	-25.0	8.04
	0	Upper	2570.00	-27.98	-10.0	17.98
	0		2571.00	-27.18	-10.0	17.18
	0		2575.50	-33.64	-13.0	20.64
	0		2576.40	-33.20	-25.0	8.20
1	0	Lower	2500.00	-12.69	-10.0	2.69
	0		2499.00	-31.52	-10.0	21.52
	0		2496.00	-31.95	-13.0	18.95
	0		2490.60	-38.86	-25.0	13.86
	24	Upper	2570.00	-18.99	-10.0	8.99
	24		2573.80	-30.93	-10.0	20.93
	24		2575.00	-41.95	-13.0	28.95
	24		2579.50	-36.69	-25.0	11.69

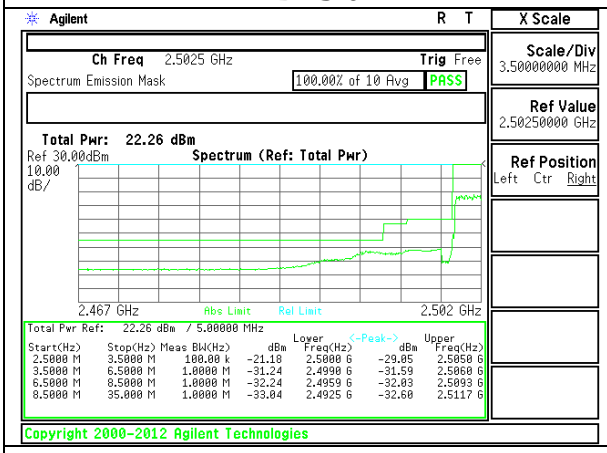
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

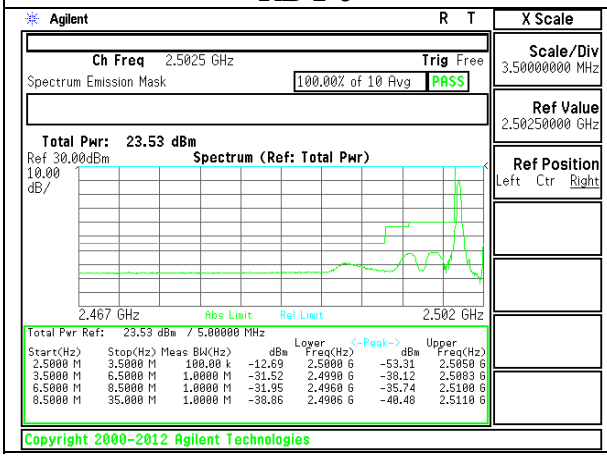
LTE Band VII (QPSK)

Low ch (Tx:2502.5MHz)

RB 25-0

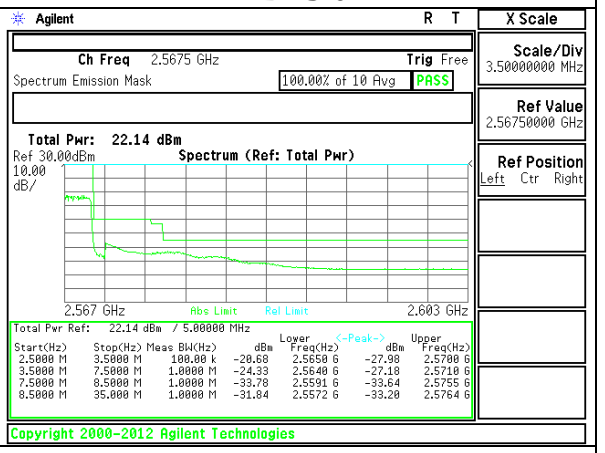


RB 1-0

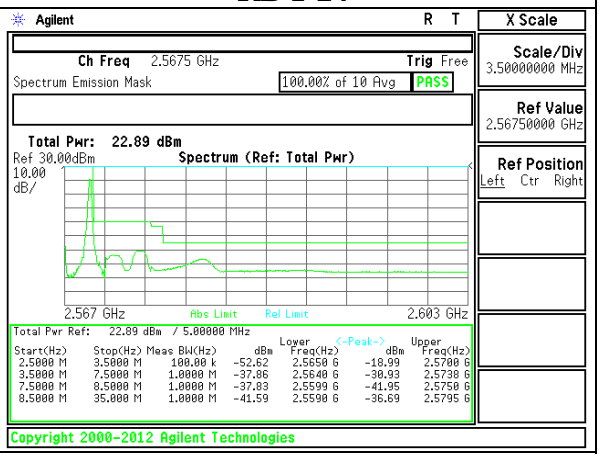


High ch (Tx:2567.5MHz)

RB 25-0



RB 1-24



Band-Edge(Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/29/2015
Temperature/ Humidity	22deg.C / 41% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 5MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
25	0	Lower	2500.00	-25.33	-10.0	15.33
	0		2499.00	-32.16	-10.0	22.16
	0		2495.70	-34.08	-13.0	21.08
	0		2493.50	-34.59	-25.0	9.59
	0	Upper	2570.00	-29.34	-10.0	19.34
	0		2571.00	-28.82	-10.0	18.82
	0		2575.60	-33.84	-13.0	20.84
	0		2576.00	-34.08	-25.0	9.08
1	0	Lower	2500.00	-11.59	-10.0	1.59
	0		2499.00	-30.03	-10.0	20.03
	0		2496.00	-33.98	-13.0	20.98
	0		2490.40	-38.90	-25.0	13.90
	24	Upper	2570.00	-19.80	-10.0	9.80
	24		2573.80	-32.41	-10.0	22.41
	24		2575.00	-42.30	-13.0	29.30
	24		2579.60	-35.91	-25.0	10.91

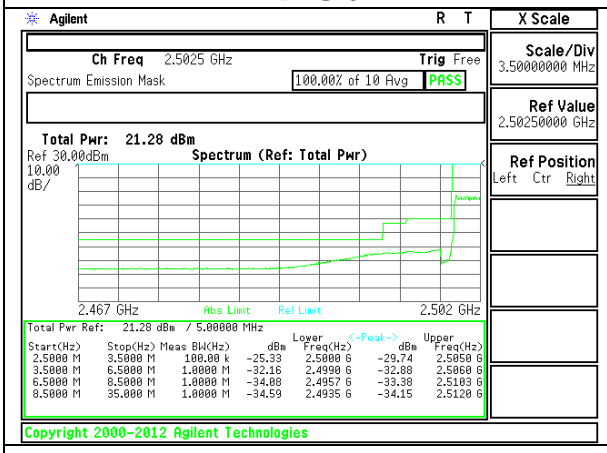
The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

Band-Edge(Conducted)

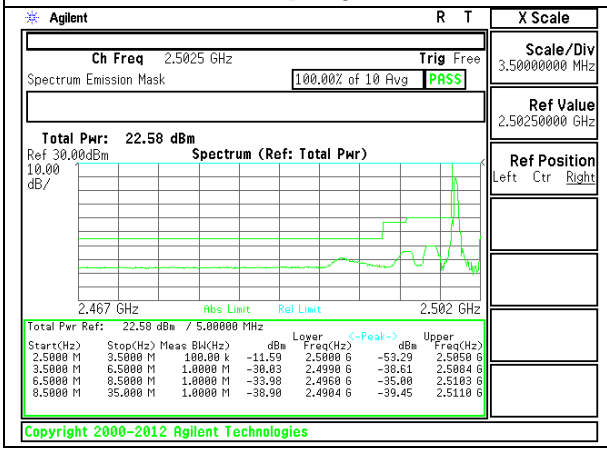
LTE Band VII (16QAM)

Low ch (Tx:2502.5MHz)

RB 25-0

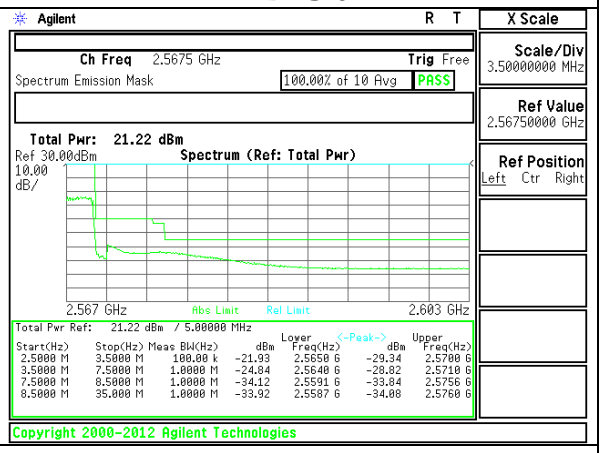


RB 1-0

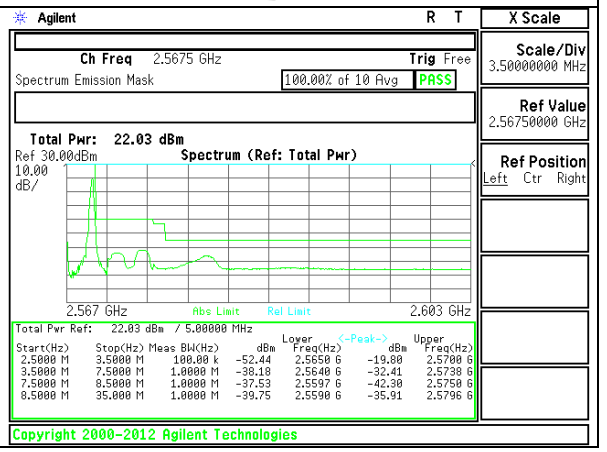


High ch (Tx:2567.5MHz)

RB 25-0



RB 1-24



Band-Edge(Conducted)

LTE Band XVII

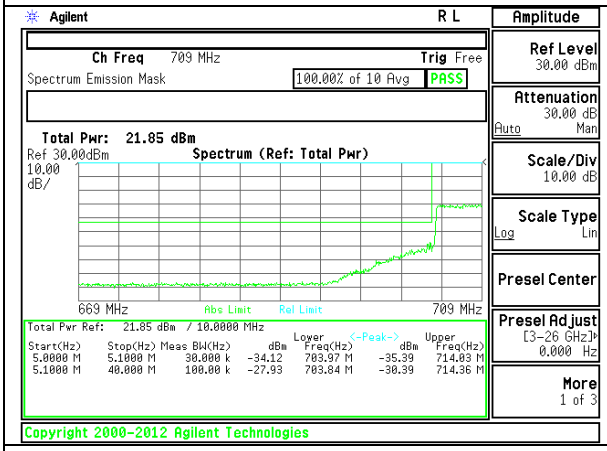
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 10MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
50	0	Lower	703.97	-34.12	-13.0	21.12
	0		703.84	-27.93	-13.0	14.93
	0	Upper	716.03	-36.59	-13.0	23.59
	0		716.96	-31.80	-13.0	18.80
1	0	Lower	703.97	-40.05	-13.0	27.05
	0		700.17	-32.55	-13.0	19.55
	49	Upper	716.10	-39.28	-13.0	26.28
	49		719.69	-33.62	-13.0	20.62

The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

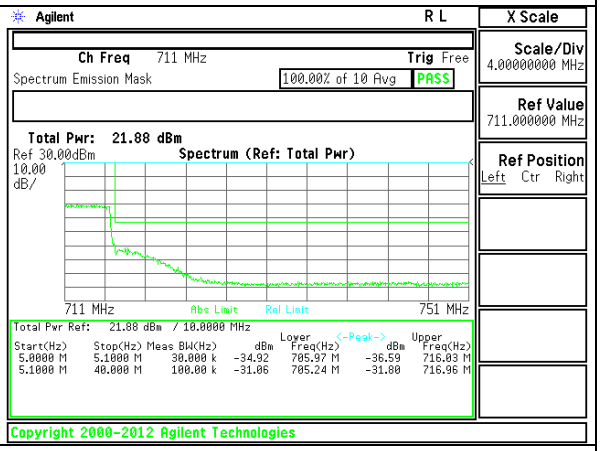
Low ch (Tx:709.0MHz)

RB 50-0

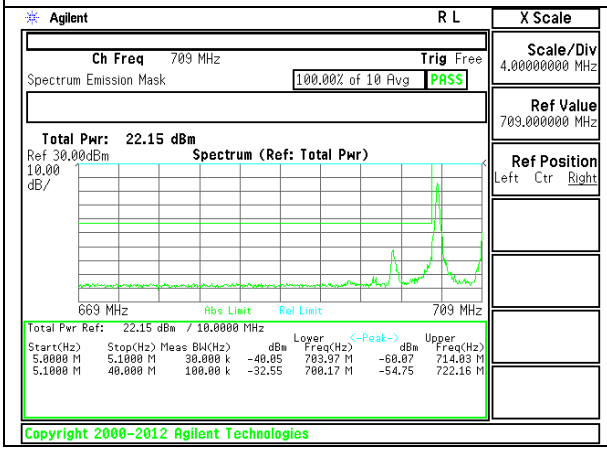


High ch (Tx:711.0MHz)

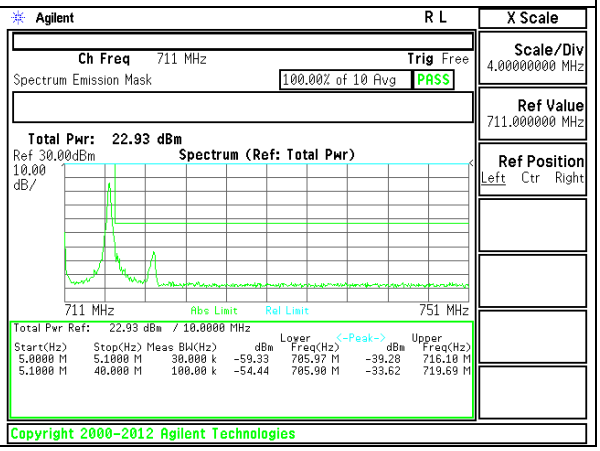
RB 50-0



RB 1-0



RB 1-49



Band-Edge(Conducted)

LTE Band XVII

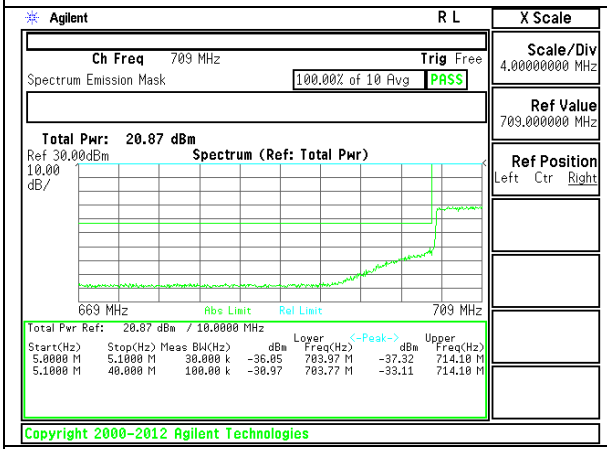
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 10MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
50	0	Lower	703.97	-36.05	-13.0	23.05
	0		703.77	-30.97	-13.0	17.97
	0	Upper	716.03	-38.51	-13.0	25.51
	0		716.10	-32.91	-13.0	19.91
1	0	Lower	703.97	-40.56	-13.0	27.56
	0		700.17	-33.13	-13.0	20.13
	49	Upper	716.03	-45.17	-13.0	32.17
	49		719.69	-35.76	-13.0	22.76

The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

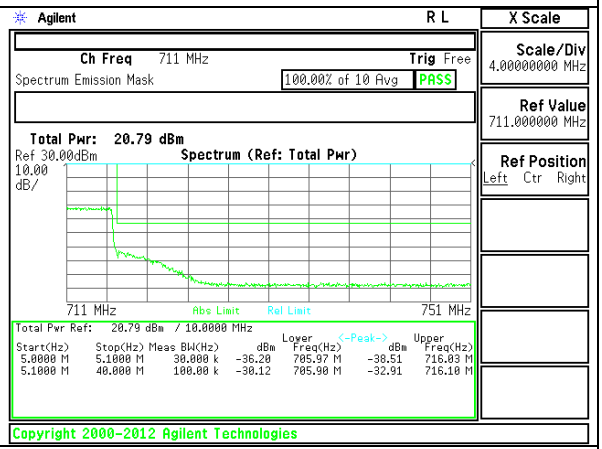
Low ch (Tx:709.0MHz)

RB 50-0

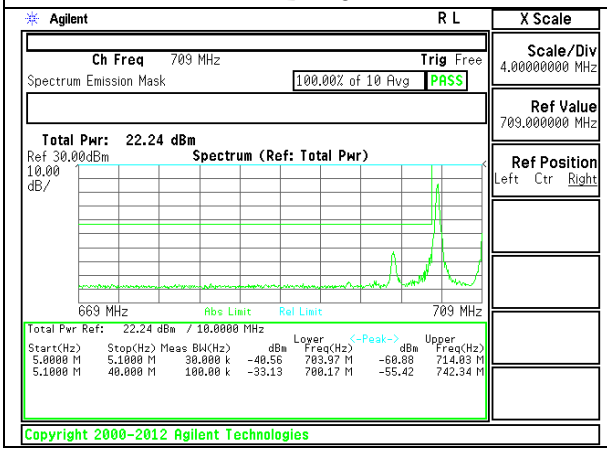


High ch (Tx:711.0MHz)

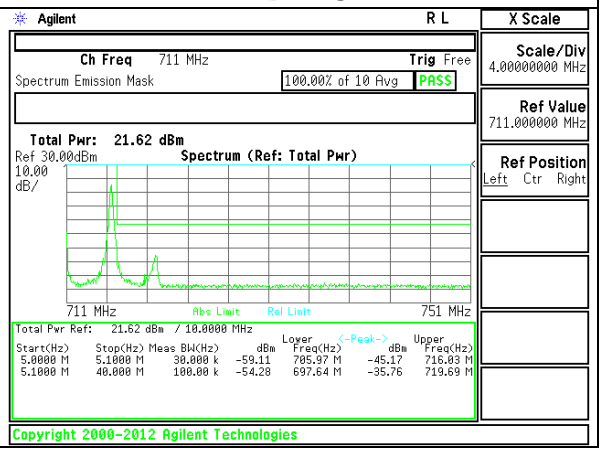
RB 50-0



RB 1-0



RB 1-49



Band-Edge(Conducted)

