



Neutron Engineering Inc.

FCC Radio Test Report

FCC ID: QISR215

This report concerns (check one): Original Grant Class I Change

Issued Date : Jul. 11, 2013
Project No. : 1306C076
Equipment : Vodafone Mobile Wi-Fi
Model Name : R215
Applicant : Huawei Technologies Co.,Ltd.
Address : Bantian, Longgang District, Shenzhen
China

Tested by: Neutron Engineering Inc. EMC Laboratory

Date of Receipt: Jun. 07, 2013

Date of Test: Jun. 07, 2013~ Jul. 10, 2013

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Declaration

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1. CERTIFICATION

Equipment : Vodafone Mobile Wi-Fi
Brand Name : Vodafone
Model Name : R215
Applicant : Huawei Technologies Co.,Ltd.
Manufacturer : Huawei Technologies Co.,Ltd.
Address : Administration Building, Huawei Base, Bantian, Longgang District ,Shenzhen
518129, P.R.China
Factory : Huawei Technologies Co.,Ltd.
Address : Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R.China
Date of Test : Jun. 07, 2013~ Jul. 10, 2013
Test Item : ENGINEERING SAMPLE
Standard(s) : FCC Part15, Subpart C(15.247) / ANSI C63.4 : 2009

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-2-1306C076) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

Test result included in this report is only for the 5745~5825MHz part of the product.



2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15 (15.247) , Subpart C				
Standard(s)	Section	Test Item	Judgment	Remark
	15.207	Conducted Emission	PASS	
	15.247 (d)	Antenna conducted Spurious Emission	PASS	
	15.247 (a)(2)	6dB Bandwidth	PASS	
	15.247 (b)	Peak Output Power	PASS	
	15.247 (e)	Power Spectral Density	PASS	
	15.203	Antenna Requirement	PASS	
	15.247(d)	Transmitter Radiated Emissions FCC Limit: Table 15.209	PASS	

NOTE:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The test follows FCC KDB Publication No. 558074 D01 DTS Meas Guidance v03r01 (Measurement Guidelines of DTS) and No. 662911 D01 Multiple Transmitter Output v01r02



2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-CB03/DG-C02** at the location of No.3, Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792
 Neutron's test firm number is 319330

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)	NOTE
DG-CB03	CISPR	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
		1GHz~18GHz	V	3.12	
		1GHz~18GHz	H	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	H	4.14	



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Vodafone Mobile Wi-Fi	
Brand Name	Vodafone	
Model Name	R215	
Model Different	N/A	
Product Description	The EUT is a Vodafone Mobile Wi-Fi	
	Operation Frequency	5745~5825 MHz
	Modulation Type	802.11a/n:OFDM
	Bit Rate of Transmitter	300Mbps
	Number of Channel	5 CH, Please see note 2.(Page 9)
	Antenna Designation	Please see note 3.(Page 9)
	Antenna Gain(Peak)	
	Output Power	802.11a: 14.26 dBm 802.11n 20M: 14.14 dBm 802.11n 40M: 14.27 dBm
	More details of EUT technical specification, please refer to the User's Manual.	
Power Source	#1 DC voltage supplied from AC/DC adapter. 1) Brand/Model: HUAWEI/HW-050100U1W(HK) 2) Brand/Model: HUAWEI/HW-050100U1W(TPI)	
	#2 DC voltage supplied from Li-ion battery. 1) Brand/Model: HUAWEI/HB554666RAW 2) Brand/Model: HUAWEI/HB5F2H	
	#3 DC voltage supplied from USB system.	
Power Rating	#1 I/P: AC 100-240V O/P: DC 5V/1A	
	#2 1)DC 3.7V 1500mAh (Charging Voltage 4.2V) 2)DC 3.7V 1780mAh (Charging Voltage 4.2V)	
	#3 DC 5V	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2.

802.11a / 802.11n 20M					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785
161	5805	165	5825		

802.11n 40M			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

3. Antenna Specification:

Table for Filed Antenna

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	HUAWEI	N/A	Internal Antenna	N/A	3.2
2	HUAWEI	N/A	Internal Antenna	N/A	2.2

Note:

The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers (2T2R).

4.