LTE Band XVII

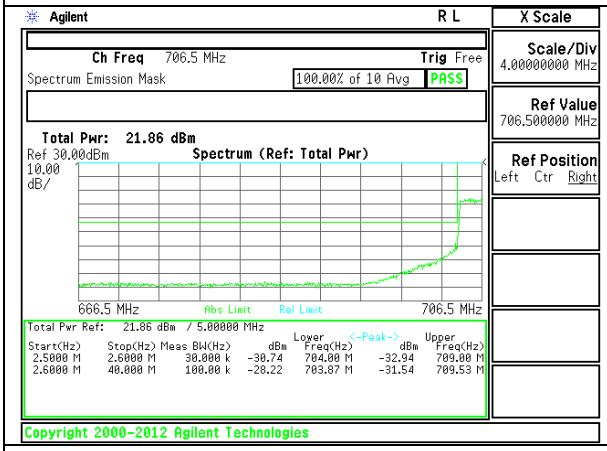
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 5MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
25	0	Lower	704.00	-30.74	-13.0	17.74
	0		703.87	-28.22	-13.0	15.22
	0	Upper	716.00	-31.86	-13.0	18.86
	0		716.13	-28.26	-13.0	15.26
1	0	Lower	704.00	-21.10	-13.0	8.10
	0		703.87	-28.55	-13.0	15.55
	24	Upper	716.00	-27.61	-13.0	14.61
	24		716.13	-29.08	-13.0	16.08

The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

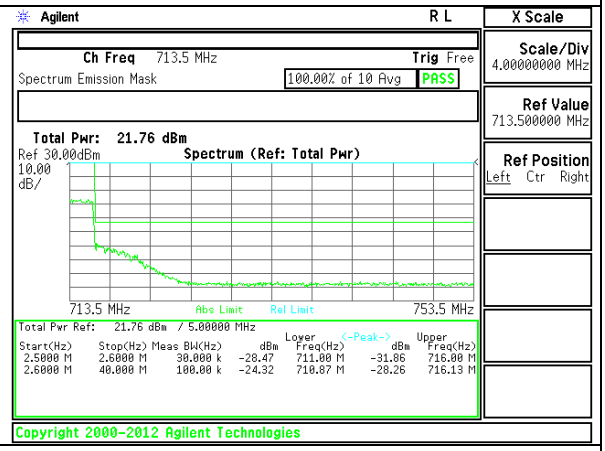
Low ch (Tx:706.5MHz)

RB 25-0

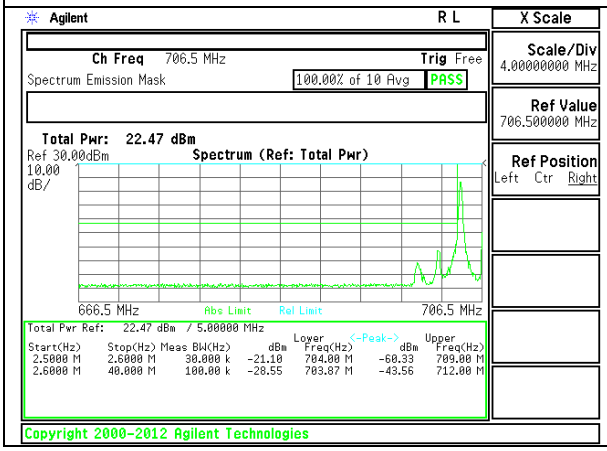


High ch (Tx:713.5MHz)

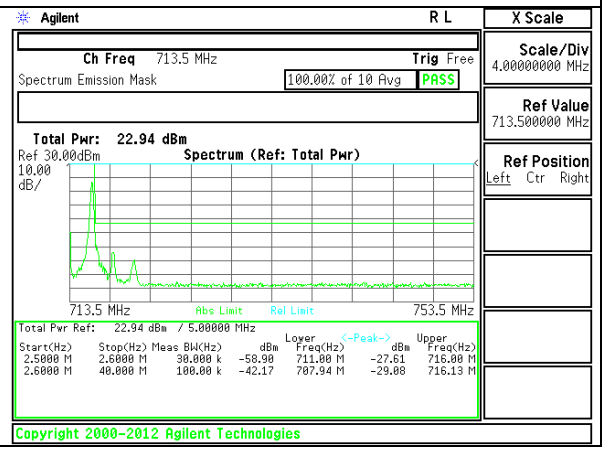
RB 25-0



RB 1-0



RB 1-24



Band-Edge(Conducted)

LTE Band XVII

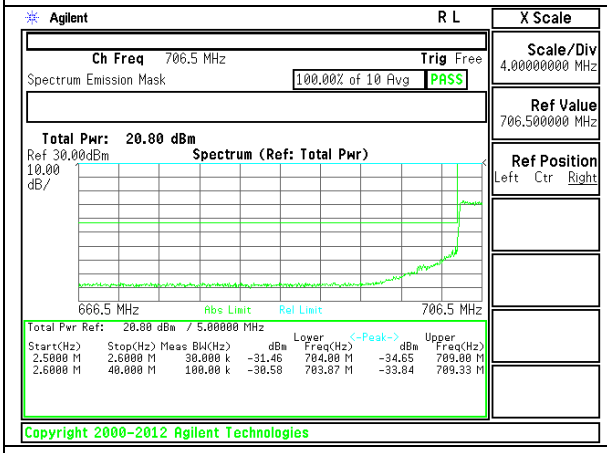
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	17deg.C / 40% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 5MHz

RB Size	RB Start	Band-Edge Lower/Upper	Frequency [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
25	0	Lower	704.00	-31.46	-13.0	18.46
	0		703.87	-30.58	-13.0	17.58
	0	Upper	716.00	-33.91	-13.0	20.91
	0		716.26	-30.03	-13.0	17.03
1	0	Lower	704.00	-22.62	-13.0	9.62
	0		703.87	-27.46	-13.0	14.46
	24	Upper	716.00	-28.57	-13.0	15.57
	24		716.26	-31.63	-13.0	18.63

The cable and attenuator loss were set to Spectrum Analyzer as a correction factor.

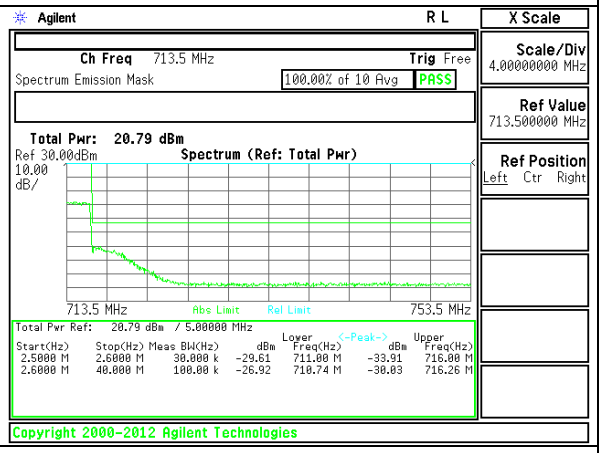
Low ch (Tx:706.5MHz)

RB 25-0

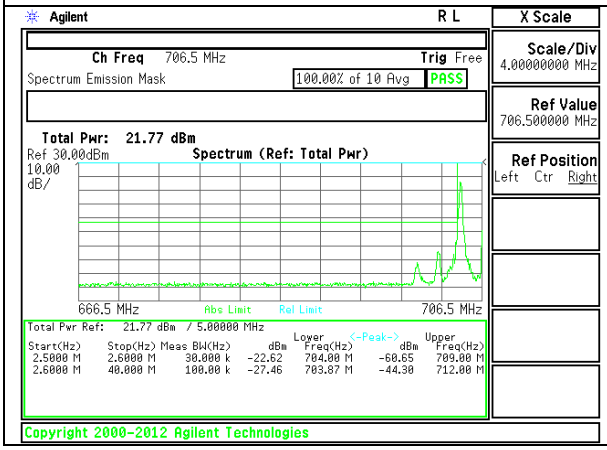


High ch (Tx:713.5MHz)

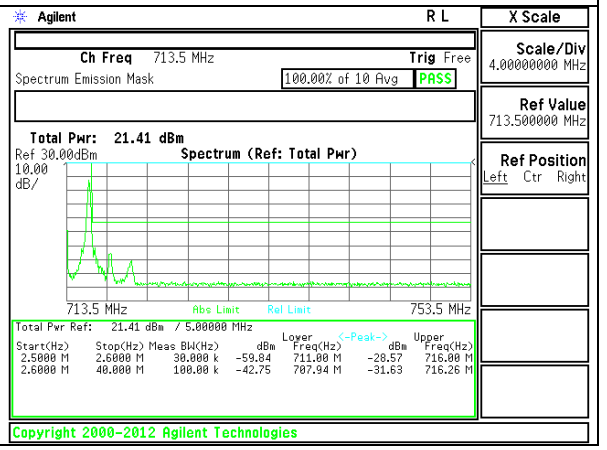
RB 25-0



RB 1-0



RB 1-24



Band Edge (Radiated)

W-CDMA Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/23/2015
Temperature / Humidity	22deg. C / 24 % RH
Engineer	Tomoki Matsui
Mode	Tx W-CDMA (RMC 12.2kbps), All Up Bits

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1710.00	49.4	51.5	-26.5	-25.9	3.4	9.3	0.0	-20.7	-20.1	-13.0	7.7	7.1	152	357	126	253	
1755.00	53.5	56.1	-21.4	-21.5	3.5	9.5	0.0	-15.4	-15.5	-13.0	2.4	2.5	149	349	125	253	

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : S/A PK (RBW: 47kHz , VBW: 150kHz)

Band Edge (Radiated)

LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/30/2015
Temperature / Humidity	21deg. C / 28 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE(QPSK), BW 3MHz

[QPSK, 100% RB allocation]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1710.00	38.1	43.1	-37.6	-34.1	3.4	8.8	0.0	-32.3	-28.7	-13.0	19.3	15.7	128	193	102	287	RB 15-0, Tx 1711.5MHz
1755.00	43.4	48.5	-31.9	-28.7	3.5	9.0	0.0	-26.3	-23.1	-13.0	13.3	10.1	123	190	100	278	RB 15-0, Tx 1753.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

[QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1710.00	48.6	54.2	-27.1	-22.9	3.4	8.8	0.0	-21.8	-17.6	-13.0	8.8	4.6	128	193	102	287	RB 1-0, Tx 1711.5MHz
1755.00	50.0	55.8	-25.3	-21.4	3.5	9.0	0.0	-19.7	-15.9	-13.0	6.7	2.9	123	190	100	278	RB 1-14, Tx 1753.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

Band Edge (Radiated)

LTE Band IV

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/30/2015
Temperature / Humidity	21deg. C / 28 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE(16QAM), BW 3MHz

[16QAM, 100% RB allocation]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1710.00	38.4	42.0	-37.3	-35.1	3.4	8.8	0.0	-32.0	-29.8	-13.0	19.0	16.8	128	193	102	287	RB 15-0, Tx 1711.5MHz
1755.00	43.1	48.0	-32.2	-29.2	3.5	9.0	0.0	-26.7	-23.6	-13.0	13.7	10.6	123	190	100	278	RB 15-0, Tx 1753.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

[16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1710.00	46.0	50.1	-29.7	-27.0	3.4	8.8	0.0	-24.4	-21.7	-13.0	11.4	8.7	128	193	102	287	RB 1-0, Tx 1711.5MHz
1755.00	48.2	53.7	-27.1	-23.5	3.5	9.0	0.0	-21.5	-17.9	-13.0	8.5	4.9	123	190	100	278	RB 1-14, Tx 1753.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 91kHz)

Band Edge (Radiated)

LTE Band VII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/30/2015
Temperature / Humidity	21deg. C / 28 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE(QPSK), BW 5MHz

[QPSK, 100% RB allocation]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2500.00	44.2	43.3	-30.0	-29.7	4.1	10.7	0.0	-23.4	-23.2	-10.0	13.4	13.2	113	341	100	273	Lower, RB 25-0, Tx 2502.5MHz
2495.90	42.9	41.7	-31.3	-31.3	4.1	10.7	0.0	-24.7	-24.8	-13.0	11.7	11.8	113	341	100	273	Lower, RB 25-0, Tx 2502.5MHz
2492.50	38.3	37.7	-35.9	-35.3	4.1	10.6	0.0	-29.4	-28.7	-25.0	4.4	3.7	113	341	100	273	Lower, RB 25-0, Tx 2502.5MHz
2570.00	41.9	42.5	-31.7	-30.0	4.2	10.6	0.0	-25.2	-23.6	-10.0	15.2	13.6	112	338	100	282	Upper, RB 25-0, Tx 2567.5MHz
2575.50	36.4	36.7	-37.1	-35.8	4.2	10.6	0.0	-30.7	-29.4	-13.0	17.7	16.4	112	338	100	282	Upper, RB 25-0, Tx 2567.5MHz
2576.40	35.6	35.5	-37.9	-37.0	4.2	10.6	0.0	-31.5	-30.6	-25.0	6.5	5.6	112	338	100	282	Upper, RB 25-0, Tx 2567.5MHz

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-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 : Spectrum Analyzer RMS Average (RBW: 100kHz, VBW: 300kHz) for within 1MHz from band-edge
Spectrum Analyzer RMS Average (RBW: 1MHz, VBW: 3MHz) for other frequencies

[QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal Rx Ant. Height	Horizontal Turn Table	Vertical Rx Ant. Height	Vertical Turn Table	Remarks
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2500.00	50.1	49.6	-24.1	-23.4	4.1	10.7	0.0	-17.6	-16.9	-10.0	7.6	6.9	113	341	100	273	Lower, RB 1-0, Tx 2502.5MHz
2496.00	36.2	36.1	-38.0	-36.9	4.1	10.7	0.0	-31.4	-30.3	-13.0	18.4	17.3	113	341	100	273	Lower, RB 1-0, Tx 2502.5MHz
2490.60	29.0	29.1	-45.2	-43.9	4.1	10.6	0.0	-38.7	-37.4	-25.0	13.7	12.4	113	341	100	273	Lower, RB 1-0, Tx 2502.5MHz
2570.00	47.7	50.2	-25.8	-22.3	4.2	10.6	0.0	-19.4	-15.9	-10.0	9.4	5.9	112	338	100	282	Upper, RB 1-24, Tx 2567.5MHz
2575.00	25.8	26.4	-47.7	-46.1	4.2	10.6	0.0	-41.3	-39.7	-13.0	28.3	26.7	112	338	100	282	Upper, RB 1-24, Tx 2567.5MHz
2579.50	31.5	32.1	-42.0	-40.4	4.2	10.6	0.0	-35.6	-34.0	-25.0	10.6	9.0	112	338	100	282	Upper, RB 1-24, Tx 2567.5MHz

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-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 : Spectrum Analyzer RMS Average (RBW: 100kHz, VBW: 300kHz) for within 1MHz from band-edge
Spectrum Analyzer RMS Average (RBW: 1MHz, VBW: 3MHz) for other frequencies

Band Edge (Radiated)

LTE Band VII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/30/2015
Temperature / Humidity	21deg. C / 28 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE(16QAM), BW 5MHz

[16QAM, 100% RB allocation]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2500.00	42.8	41.4	-31.4	-31.6	4.1	10.7	0.0	-24.8	-25.1	-10.0	14.8	15.1	113	341	100	273	Lower, RB 25-0, Tx 2502.5MHz
2495.70	39.9	39.8	-34.3	-33.2	4.1	10.7	0.0	-27.8	-26.7	-13.0	14.8	13.7	113	341	100	273	Lower, RB 25-0, Tx 2502.5MHz
2493.50	36.8	36.1	-37.4	-36.9	4.1	10.6	0.0	-30.9	-30.4	-25.0	5.9	5.4	113	341	100	273	Lower, RB 25-0, Tx 2502.5MHz
2570.00	40.2	41.4	-33.3	-31.1	4.2	10.6	0.0	-26.9	-24.7	-10.0	16.9	14.7	112	338	100	282	Upper, RB 25-0, Tx 2567.5MHz
2575.60	35.0	35.0	-38.5	-37.5	4.2	10.6	0.0	-32.1	-31.1	-13.0	19.1	18.1	112	338	100	282	Upper, RB 25-0, Tx 2567.5MHz
2576.00	34.6	35.5	-39.0	-37.1	4.2	10.6	0.0	-32.5	-30.7	-25.0	7.5	5.7	112	338	100	282	Upper, RB 25-0, Tx 2567.5MHz

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-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 : Spectrum Analyzer RMS Average (RBW: 100kHz, VBW: 300kHz) for within 1MHz from band-edge
Spectrum Analyzer RMS Average (RBW: 1MHz, VBW: 3MHz) for other frequencies

[16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
2500.00	49.4	49.1	-24.8	-23.9	4.1	10.7	0.0	-18.2	-17.4	-10.0	8.2	7.4	113	341	100	273	Lower, RB 1-0, Tx 2502.5MHz
2496.00	34.6	34.3	-39.6	-38.7	4.1	10.7	0.0	-33.1	-32.2	-13.0	20.1	19.2	113	341	100	273	Lower, RB 1-0, Tx 2502.5MHz
2490.40	28.6	27.7	-45.6	-45.3	4.1	10.6	0.0	-39.1	-38.8	-25.0	14.1	13.8	113	341	100	273	Lower, RB 1-0, Tx 2502.5MHz
2570.00	47.7	48.2	-25.9	-24.3	4.2	10.6	0.0	-19.4	-17.9	-10.0	9.4	7.9	112	338	100	282	Upper, RB 1-24, Tx 2567.5MHz
2575.00	25.4	25.5	-48.2	-47.0	4.2	10.6	0.0	-41.7	-40.6	-13.0	28.7	27.6	112	338	100	282	Upper, RB 1-24, Tx 2567.5MHz
2579.60	31.4	32.1	-42.2	-40.4	4.2	10.6	0.0	-35.7	-34.0	-25.0	10.7	9.0	112	338	100	282	Upper, RB 1-24, Tx 2567.5MHz

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-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 : Spectrum Analyzer RMS Average (RBW: 100kHz, VBW: 300kHz) for within 1MHz from band-edge
Spectrum Analyzer RMS Average (RBW: 1MHz, VBW: 3MHz) for other frequencies

Band Edge (Radiated)

LTE Band XVII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/30/2015
Temperature / Humidity	21deg. C / 28 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE(QPSK), BW 5MHz

[QPSK, 100% RB allocation]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP)	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER	[dBm]	HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
704.00	34.9	37.3	-21.1	-15.2	5.3	2.2	9.9	-36.2	-30.4	-13.0	23.2	17.4	126	177	166	315	RB 25-0, Tx 706.5MHz
716.00	35.0	33.4	-20.6	-18.0	5.3	2.2	9.9	-35.9	-33.3	-13.0	22.9	20.3	126	179	163	316	RB 25-0, Tx 713.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 100kHz)

[QPSK, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP)	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER	[dBm]	HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
704.00	38.4	36.3	-17.6	-16.2	5.3	2.2	9.9	-32.7	-31.4	-13.0	19.7	18.4	126	177	166	315	RB 1-0, Tx 706.5MHz
716.00	38.9	37.1	-16.7	-14.3	5.3	2.2	9.9	-32.0	-29.6	-13.0	19.0	16.6	126	179	163	316	RB 1-24, Tx 713.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 100kHz)

Band Edge (Radiated)

LTE Band XVII

Report No.	10636726H
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	01/30/2015
Temperature / Humidity	21deg. C / 28 % RH
Engineer	Hironobu Ohnishi
Mode	Tx LTE(16QAM), BW 5MHz

[16QAM, 100% RB allocation]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
704.00	33.3	35.3	-22.7	-17.2	5.3	2.2	9.9	-37.9	-32.4	-13.0	24.9	19.4	126	177	166	315	RB 25-0, Tx 706.5MHz
716.00	33.1	33.0	-22.5	-18.5	5.3	2.2	9.9	-37.7	-33.7	-13.0	24.7	20.7	126	179	163	316	RB 25-0, Tx 713.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 100kHz)

[16QAM, 1 RB]

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
704.00	37.7	37.3	-18.2	-15.2	5.3	2.2	9.9	-33.4	-30.4	-13.0	20.4	17.4	126	177	166	315	RB 1-0, Tx 706.5MHz
716.00	37.6	34.9	-18.0	-16.5	5.3	2.2	9.9	-33.2	-31.8	-13.0	20.2	18.8	126	179	163	316	RB 1-24, Tx 713.5MHz

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-20GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(30M-120MHz), Dipole Antenna(120M-1000MHz), Horn Antenna(1G-20GHz)
Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).
Detector : Spectrum analyzer RMS Average (RBW: 30kHz , VBW: 100kHz)

Spurious Emission (Conducted)

W-CDMA Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/05/2015
Temperature/ Humidity	21deg. C / 34% RH
Engineer	Yutaka Yoshida
Mode	Tx W-CDMA(RMC12.2kbps), All Up Bits

Limit Line

Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line *1) *2) [dBm]
1712.4	-13.0	10.02	6.77	-29.8
1732.6	-13.0	10.02	6.77	-29.8
1752.6	-13.0	10.02	6.78	-29.8

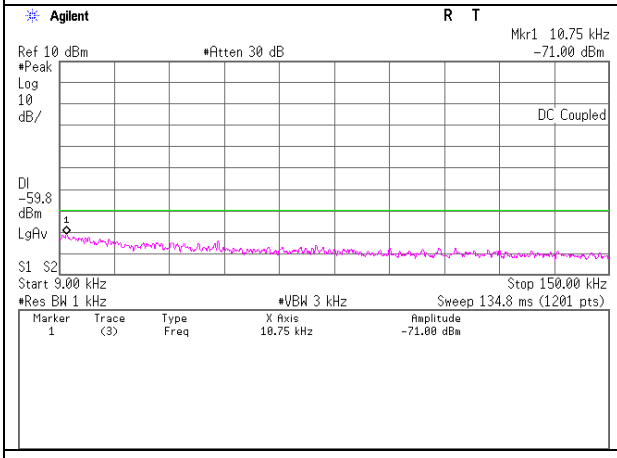
Sample Calculation : Limit Line = Limit - Atten. - Cable Loss
*1)9k-150kHz : RBW factor was applied to Limit Line. (RBW factor=10log(1kHz/1MHz)
*2)150kHz-30MHz : RBW factor was applied to Limit Line. (RBW factor=10log(10kHz/1MHz)

Spurious Emission (Conducted)

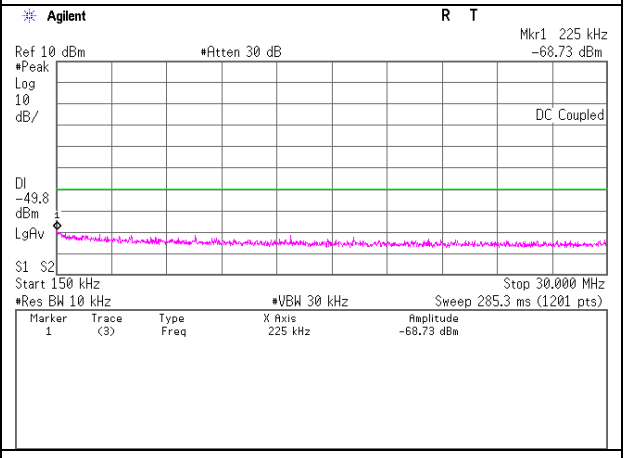
W-CDMA Band IV

Tx:1712.4MHz

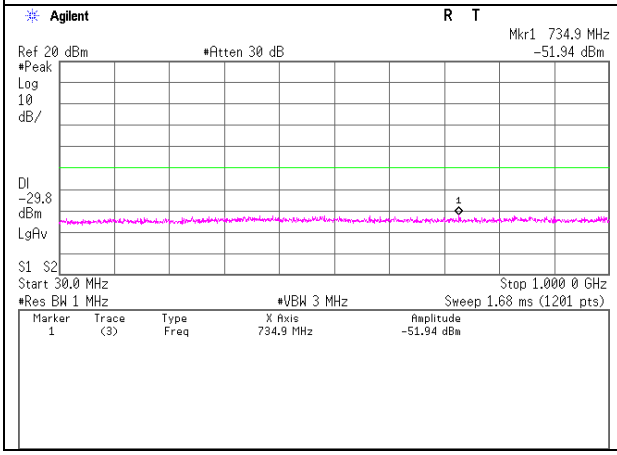
9kHz-150kHz



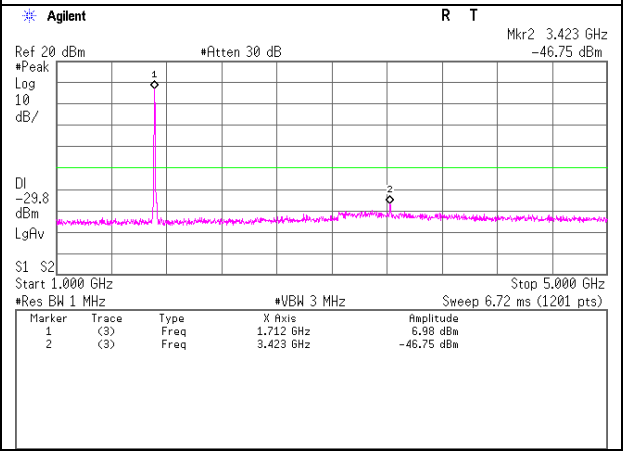
150kHz-30MHz



30MHz-1GHz



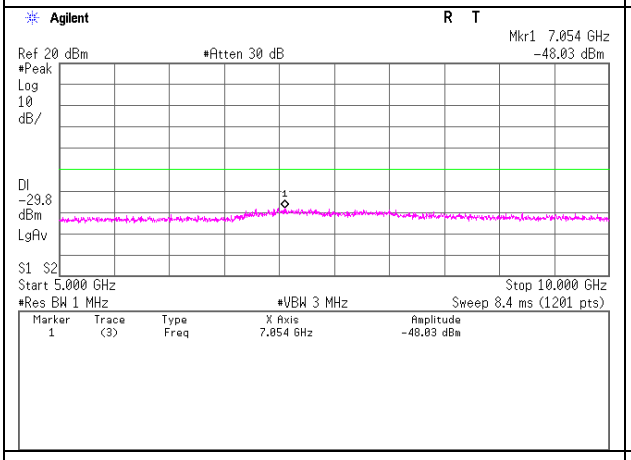
1GHz-5GHz



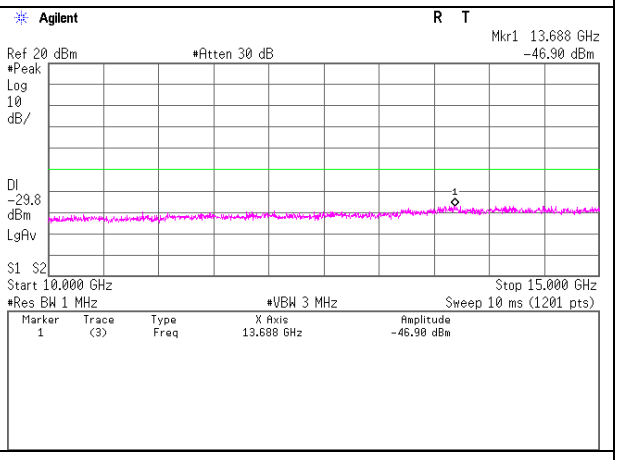
Spurious Emission (Conducted)

W-CDMA Band IV
Tx:1712.4MHz

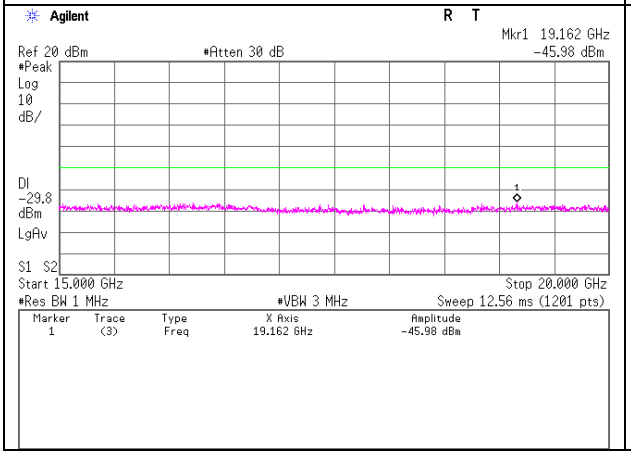
5GHz-10GHz



10GHz-15GHz



15GHz-20GHz

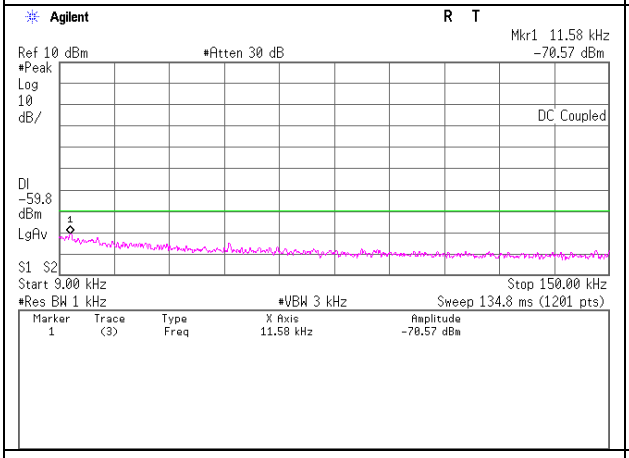


Spurious Emission (Conducted)

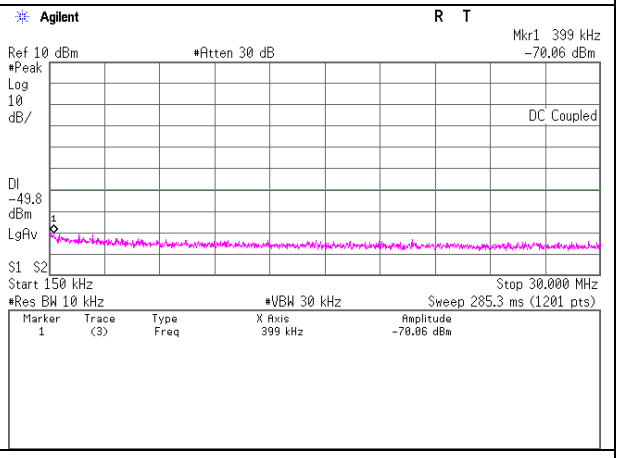
W-CDMA Band IV

Tx:1732.6MHz

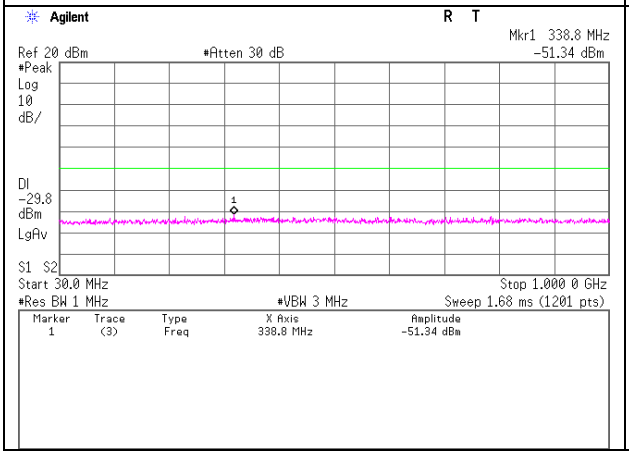
9kHz-150kHz



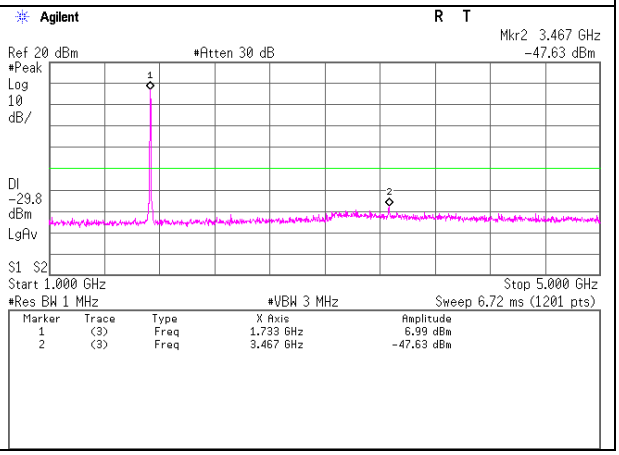
150kHz-30MHz



30MHz-1GHz



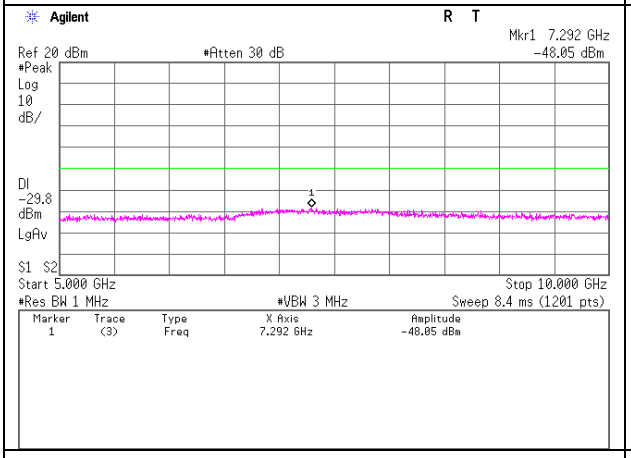
1GHz-5GHz



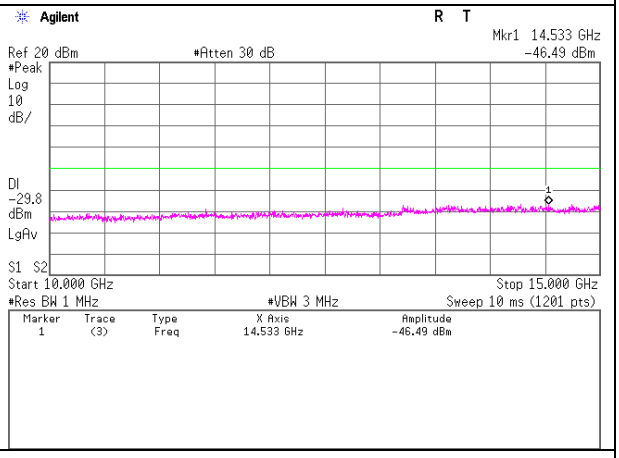
Spurious Emission (Conducted)

W-CDMA Band IV
Tx:1732.6MHz

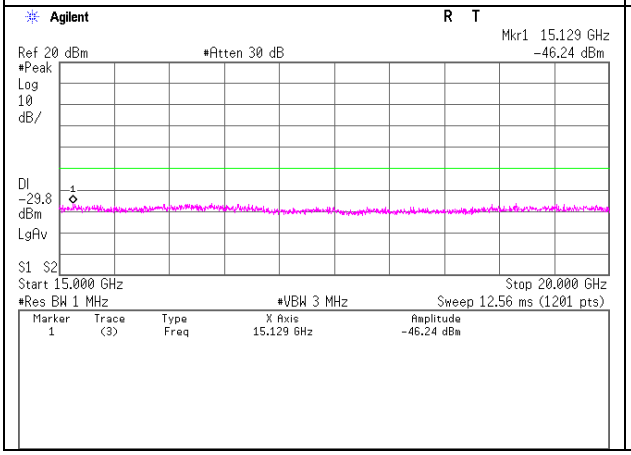
5GHz-10GHz



10GHz-15GHz



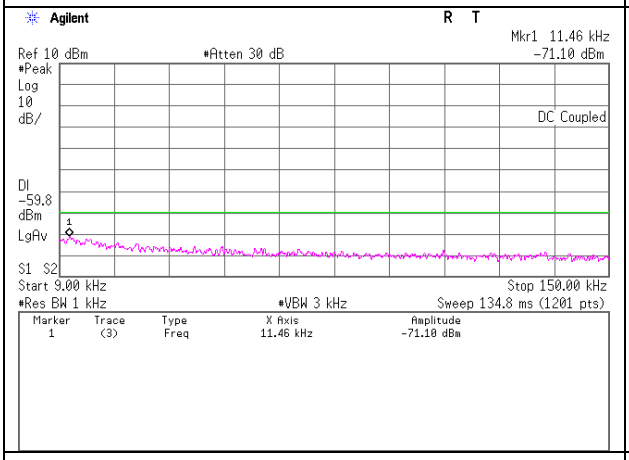
15GHz-20GHz



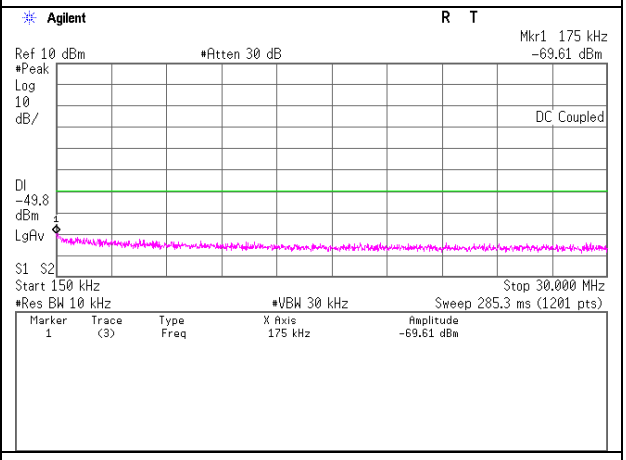
Spurious Emission (Conducted)

W-CDMA Band IV
Tx:1752.6MHz

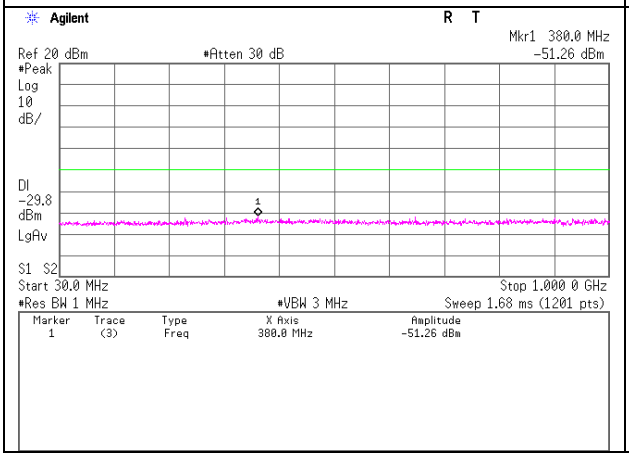
9kHz-150kHz



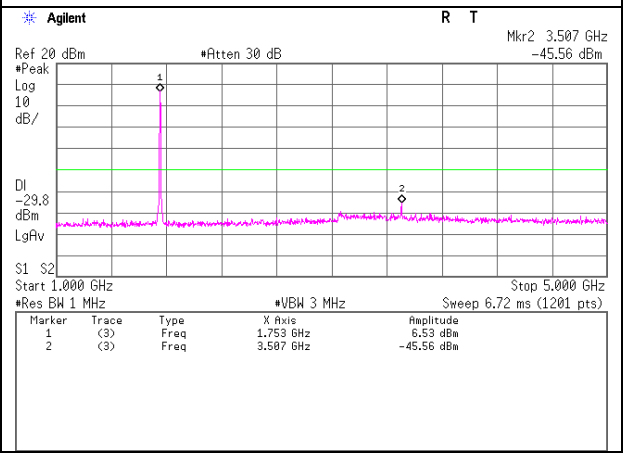
150kHz-30MHz



30MHz-1GHz



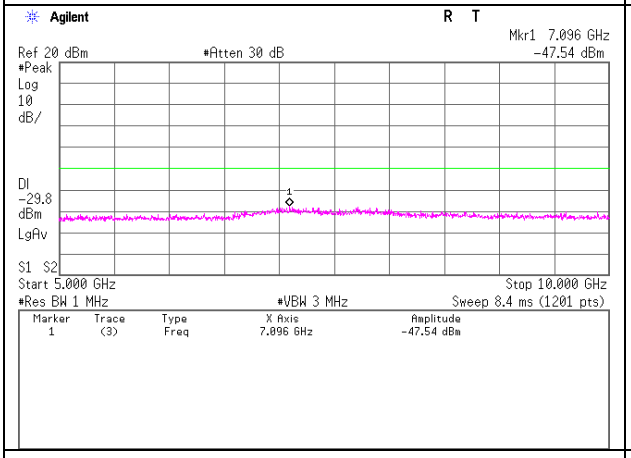
1GHz-5GHz



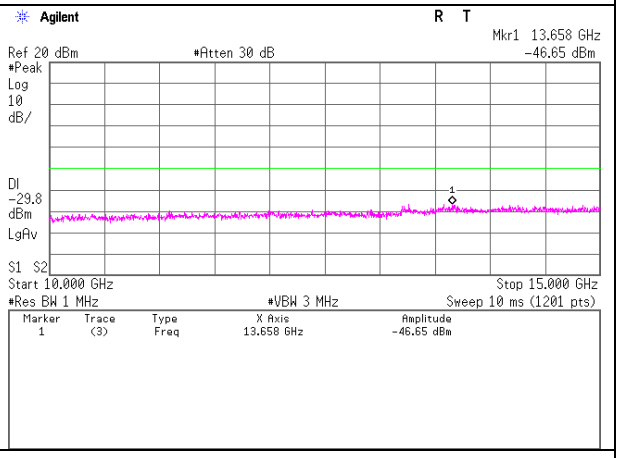
Spurious Emission (Conducted)

W-CDMA Band IV
Tx:1752.6MHz

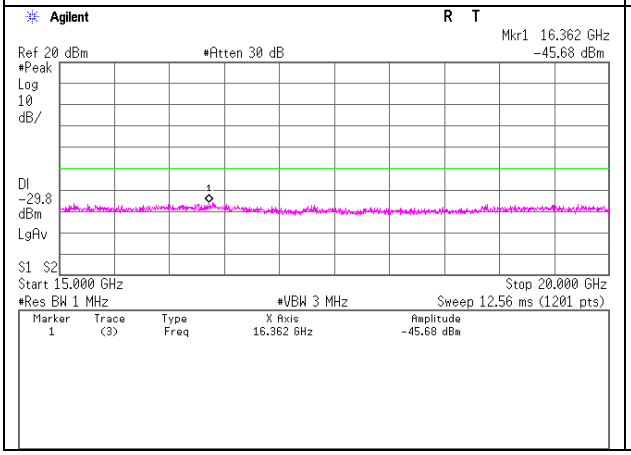
5GHz-10GHz



10GHz-15GHz



15GHz-20GHz



Spurious Emission (Conducted)

LTE Band IV

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/05/2015
Temperature/ Humidity	21deg. C / 34% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 3MHz Low ch RB1-14, Mid ch RB1-14, High ch RB 1-0

Limit Line

Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line *1) *2) [dBm]
1711.5	-13.0	10.02	6.77	-29.8
1732.5	-13.0	10.02	6.77	-29.8
1753.5	-13.0	10.02	6.78	-29.8

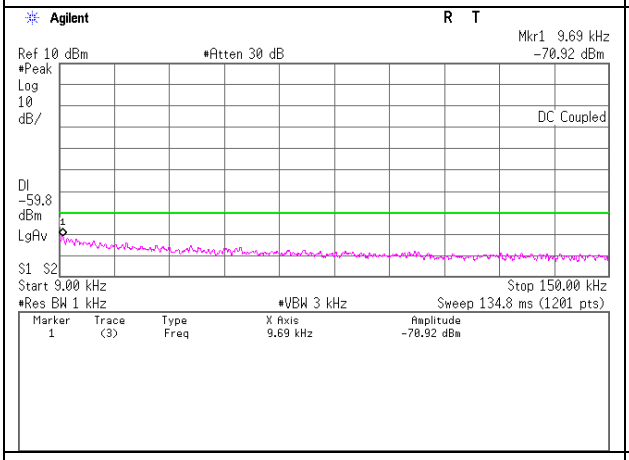
Sample Calculation : Limit Line = Limit - Atten. - Cable Loss
*1)9k-150kHz : RBW factor was applied to Limit Line. (RBW factor=10log(1kHz/1MHz)
*2)150kHz-30MHz : RBW factor was applied to Limit Line. (RBW factor=10log(10kHz/1MHz)

Spurious Emission (Conducted)

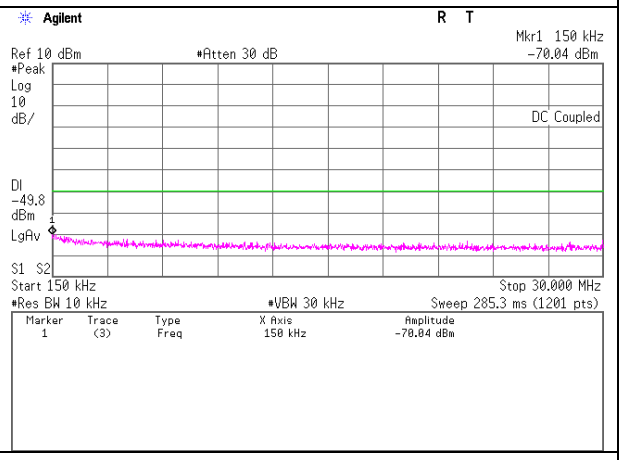
LTE Band IV

Tx:1711.5MHz

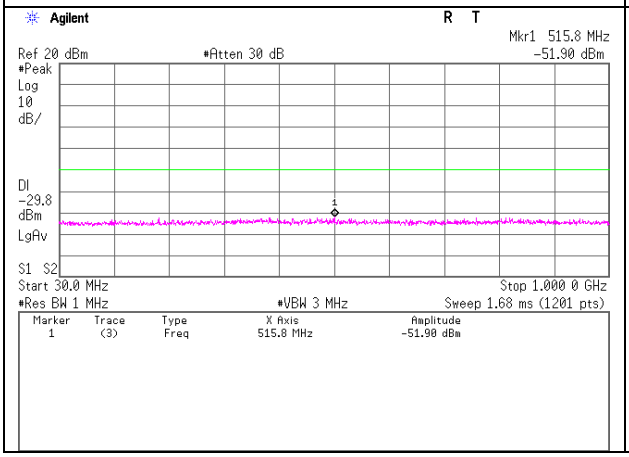
9kHz-150kHz



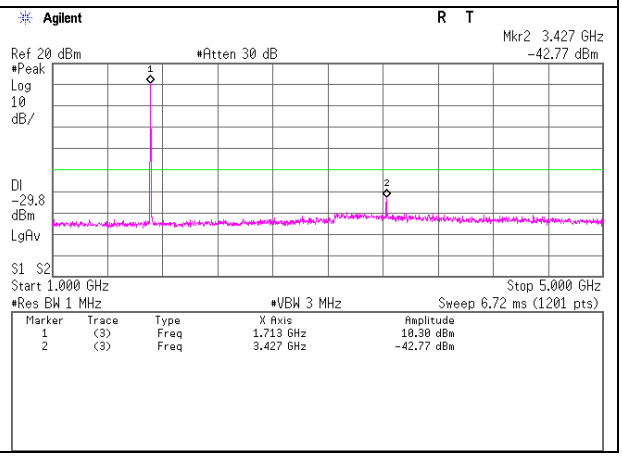
150kHz-30MHz



30MHz-1GHz



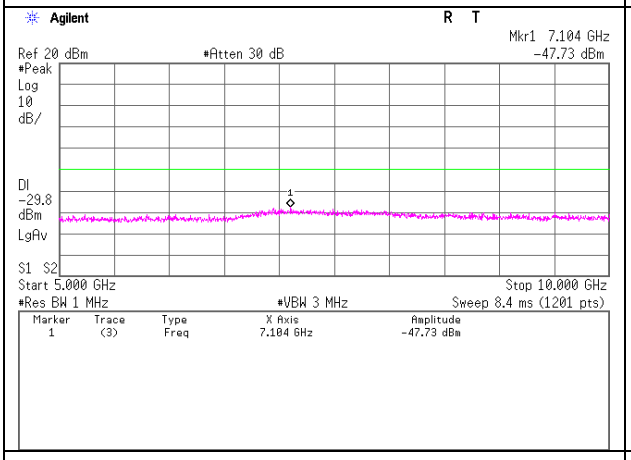
1GHz-5GHz



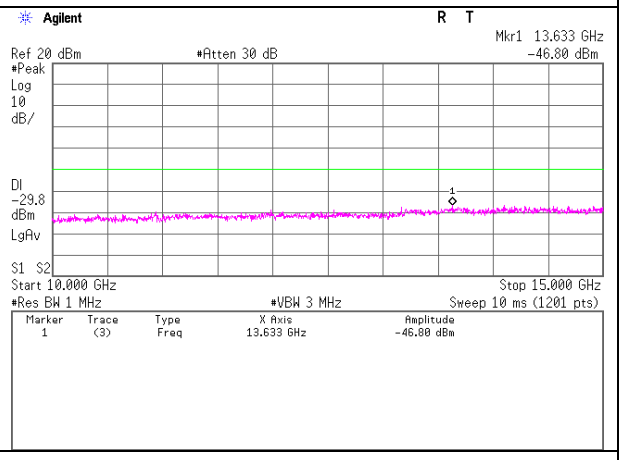
Spurious Emission (Conducted)

LTE Band IV
Tx:1711.5MHz

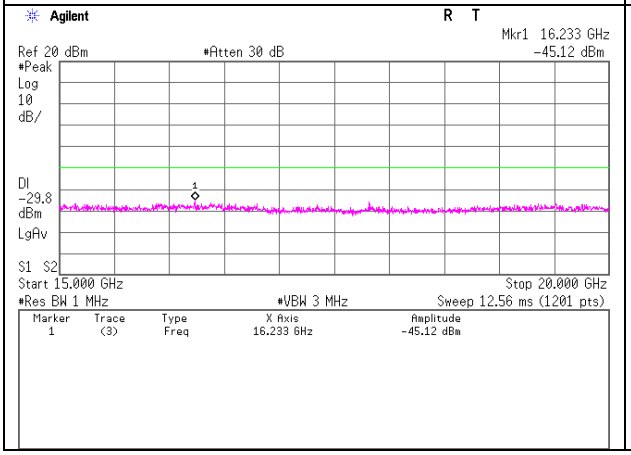
5GHz-10GHz



10GHz-15GHz



15GHz-20GHz



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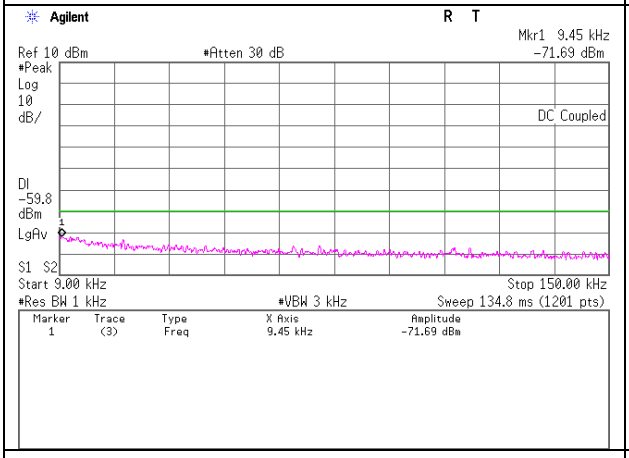
Spurious Emission (Conducted)

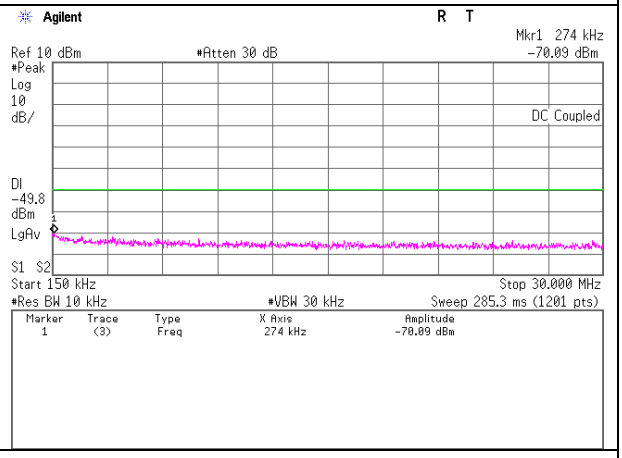
LTE Band IV

Tx:1732.5MHz

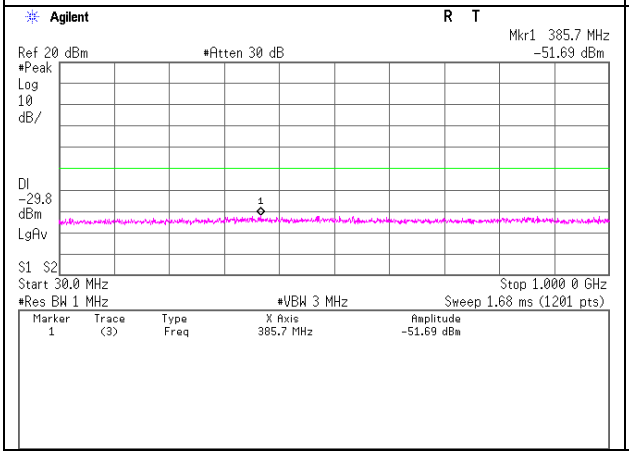
9kHz-150kHz



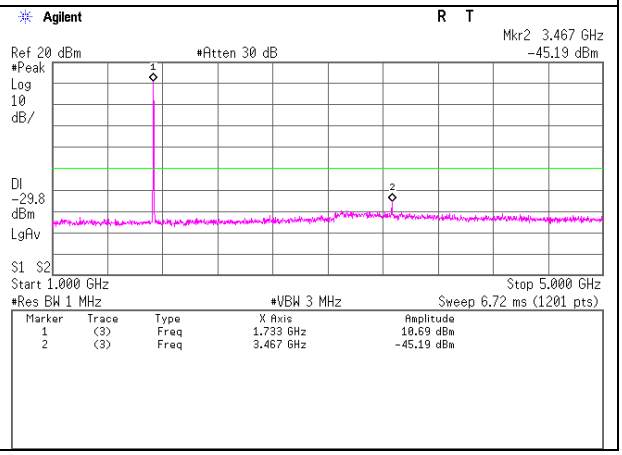
150kHz-30MHz



30MHz-1GHz



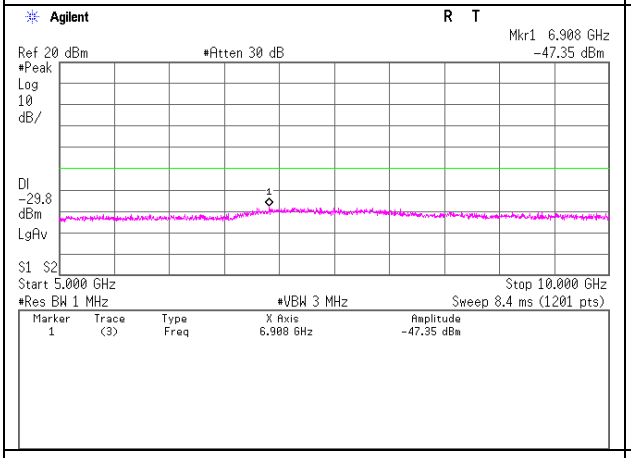
1GHz-5GHz



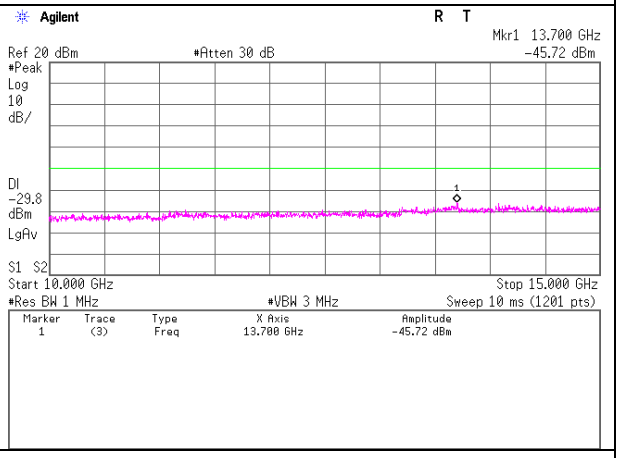
Spurious Emission (Conducted)

LTE Band IV
Tx:1732.5MHz

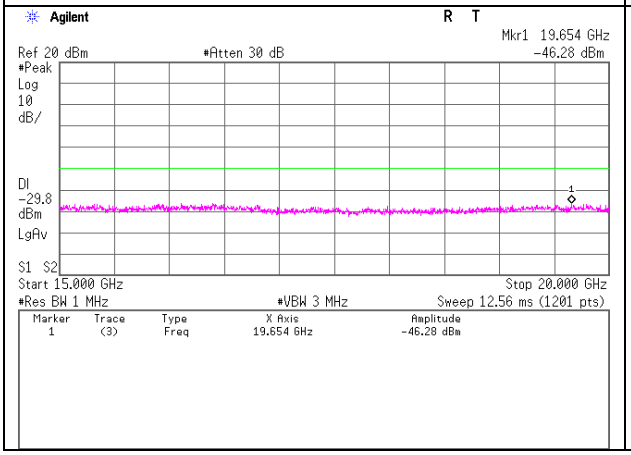
5GHz-10GHz



10GHz-15GHz



15GHz-20GHz

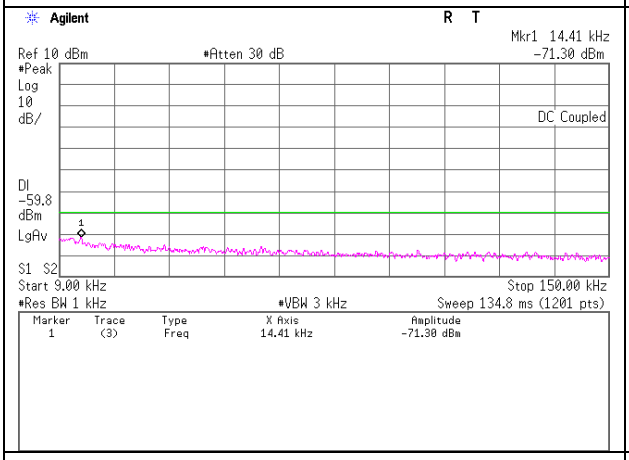


Spurious Emission (Conducted)

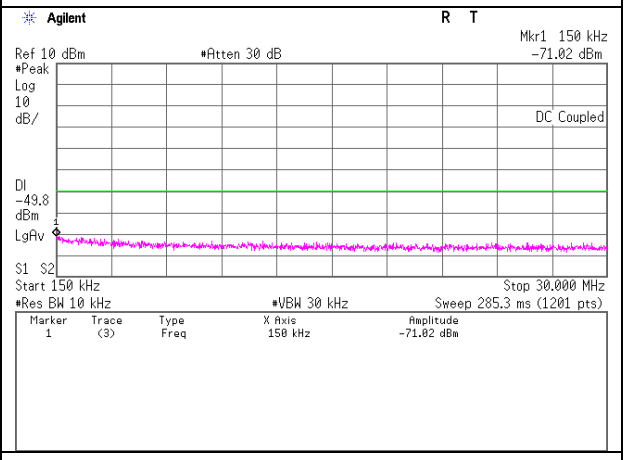
LTE Band IV

Tx:1753.5MHz

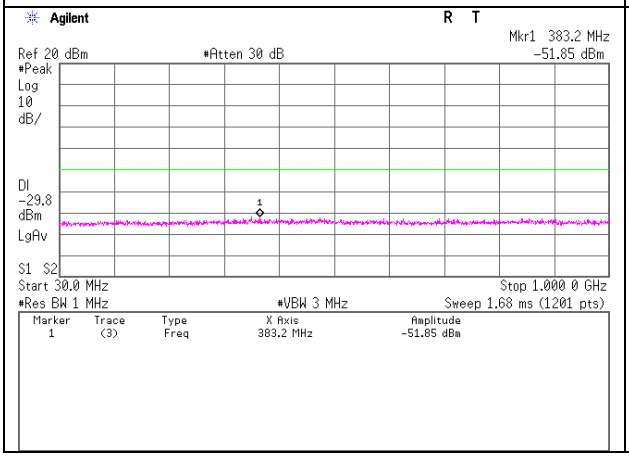
9kHz-150kHz



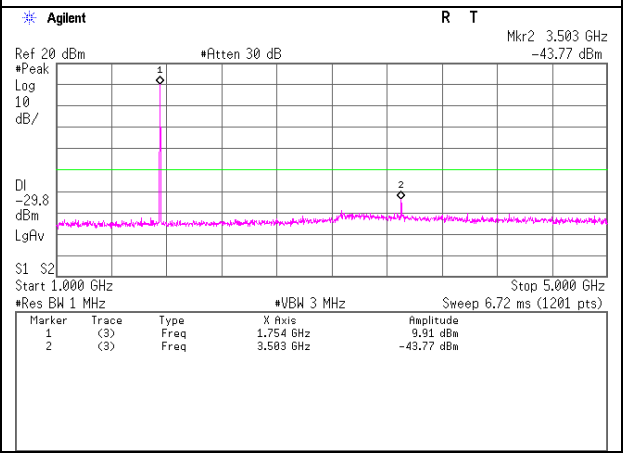
150kHz-30MHz



30MHz-1GHz



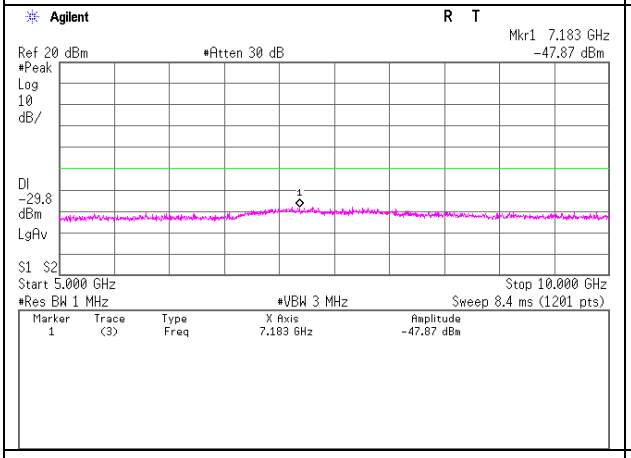
1GHz-5GHz



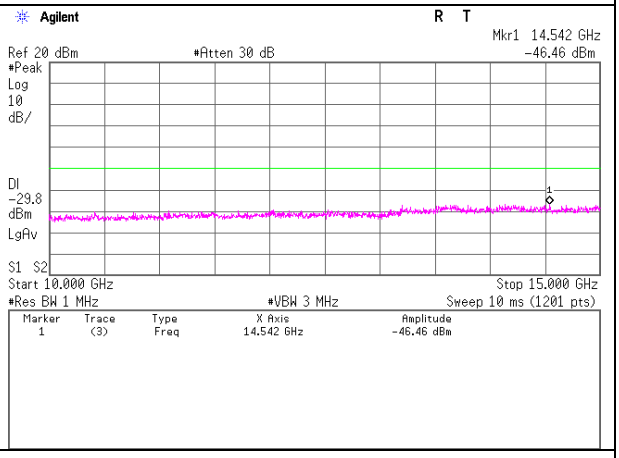
Spurious Emission (Conducted)

LTE Band IV
Tx:1753.5MHz

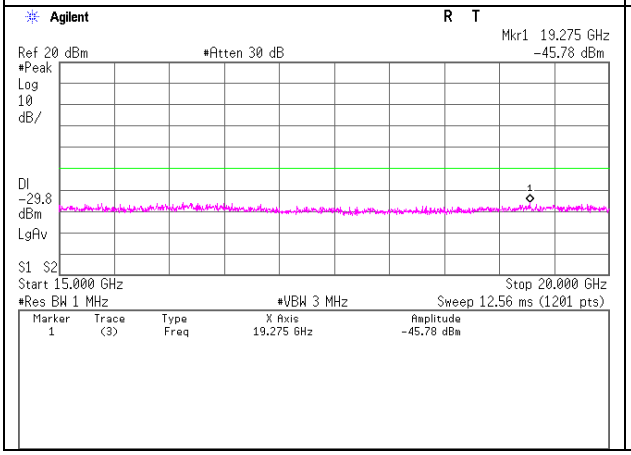
5GHz-10GHz



10GHz-15GHz



15GHz-20GHz



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Spurious Emission (Conducted)

LTE Band VII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/05/2015
Temperature/ Humidity	21deg. C / 34% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 10MHz Low ch RB1-49, Mid ch RB1-49, High ch RB 1-49

Limit Line

Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line *1) *2) [dBm]
2505.0	-25.0	10.02	6.93	-42.0
2535.0	-25.0	10.02	6.94	-42.0
2565.0	-25.0	10.02	6.94	-42.0

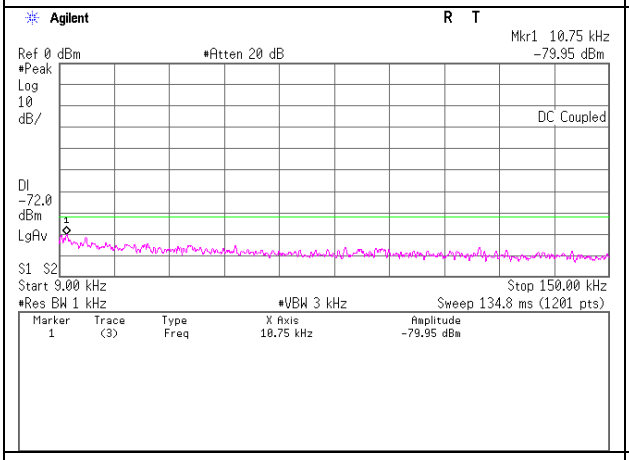
Sample Calculation : Limit Line = Limit - Atten. - Cable Loss
*1)9k-150kHz : RBW factor was applied to Limit Line. (RBW factor=10log(1kHz/1MHz)
*2)150kHz-30MHz : RBW factor was applied to Limit Line. (RBW factor=10log(10kHz/1MHz)

Spurious Emission (Conducted)

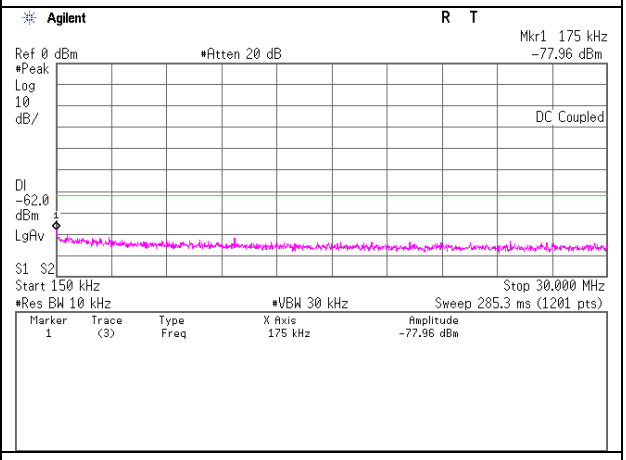
LTE Band VII

Tx:2505.0MHz

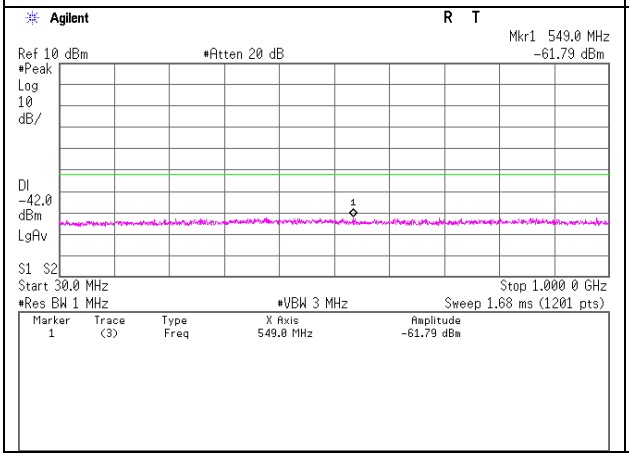
9kHz-150kHz



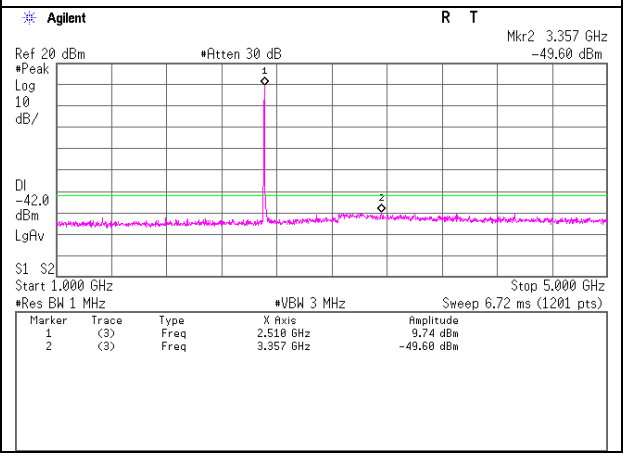
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz

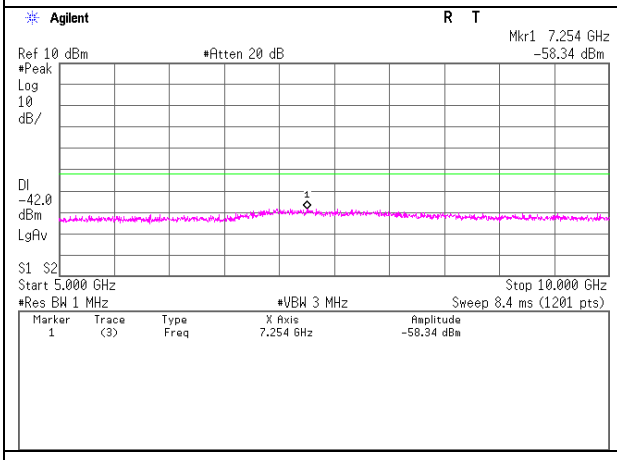


Spurious Emission (Conducted)

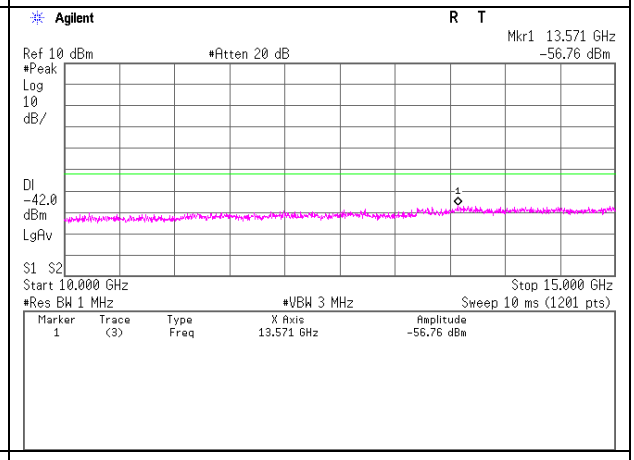
LTE Band VII

Tx:2505.0MHz

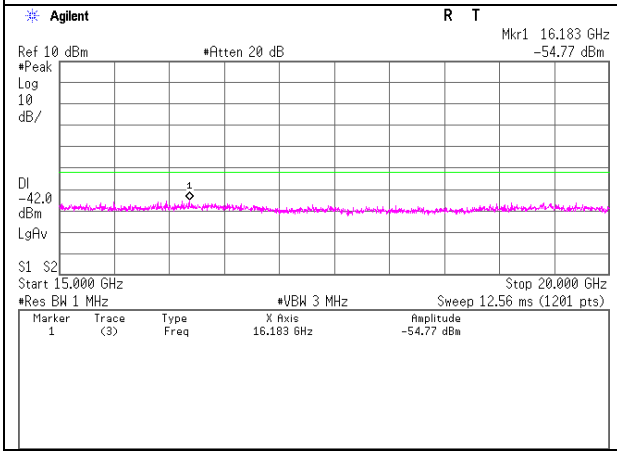
5GHz-10GHz



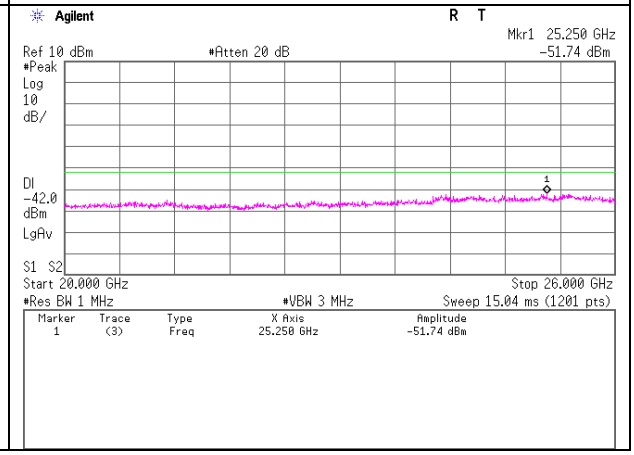
10GHz-15GHz



15GHz-20GHz



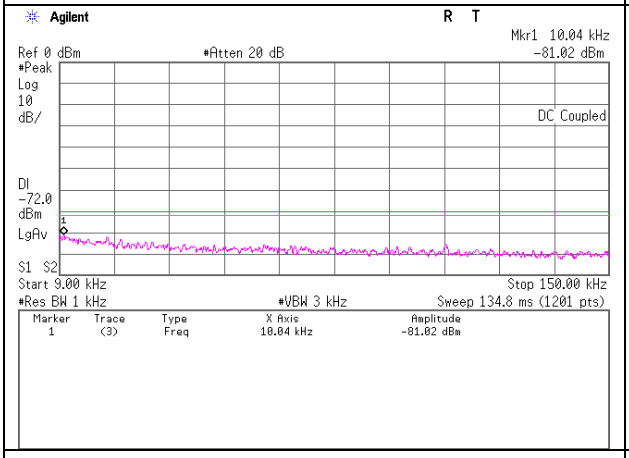
20GHz-26GHz



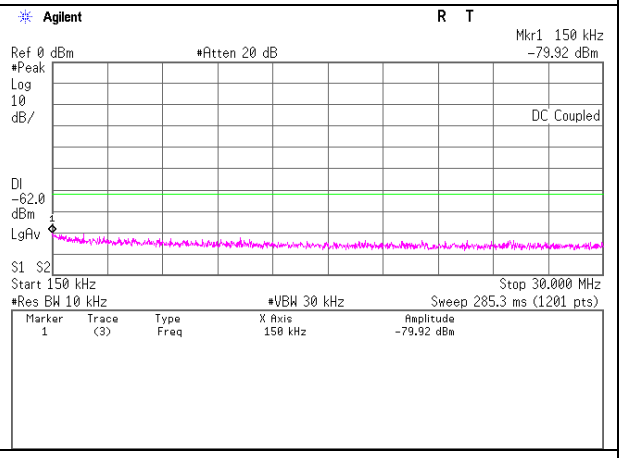
Spurious Emission (Conducted)

LTE Band VII
Tx:2535.0MHz

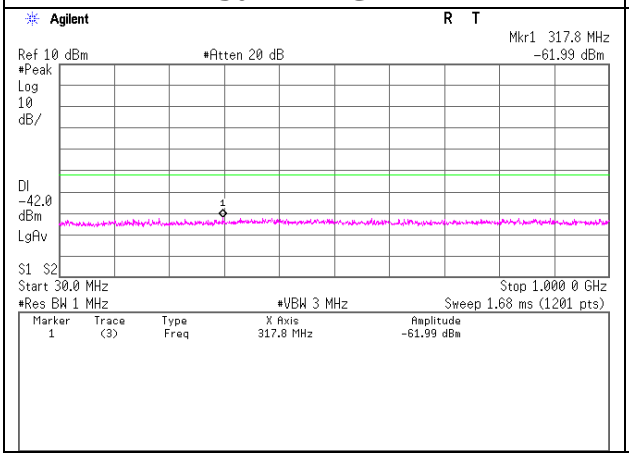
9kHz-150kHz



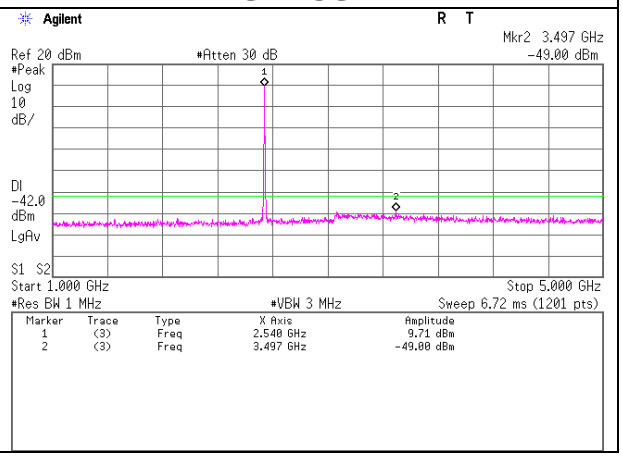
150kHz-30MHz



30MHz-1GHz



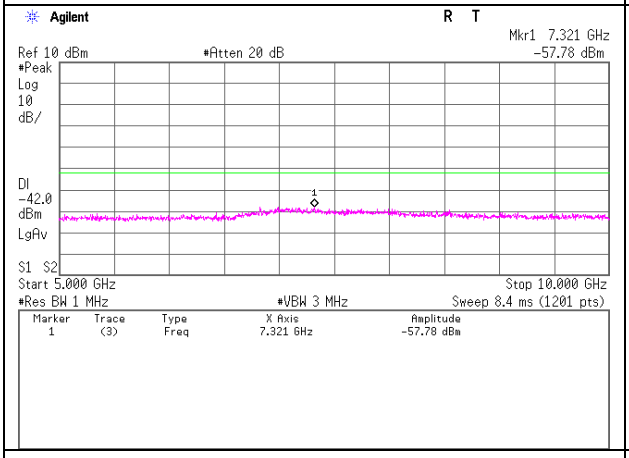
1GHz-5GHz



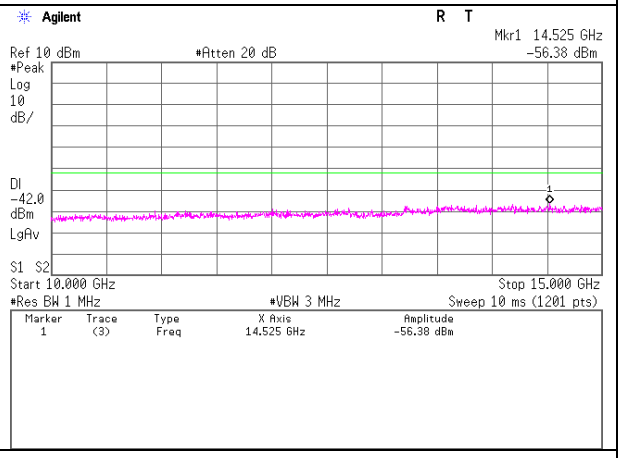
Spurious Emission (Conducted)

LTE Band VII
Tx:2535.0MHz

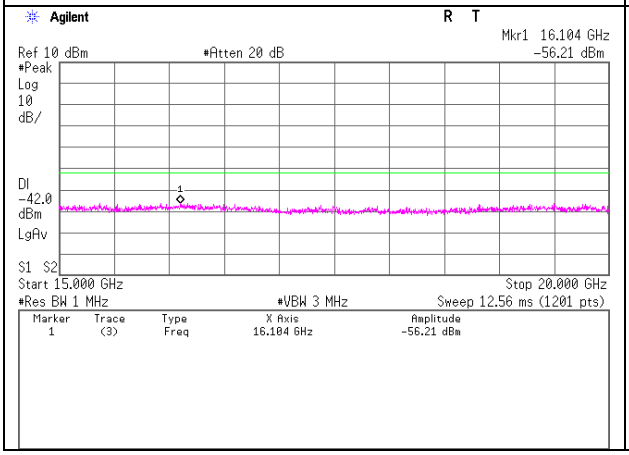
5GHz-10GHz



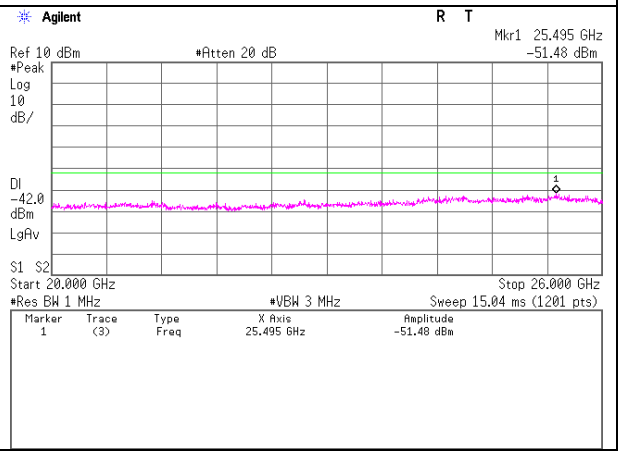
10GHz-15GHz



15GHz-20GHz



20GHz-26GHz

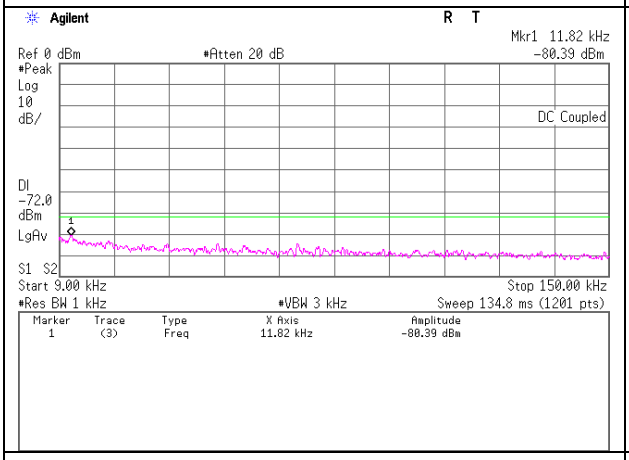


Spurious Emission (Conducted)

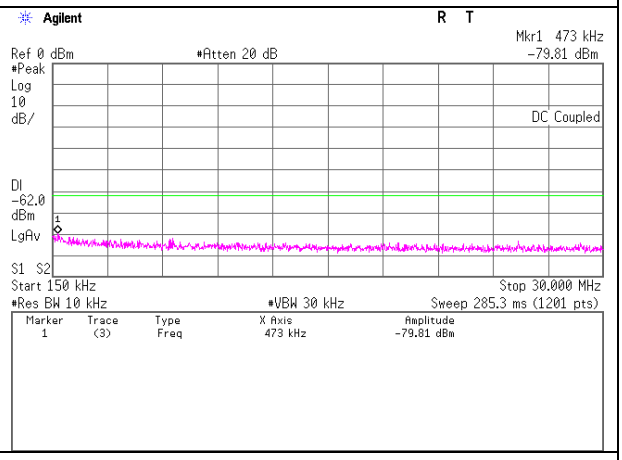
LTE Band VII

Tx:2565.0MHz

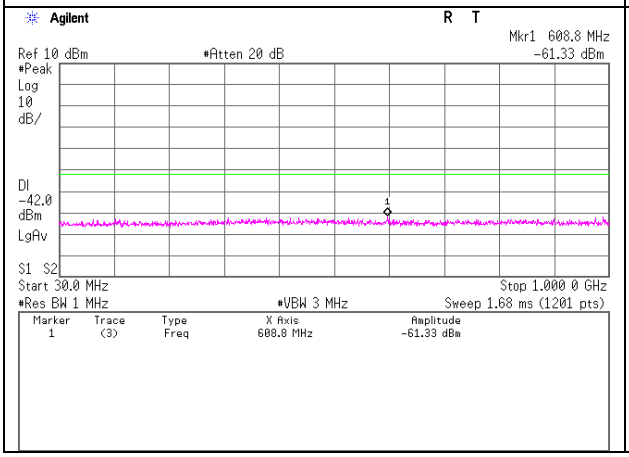
9kHz-150kHz



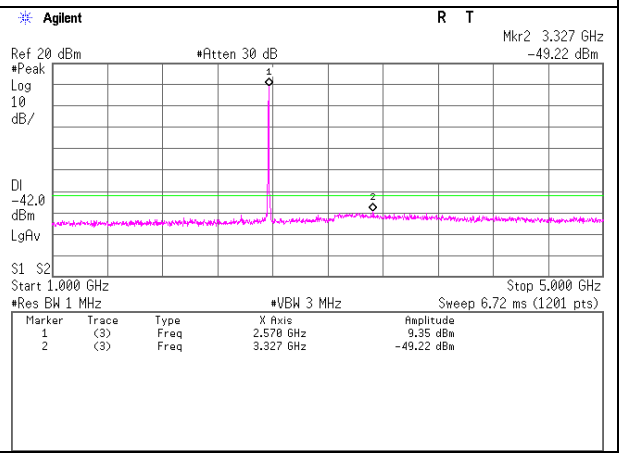
150kHz-30MHz



30MHz-1GHz



1GHz-5GHz

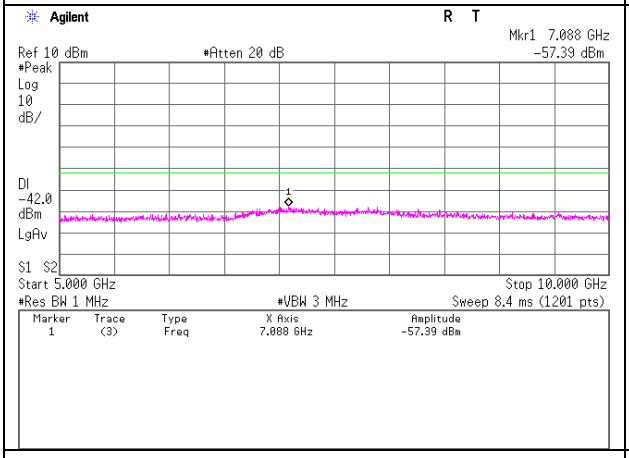


Spurious Emission (Conducted)

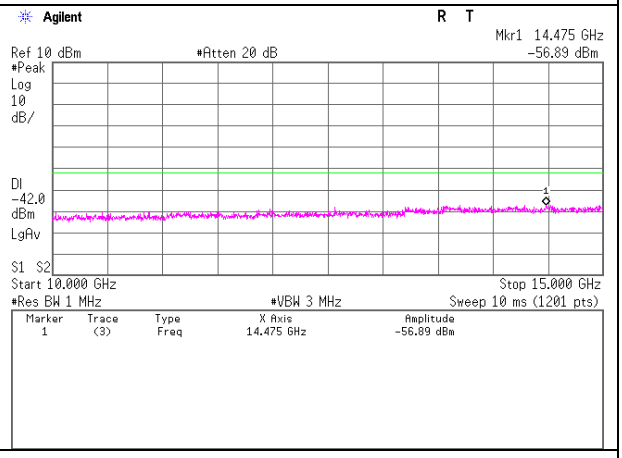
LTE Band IV

Tx:2565.0MHz

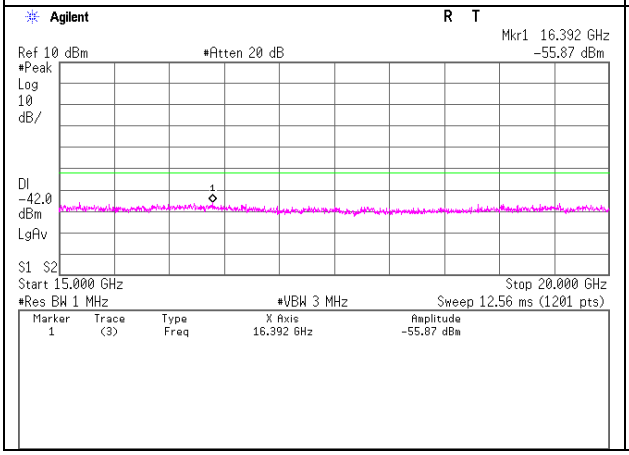
5GHz-10GHz



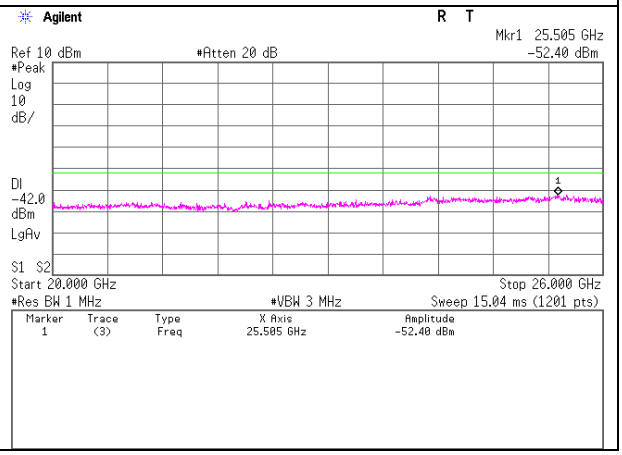
10GHz-15GHz



15GHz-20GHz



15GHz-26GHz



Spurious Emission (Conducted)

LTE Band XVII

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/05/2015
Temperature/ Humidity	21deg. C / 34% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 10MHz
	Low ch RB1-49, Mid ch RB1-0, High ch RB 1-49

Limit Line

Tx Frequency [MHz]	Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line *1) *2) [dBm]
709.0	-13.0	10.00	6.57	-29.6
710.0	-13.0	10.00	6.57	-29.6
711.0	-13.0	10.00	6.57	-29.6

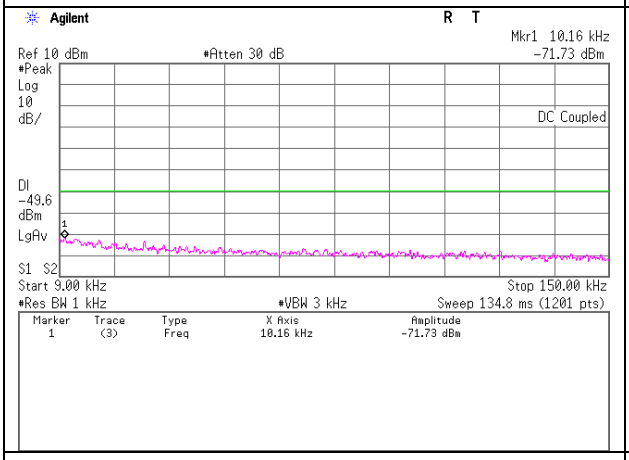
Sample Calculation : Limit Line = Limit - Atten. - Cable Loss
*1)9k-150kHz : RBW factor was applied to Limit Line. (RBW factor=10log(1kHz/100kHz)
*2)150kHz-30MHz : RBW factor was applied to Limit Line. (RBW factor=10log(10kHz/100kHz)

Spurious Emission (Conducted)

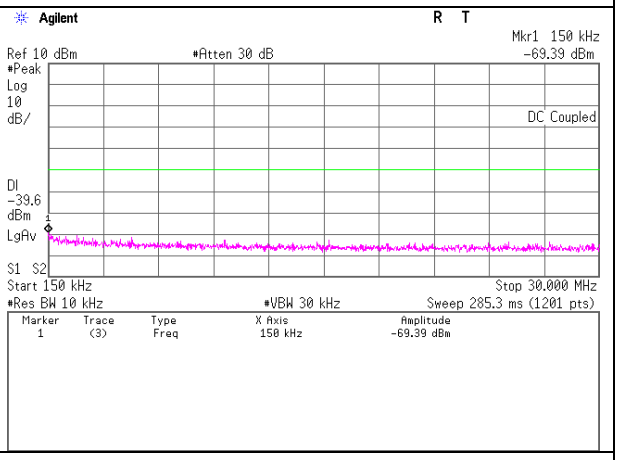
LTE Band XVII

Tx:709.0MHz

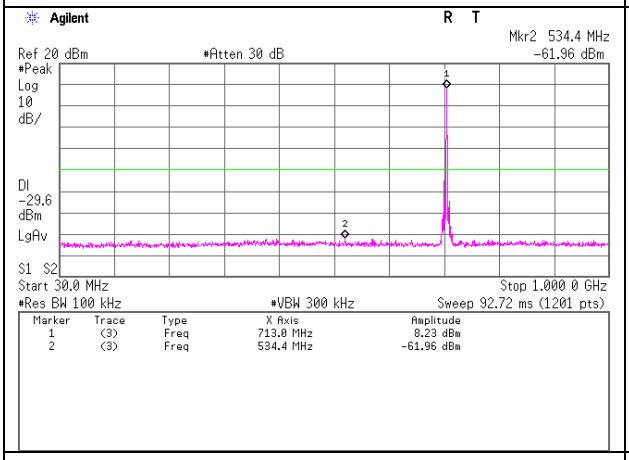
9kHz-150kHz



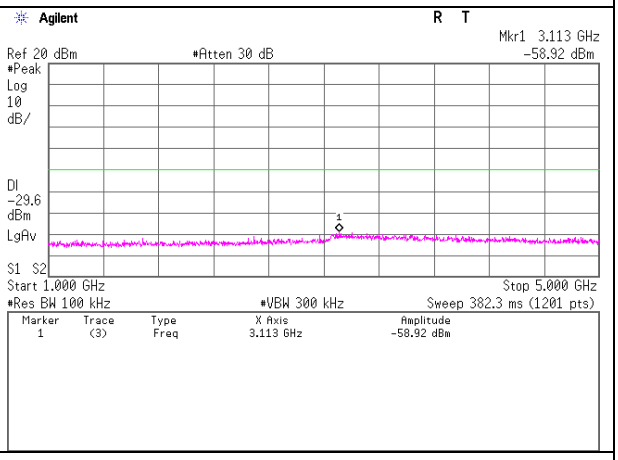
150kHz-30MHz



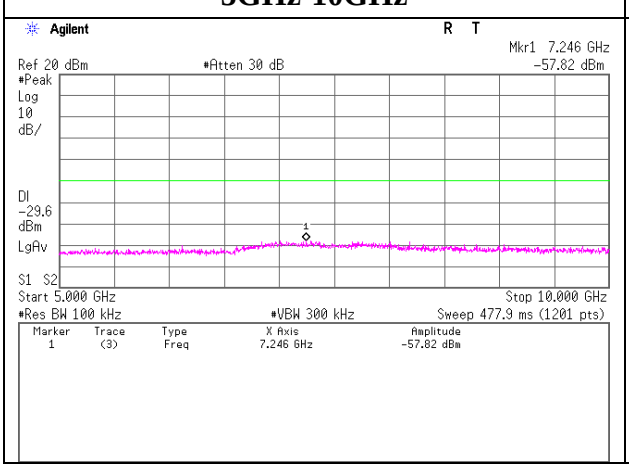
30MHz-1GHz



1GHz-5GHz



5GHz-10GHz

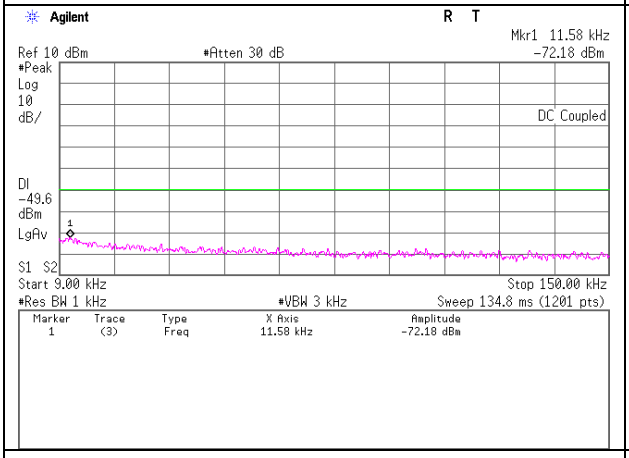


Spurious Emission (Conducted)

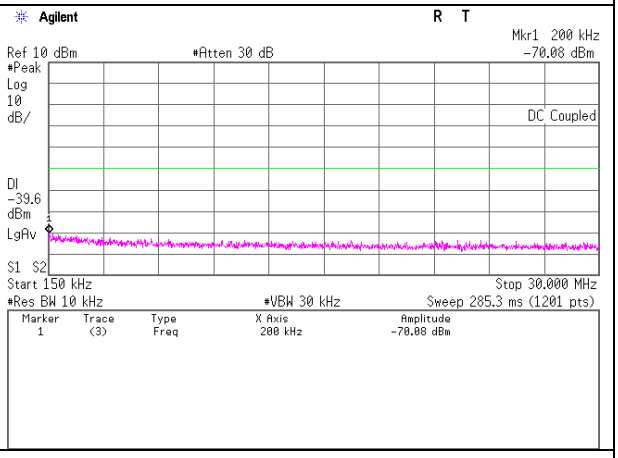
LTE Band XVII

Tx:710.0MHz

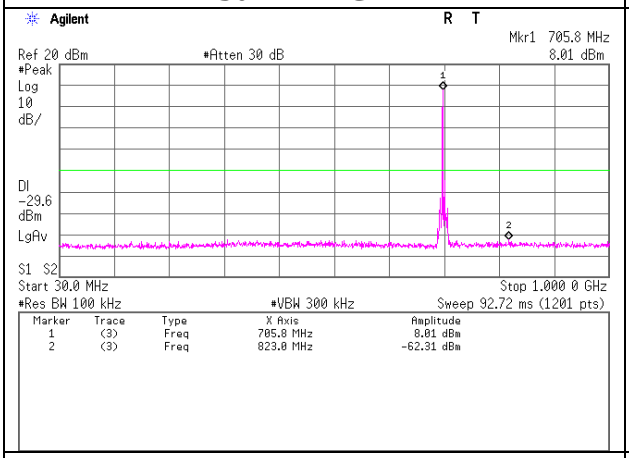
9kHz-150kHz



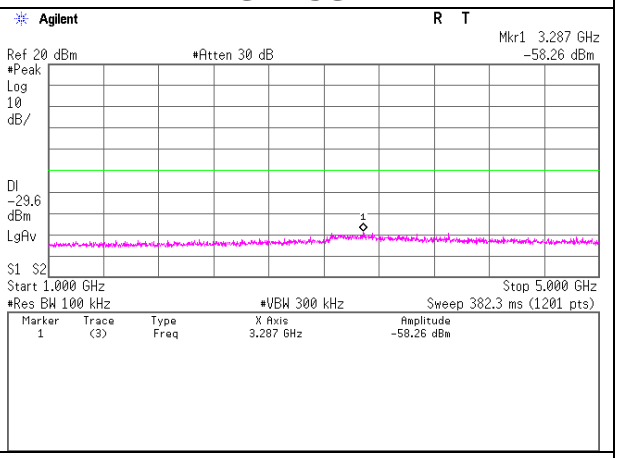
150kHz-30MHz



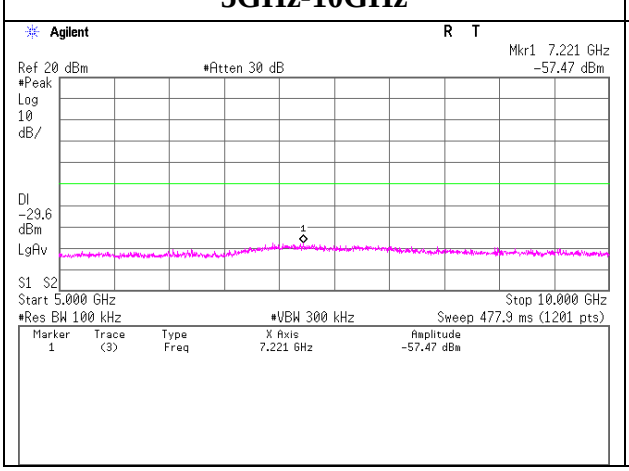
30MHz-1GHz



1GHz-5GHz



5GHz-10GHz

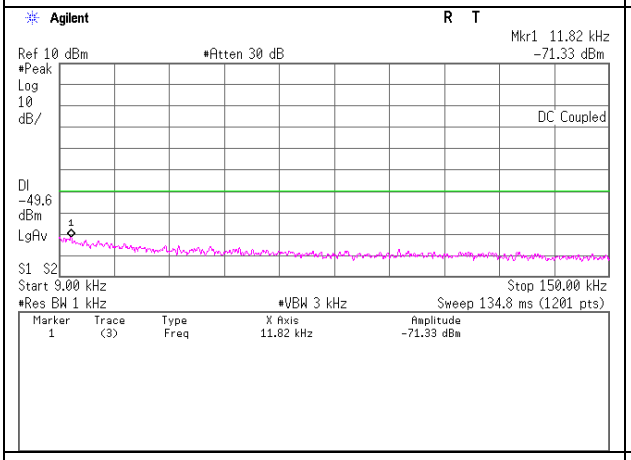


Spurious Emission (Conducted)

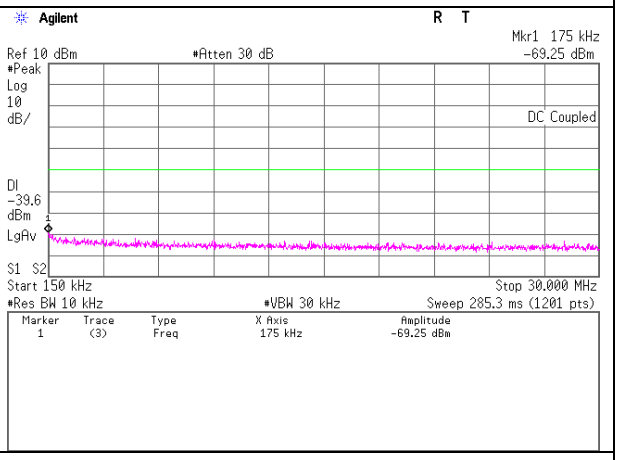
LTE Band XVII

Tx:711.0MHz

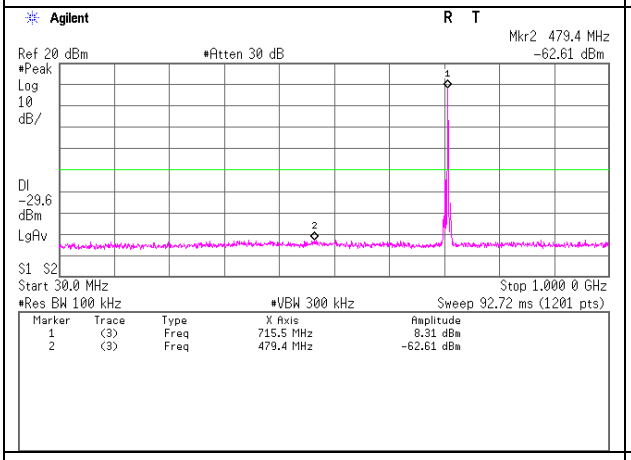
9kHz-150kHz



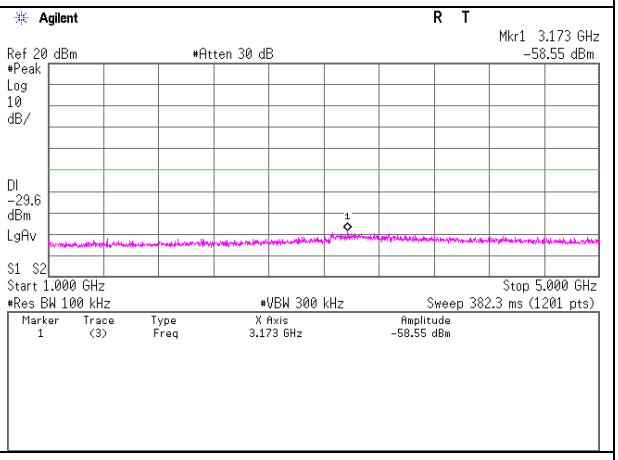
150kHz-30MHz



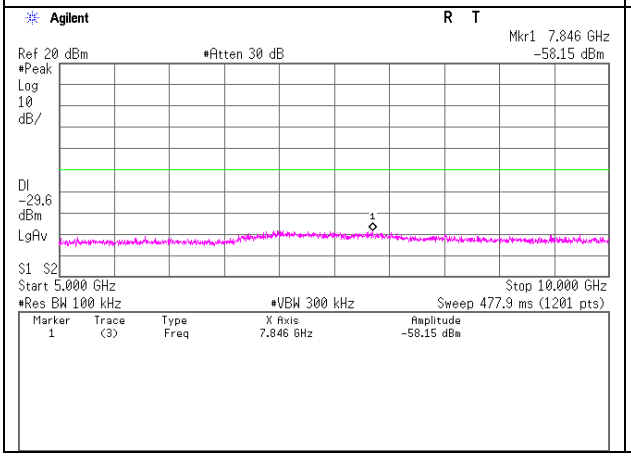
30MHz-1GHz



1GHz-5GHz



5GHz-10GHz



Spurious Emission (Radiated)

W-CDMA Band IV

Report No.	10636726H	
Test place	Ise EMC Lab. No.2 and No.4 Semi Anechoic Chamber	
Date	01/23/2015	01/26/2015
Temperature / Humidity	22deg. C / 24 % RH	21deg. C / 32 % RH
Engineer	Tomoki Matsui	Keisuke Kawamura
	(1-10GHz)	(Below 1GHz &Above 10GHz)
Mode	Tx W-CDMA (RMC 12.2kbps), All Up Bits	

Tx: 1712.4MHz

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
3424.80	64.1	65.7	-43.9	-41.1	4.9	12.9	0.0	-35.9	-33.1	-13.0	22.9	20.1	100	300	108	318	
5137.20	56.8	56.3	-44.1	-47.1	6.1	13.1	0.0	-37.1	-40.1	-13.0	24.1	27.1	124	337	100	218	
6849.60	56.4	54.2	-39.5	-43.2	7.1	12.2	0.0	-34.4	-38.1	-13.0	21.4	25.1	117	332	100	59	
10274.40	47.2	49.2	-51.4	-48.6	8.8	11.5	0.0	-48.7	-45.9	-13.0	35.7	32.9	100	191	100	176	
11986.80	46.2	46.2	-50.2	-53.3	9.6	12.2	0.0	-47.7	-50.8	-13.0	34.7	37.8	100	203	107	168	
13699.20	47.3	50.2	-47.2	-43.2	10.4	12.2	0.0	-45.4	-41.4	-13.0	32.4	28.4	100	0	107	184	
15411.60	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17124.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 1732.6MHz

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
3465.20	66.9	68.0	-40.2	-38.5	5.0	13.0	0.0	-32.1	-30.4	-13.0	19.1	17.4	100	299	108	318	
5197.80	57.7	56.7	-42.7	-46.1	6.1	13.2	0.0	-35.7	-39.1	-13.0	22.7	26.1	118	309	114	209	
6930.40	56.6	54.5	-39.8	-44.2	7.1	12.1	0.0	-34.8	-39.2	-13.0	21.8	26.2	107	317	156	29	
10395.60	49.0	49.3	-49.6	-48.5	8.9	11.5	0.0	-47.0	-45.9	-13.0	34.0	32.9	100	186	100	177	
12128.20	48.0	45.3	-48.4	-54.2	9.7	12.4	0.0	-45.7	-51.5	-13.0	32.7	38.5	100	214	109	161	
13860.80	52.9	53.5	-41.6	-39.9	10.5	11.9	0.0	-40.2	-38.5	-13.0	27.2	25.5	100	0	106	184	
15593.40	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17326.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 1752.6MHz

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
3505.20	60.5	62.1	-47.3	-44.4	5.0	13.1	0.0	-39.2	-36.3	-13.0	26.2	23.3	120	121	108	318	
5257.80	63.4	60.3	-37.8	-40.9	6.2	13.2	0.0	-30.8	-33.9	-13.0	17.8	20.9	100	338	100	41	
7010.40	55.6	53.7	-41.0	-42.4	7.2	12.0	0.0	-36.2	-37.6	-13.0	23.2	24.6	109	316	178	31	
10515.60	49.4	50.3	-49.2	-47.5	9.0	11.5	0.0	-46.7	-45.0	-13.0	33.7	32.0	100	183	100	170	
12268.20	49.0	48.2	-47.4	-51.3	9.7	12.5	0.0	-44.6	-48.5	-13.0	31.6	35.5	100	212	119	187	
14020.80	51.8	53.4	-42.7	-40.0	10.6	11.7	0.0	-41.6	-38.9	-13.0	28.6	25.9	100	7	106	180	
15773.40	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17526.00	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)

LTE Band IV

Report No.	10636726H	
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber	
Date	01/27/2015	01/28/2015
Temperature / Humidity	22deg. C / 35% RH	21deg. C / 31% RH
Engineer	Tsubasa Takayama (Above 1GHz)	Tsubasa Takayama (Below1GHz)
Mode	Tx LTE 3MHz BW QPSK RB1	

Tx: 1711.5MHz, RB1-14

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
3423.00	72.3	68.3	-35.1	-39.1	4.9	11.8	0.0	-28.2	-32.2	-13.0	15.2	19.2	100	78	100	187	
5134.50	56.8	58.2	-44.2	-43.1	6.1	12.4	0.0	-38.0	-36.9	-13.0	25.0	23.9	102	45	100	21	
6846.00	68.9	67.6	-26.0	-29.9	7.1	11.7	0.0	-21.4	-25.3	-13.0	8.4	12.3	100	135	103	41	
8557.50	51.2	57.5	-41.0	-36.4	8.0	11.9	0.0	-37.2	-32.6	-13.0	24.2	19.6	104	51	109	35	
10269.00	44.5	48.2	-52.5	-52.1	8.8	11.1	0.0	-50.2	-49.8	-13.0	37.2	36.8	100	89	100	218	
11980.50	44.3	46.7	-50.0	-51.7	9.6	12.1	0.0	-47.5	-49.2	-13.0	34.5	36.2	100	82	100	221	
13692.00	47.4	49.2	-46.9	-45.6	10.4	12.1	0.0	-45.2	-43.9	-13.0	32.2	30.9	100	98	100	213	
15403.50	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17115.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 1732.5MHz, RB1-14

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
3465.00	72.7	68.3	-34.5	-39.5	5.0	11.9	0.0	-27.6	-32.6	-13.0	14.6	19.6	102	81	109	188	
5197.50	57.8	58.5	-43.3	-42.8	6.1	12.4	0.0	-37.1	-36.6	-13.0	24.1	23.6	102	51	104	23	
6930.00	66.5	65.1	-28.6	-31.5	7.1	11.7	0.0	-24.0	-26.9	-13.0	11.0	13.9	100	133	103	45	
8662.50	50.2	53.4	-42.1	-40.8	8.1	12.0	0.0	-38.2	-36.9	-13.0	25.2	23.9	100	56	109	42	
10395.00	46.8	53.7	-50.5	-45.4	8.9	11.0	0.0	-48.4	-43.3	-13.0	35.4	30.3	100	86	100	211	
12127.50	48.2	51.1	-45.7	-45.9	9.7	12.3	0.0	-43.1	-43.3	-13.0	30.1	30.3	100	98	100	217	
13860.00	56.2	58.2	-37.6	-36.1	10.5	11.9	0.0	-36.3	-34.8	-13.0	23.3	21.8	100	102	100	214	
15592.50	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17325.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 1753.5MHz, RB1-0

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
3507.00	69.6	67.4	-37.6	-40.2	5.0	11.9	0.0	-30.7	-33.3	-13.0	17.7	20.3	104	89	109	189	
5260.50	61.2	60.8	-47.1	-40.5	6.2	12.4	0.0	-40.9	-34.3	-13.0	27.9	21.3	102	58	103	31	
7014.00	62.3	58.7	-31.9	-38.4	7.2	11.7	0.0	-27.4	-33.9	-13.0	14.4	20.9	106	132	103	48	
8767.50	51.6	51.2	-40.7	-42.2	8.2	12.1	0.0	-36.8	-38.3	-13.0	23.8	25.3	100	51	105	41	
10521.00	52.6	54.3	-44.2	-44.3	9.0	11.0	0.0	-42.2	-42.3	-13.0	29.2	29.3	100	92	100	198	
12274.50	55.3	54.4	-38.2	-41.8	9.7	12.4	0.0	-35.5	-39.1	-13.0	22.5	26.1	100	102	100	211	
14028.00	61.8	62.7	-33.2	-31.2	10.6	11.8	0.0	-32.1	-30.1	-13.0	19.1	17.1	100	92	100	217	
15781.50	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
17535.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15
Rx-ANTENNA : Biconical Antenna(25M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(25M-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 : Spectrum Analyzer Peak(RBW:1MHz/VBW:3MHz)

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Spurious Emission (Radiated)

LTE Band VII

Report No.	10636726H		
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber		
Date	01/27/2015	01/27/2015	01/28/2015
Temperature / Humidity	22deg. C / 35% RH	22deg. C / 35% RH	21deg. C / 31% RH
Engineer	Hironobu Ohnishi (1-10GHz)	Tsubasa Takayama (10GHz-)	Tsubasa Takayama (Below1GHz)
Mode	Tx LTE 10MHz BW QPSK RB1		

Tx: 2505MHz, RB1-49

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
5010.00	63.6	57.6	-36.3	-44.2	6.1	12.5	0.0	-29.9	-37.8	-25.0	4.8	12.8	109	82	100	277	
7515.00	52.4	52.1	-42.2	-43.2	7.4	12.0	0.0	-37.7	-38.7	-25.0	12.7	13.7	106	357	124	5	
10020.00	51.6	52.7	-46.3	-48.4	8.7	11.3	0.0	-43.7	-45.8	-25.0	18.7	20.8	100	87	100	171	
12525.00	54.3	53.8	-39.4	-42.8	9.8	12.6	0.0	-36.6	-40.0	-25.0	11.6	15.0	100	98	100	189	
15030.00	55.1	56.3	-39.1	-34.5	10.9	13.7	0.0	-36.3	-31.7	-25.0	11.3	6.7	100	102	100	188	
17535.00	54.5	51.1	-37.9	-34.1	12.0	11.0	0.0	-38.9	-35.1	-25.0	13.9	10.1	100	81	100	192	
20040.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	
22545.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	
25050.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	

Tx: 2535MHz, RB1-49

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
5070.00	63.8	60.2	-35.8	-41.3	6.1	12.6	0.0	-29.3	-34.8	-25.0	4.2	9.7	108	82	116	277	
7605.00	51.0	51.7	-44.7	-44.1	7.5	11.8	0.0	-40.4	-39.8	-25.0	15.4	14.8	103	356	121	5	
10140.00	46.9	46.4	-49.9	-56.3	8.8	11.2	0.0	-47.5	-53.9	-25.0	22.5	28.9	100	72	100	162	
12675.00	51.1	52.3	-41.8	-44.2	9.8	12.7	0.0	-39.0	-41.4	-25.0	14.0	16.4	100	62	100	222	
15210.00	50.5	52.3	-43.0	-38.2	11.0	14.3	0.0	-39.8	-35.0	-25.0	14.8	10.0	100	81	100	181	
17745.00	56.4	48.9	-36.1	-38.9	12.1	9.4	0.0	-38.8	-41.6	-25.0	13.8	16.6	100	89	100	192	
20280.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	
22815.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	
25350.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	

Tx: 2565MHz, RB1-49

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (EIRP) [dBm]		Limit (EIRP) [dBm]	Margin [dB]		Horizontal		Vertical		Remarks
													Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER		HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
5130.00	64.5	66.1	-35.7	-35.4	6.1	12.8	0.0	-29.1	-28.8	-25.0	4.1	3.8	108	82	126	224	
7695.00	52.0	52.0	-43.0	-42.8	7.6	11.7	0.0	-38.9	-38.7	-25.0	13.9	13.7	113	358	128	10	
10260.00	47.7	48.7	-50.5	-50.7	8.8	11.1	0.0	-48.2	-48.4	-25.0	23.2	23.4	100	91	100	172	
12825.00	48.9	51.1	-42.9	-43.1	9.9	12.8	0.0	-40.0	-40.2	-25.0	15.0	15.2	100	68	100	211	
15390.00	46.8	48.9	-44.2	-42.3	11.1	14.8	0.0	-40.5	-38.6	-25.0	15.5	13.6	100	82	100	172	
17955.00	52.7	48.3	-38.2	-40.3	12.2	7.9	0.0	-42.6	-44.7	-25.0	17.6	19.7	100	102	100	0	
20520.00	45.5	47.6	-46.0	-43.3	13.0	15.9	0.0	-43.1	-40.4	-25.0	18.1	15.4	100	81	100	221	
23085.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	
25650.00	NS	NS	-	-	-	-	-	-	-	-25.0	-	-	-	-	-	-	

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss
Rx-ANTENNA : Biconical Antenna(25M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(25M-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 : Spectrum Analyzer Peak(RBW:1MHz/VBW:3MHz)
Spectrum Analyzer RMS Average (RBW:1MHz/VBW:3MHz) (2nd harmonics)

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Spurious Emission (Radiated)

LTE Band XVII

Report No.	10636726H	
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber	
Date	01/27/2015	01/28/2015
Temperature / Humidity	22deg. C / 35% RH	21deg. C / 31% RH
Engineer	Tsubasa Takayama (Above 1GHz)	Tsubasa Takayama (Below1GHz)
Mode	Tx LTE 10MHz BW QPSK RB1	

Tx: 709MHz, RB1-49

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP)	Margin		Horizontal		Vertical		Remarks
											[dB]		Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER	[dBm]	HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1418.00	48.2	49.8	-62.1	-60.8	3.1	7.5	0.0	-59.9	-58.6	-13.0	46.9	45.6	102	81	102	188	
2127.00	65.0	57.8	-43.3	-50.3	3.8	10.4	0.0	-38.9	-45.9	-13.0	25.9	32.9	102	61	110	231	
2836.00	49.8	45.3	-56.1	-59.9	4.4	10.9	0.0	-51.8	-55.6	-13.0	38.8	42.6	112	67	103	221	
3545.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
3545.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
4254.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
5672.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
6381.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
7090.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 710MHz, RB1-0

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP)	Margin		Horizontal		Vertical		Remarks
											[dB]		Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER	[dBm]	HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1420.00	48.5	49.8	-61.8	-60.9	3.1	7.5	0.0	-59.6	-58.7	-13.0	46.6	45.7	108	89	102	182	
2130.00	65.8	58.9	-42.5	-49.4	3.8	10.4	0.0	-38.1	-45.0	-13.0	25.1	32.0	103	51	114	233	
2840.00	49.2	45.9	-56.7	-59.3	4.4	10.9	0.0	-52.4	-55.0	-13.0	39.4	42.0	111	76	103	228	
3550.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
4260.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
4970.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
5680.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
6390.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
7100.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Tx: 711MHz, RB1-49

Frequency	Rx SA/TR Reading [dBuV]		Tx SG Reading [dBm]		Tx Cable Loss	Tx Ant. Gain	Tx Ant. Atten. Loss	Result (ERP) [dBm]		Limit (ERP)	Margin		Horizontal		Vertical		Remarks
											[dB]		Rx Ant. Height	Turn Table	Rx Ant. Height	Turn Table	
[MHz]	HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER	[dBm]	HOR	VER	[cm]	[deg.]	[cm]	[deg.]	
1422.00	48.9	49.8	-61.4	-60.9	3.1	7.5	0.0	-59.2	-58.7	-13.0	46.2	45.7	109	91	102	188	
2133.00	64.7	58.9	-41.7	-49.3	3.8	10.4	0.0	-37.3	-44.9	-13.0	24.3	31.9	102	48	111	281	
2844.00	48.5	45.9	-57.4	-59.2	4.5	10.9	0.0	-53.1	-54.9	-13.0	40.1	41.9	112	81	114	221	
3555.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
4266.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
4977.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
5688.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
6399.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	
7110.00	NS	NS	-	-	-	-	-	-	-	-13.0	-	-	-	-	-	-	

Calculation Result = SG Reading - Tx Cable Loss + Tx Antenna Gain - Tx Antenna Attenuator Loss -2.15
Rx-ANTENNA : Biconical Antenna(25M-300MHz), Logperiodic Antenna(300M-1000MHz), Horn Antenna(1G-40GHz)
Tx-ANTENNA : 120MHz tuned Dipole Antenna(25M-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 : Spectrum Analyzer Peak(RBW:1MHz/VBW:3MHz)

Frequency Stability(Temperature/Voltage Variation)

W-CDMA Band IV / Tx: 1732.6MHz

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/09/2015
Temperature/ Humidity	19 deg. C / 51% RH
Engineer	Yutaka Yoshida
Mode	Tx W-CDMA(RMC12.2kbps), All Up Bits

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.80	1732.5999976	0.0	0.0000	2.5
-20	3.80	1732.5999962	-1.3	-0.0008	2.5
-10	3.80	1732.5999975	-0.1	-0.0001	2.5
0	3.80	1732.5999971	-0.5	-0.0003	2.5
10	3.80	1732.5999960	-1.6	-0.0009	2.5
20	3.80	1732.5999976	0.0	0.0000	Reference
30	3.80	1732.5999993	1.8	0.0010	2.5
40	3.80	1732.5999984	0.9	0.0005	2.5
50	3.80	1732.5999973	-0.2	-0.0001	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	1732.5999968	-0.8	-0.0005	2.5
20	3.80	1732.5999976	0.0	0.0000	Reference
20	3.00	1732.5999977	0.1	0.0001	2.5

Frequency Stability(Temperature/Voltage Variation)

LTE Band IV / Tx: 1732.5MHz

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/09/2015
Temperature/ Humidity	19 deg. C / 51% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 20MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.80	1732.5000011	1.2	0.0007	2.5
-20	3.80	1732.5000012	1.3	0.0007	2.5
-10	3.80	1732.5000012	1.3	0.0008	2.5
0	3.80	1732.5000015	1.6	0.0009	2.5
10	3.80	1732.5000006	0.7	0.0004	2.5
20	3.80	1732.4999999	0.0	0.0000	Reference
30	3.80	1732.5000006	0.7	0.0004	2.5
40	3.80	1732.5000004	0.5	0.0003	2.5
50	3.80	1732.4999996	-0.3	-0.0002	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	1732.5000001	0.2	0.0001	2.5
20	3.80	1732.4999999	0.0	0.0000	Reference
20	3.00	1732.5000009	1.0	0.0006	2.5

Frequency Stability(Temperature/Voltage Variation)

LTE Band IV / Tx: 1732.5MHz

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/09/2015
Temperature/ Humidity	19 deg. C / 51% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 20MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.80	1732.5000015	1.2	0.0007	2.5
-20	3.80	1732.5000012	1.0	0.0006	2.5
-10	3.80	1732.5000025	2.2	0.0013	2.5
0	3.80	1732.5000030	2.7	0.0016	2.5
10	3.80	1732.5000010	0.8	0.0005	2.5
20	3.80	1732.5000002	0.0	0.0000	Reference
30	3.80	1732.5000017	1.5	0.0009	2.5
40	3.80	1732.5000006	0.3	0.0002	2.5
50	3.80	1732.5000010	0.7	0.0004	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	1732.5000005	0.3	0.0002	2.5
20	3.80	1732.5000002	0.0	0.0000	Reference
20	3.00	1732.5000017	1.5	0.0009	2.5

Frequency Stability(Temperature/Voltage Variation)

LTE Band VII / Tx: 2535.0MHz

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/09/2015
Temperature/ Humidity	19 deg. C / 51% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 20MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.70	2535.0000003	0.7	0.0003	2.5
-20	3.70	2535.0000019	2.3	0.0009	2.5
-10	3.70	2534.9999998	0.2	0.0001	2.5
0	3.70	2535.0000005	0.9	0.0003	2.5
10	3.70	2535.0000033	3.7	0.0015	2.5
20	3.70	2534.9999996	0.0	0.0000	Reference
30	3.70	2535.0000010	1.4	0.0006	2.5
40	3.70	2535.0000022	2.6	0.0010	2.5
50	3.70	2535.0000040	4.4	0.0017	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	2534.9999989	-0.7	-0.0003	2.5
20	3.70	2534.9999996	0.0	0.0000	Reference
20	3.60	2535.0000029	3.3	0.0013	2.5

Frequency Stability(Temperature/Voltage Variation)

LTE Band VII / Tx: 2535.0MHz

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/09/2015
Temperature/ Humidity	19 deg. C / 51% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 20MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.70	2535.0000015	0.4	0.0001	2.5
-20	3.70	2535.0000015	0.4	0.0001	2.5
-10	3.70	2535.0000053	4.1	0.0016	2.5
0	3.70	2534.9999993	-1.9	-0.0007	2.5
10	3.70	2535.0000007	-0.5	-0.0002	2.5
20	3.70	2535.0000012	0.0	0.0000	Reference
30	3.70	2535.0000002	-1.0	-0.0004	2.5
40	3.70	2535.0000058	4.7	0.0018	2.5
50	3.70	2535.0000047	3.5	0.0014	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	2535.0000003	-0.9	-0.0004	2.5
20	3.70	2535.0000012	0.0	0.0000	Reference
20	3.60	2535.0000008	-0.3	-0.0001	2.5

Frequency Stability(Temperature/Voltage Variation)

LTE Band XVII / Tx: 710.0MHz

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/09/2015
Temperature/ Humidity	19 deg. C / 51% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(QPSK), BW 10MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.80	710.0000009	1.1	0.0016	2.5
-20	3.80	710.0000009	1.2	0.0016	2.5
-10	3.80	710.0000005	0.7	0.0010	2.5
0	3.80	710.0000003	0.5	0.0007	2.5
10	3.80	710.0000011	1.3	0.0018	2.5
20	3.80	709.9999998	0.0	0.0000	Reference
30	3.80	709.9999996	-0.2	-0.0002	2.5
40	3.80	709.9999996	-0.1	-0.0002	2.5
50	3.80	709.9999993	-0.5	-0.0006	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	709.9999990	-0.8	-0.0011	2.5
20	3.80	709.9999998	0.0	0.0000	Reference
20	3.00	709.9999990	-0.7	-0.0010	2.5

Frequency Stability(Temperature/Voltage Variation)

LTE Band XVII / Tx: 710.0MHz

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10636726H
Date	02/09/2015
Temperature/ Humidity	19 deg. C / 51% RH
Engineer	Yutaka Yoshida
Mode	Tx LTE(16QAM), BW 10MHz

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30	3.80	710.0000010	1.0	0.0014	2.5
-20	3.80	710.0000021	2.1	0.0030	2.5
-10	3.80	710.0000000	0.0	0.0000	2.5
0	3.80	710.0000015	1.5	0.0021	2.5
10	3.80	710.0000009	0.9	0.0013	2.5
20	3.80	710.0000000	0.0	0.0000	Reference
30	3.80	709.9999989	-1.1	-0.0016	2.5
40	3.80	709.9999987	-1.3	-0.0019	2.5
50	3.80	709.9999992	-0.8	-0.0011	2.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20	4.20	710.0000004	0.4	0.0006	2.5
20	3.80	710.0000000	0.0	0.0000	Reference
20	3.00	710.0000000	0.0	0.0000	2.5

APPENDIX 2: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2014/06/25 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2015/01/13 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MRENT-116	Spectrum Analyzer	Agilent	E4440A	MY46187620	RE	2014/03/05 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2014/02/21 * 12
MCC-166	Microwave Cable	Junkosha	MWX221	1303S120(1m) / 1311S167(5m)	RE	2014/09/24 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2015/01/28 * 12
MRF-10	Band Rejection Filter(1710-1755MHz)	TOKYO KEIKI	TF81ZRD1	1001	RE	2015/01/26 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278923/4	RE	2014/12/15 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2014/05/21 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2014/05/16 * 12
KSG-05	Signal Generator	Rohde & Schwarz	SMR40	100137	RE	2014/07/23 * 12
MCC-130	Microwave Cable(1-30GHz)	HUBER+SUHNER	SF103/11PC3.5-31/11PC3.5-31/8.0m	54308/3	RE	2015/01/07 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2014/02/28 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	1501	RE	2015/01/13 * 12
MJM-23	Measure	ASKUL	-	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2014/04/08 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2014/08/12 * 12
MCC-141	Microwave Cable	Junkosha	MWX221	1305S002R(1m) / 1405S146(5m)	RE	2014/06/11 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2014/03/11 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2014/11/22 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2014/11/22 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2014/06/02 * 12
MAT-68	Attenuator	Anritsu	MP721B	6200961025	RE	2014/11/11 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2014/03/14 * 12
MHF-26	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	002	RE	2014/09/24 * 12
SURC-01	Radio Communication Analyzer	Anritsu	MT8820C	6201274351	RE	2014/05/20 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2014/05/26 * 12
MRF-11	Band Rejection Filter(2500-2570MHz)	TOKYO KEIKI	TF81ZRD1	1001	RE	2015/01/27 * 12
MCC-91	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	30812/2	RE	2014/05/16 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE(MW)	2014/02/21 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2014/10/18 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2014/02/20 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2014/11/11 * 12
YTSSG03	Signal Generator	Rohde & Schwarz	SMT02	51400043	RE	2014/08/18 * 12
MCC-125	Coaxial Cable	UL Japan	-	-	RE	2014/07/15 * 12
MDA-03	Dipole Antenna	Schwarzbeck	UHAP	991	RE	2014/10/06 * 12

EMI test equipment (2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MURC-05	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	127576	AT	2014/11/25 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2014/10/16 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2014/10/15 * 12
MPD-03	Power Divider DC-12.4GHz	SUHNER	4901.19.A	-	AT	2014/05/14 * 12
MCC-93	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	30814/2	AT	2014/05/14 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	1401	AT	2015/01/13 * 12
MAT-25	Attenuator(10dB)(above 1GHz)	Agilent	8493C	71642	AT	2014/06/12 * 12
MCC-144	Microwave Cable	Junkosha	MWX221	1207S407	AT	2014/08/08 * 12
MSA-16	Spectrum Analyzer	Agilent	E4440A	MY46186390	AT	2014/02/28 * 12
MPM-16	Power Meter	Agilent	8990B	MY51000271	AT	2014/04/04 * 12
MPSE-22	Power sensor	Agilent	N1923A	MY54070003	AT	2014/04/04 * 12
MCH-04	Temperature and Humidity Chamber	Tabai Espec	PL-2KP	14015723	AT	2014/08/06 * 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