Operating Mode	1TX	2TX
	TX Mode	
802.11a	V (ANT 1 or ANT 2)	-
802.11n(20MHz)	-	V (ANT 1 & ANT 2)
802.11n(40MHz)	-	V (ANT 1 & ANT 2)



3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX A Mode CHANNEL 149/157/165
Mode 2	TX N20 Mode CHANNEL 149/157/165
Mode 3	TX N40 Mode CHANNEL 151/159
Mode 4	TX Mode

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Conducted Test	
Final Test Mode	Description
Mode 4	TX Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	TX A Mode CHANNEL 149/157/165
Mode 2	TX N20 Mode CHANNEL 149/157/165
Mode 3	TX N40 Mode CHANNEL 151/159

Note:

- (1) The measurements are performed at the high, middle, low available channels.
- (2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.
- (3) The power supply from adapter and Li-ion battery were tested for radiated, the power supply from Li-ion battery is worst case for and included in the test report.
- (4) For TX A mode, both of the output power for Ant 1 and Ant 2 were tested, Ant 1 is found to be the worst case.
- (5) The mode 4 is the EUT was programmed to be in continuously transmitting/TX mode.



3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product

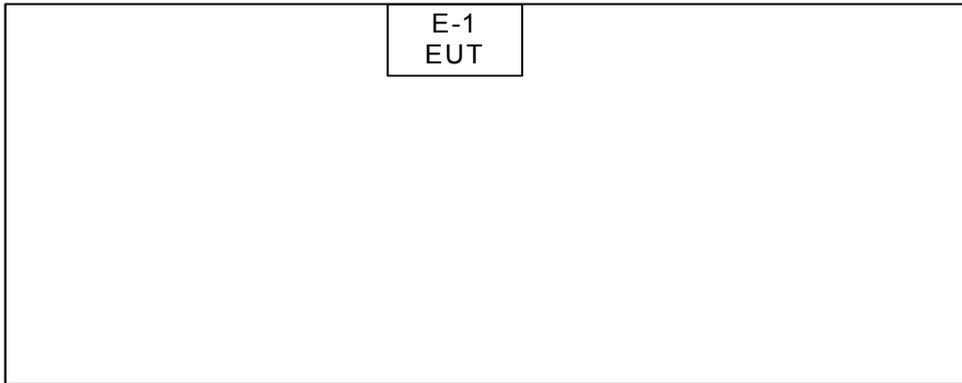
Test software version	NA		
Frequency	5745 MHz	5785 MHz	5825MHz
TX A Mode	850	900	950
TX N20 Mode	650	650	700

Test software version	NA	
Frequency	5745 MHz	5825MHz
TX N40 Mode	700	700

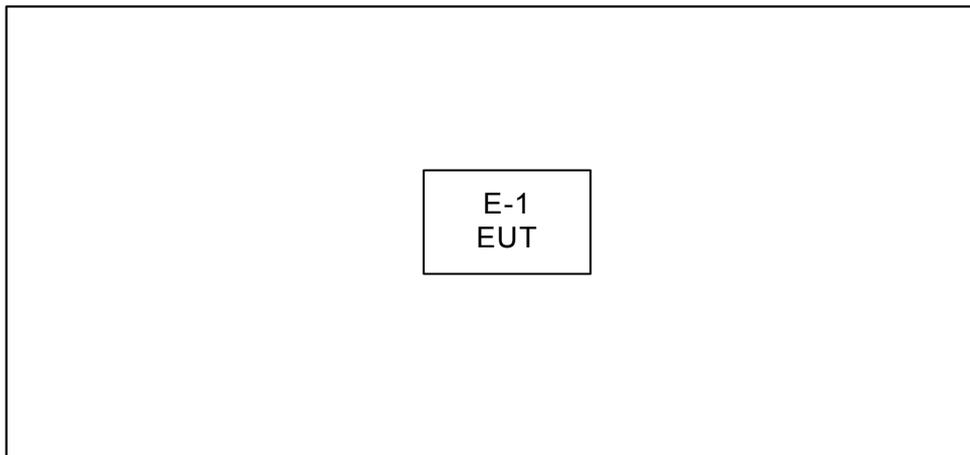


3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Mode:



Radiated TX Mode:





3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Vodafone Mobile Wi-Fi	Vodafone	R215	QISR215	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	-

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in m in 『Length』 column.



4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.0	66.0	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	LISN	EMCO	3816/2	00052765	May.24.2013	Apr. 25, 2014
2	LISN	R&S	ENV216	100087	Nov.15.2012	Nov.16.2013
3	Test Cable	N/A	C_17	N/A	Mar.14.2013	Mar.15.2014
4	EMI TEST RECEIVER	R&S	ESCS30	826547/02 2	May.24.2013	Apr. 25, 2014
5	50Ω Terminator	SHX	TF2-3G-A	08122902	May.24.2013	Apr. 25, 2014

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

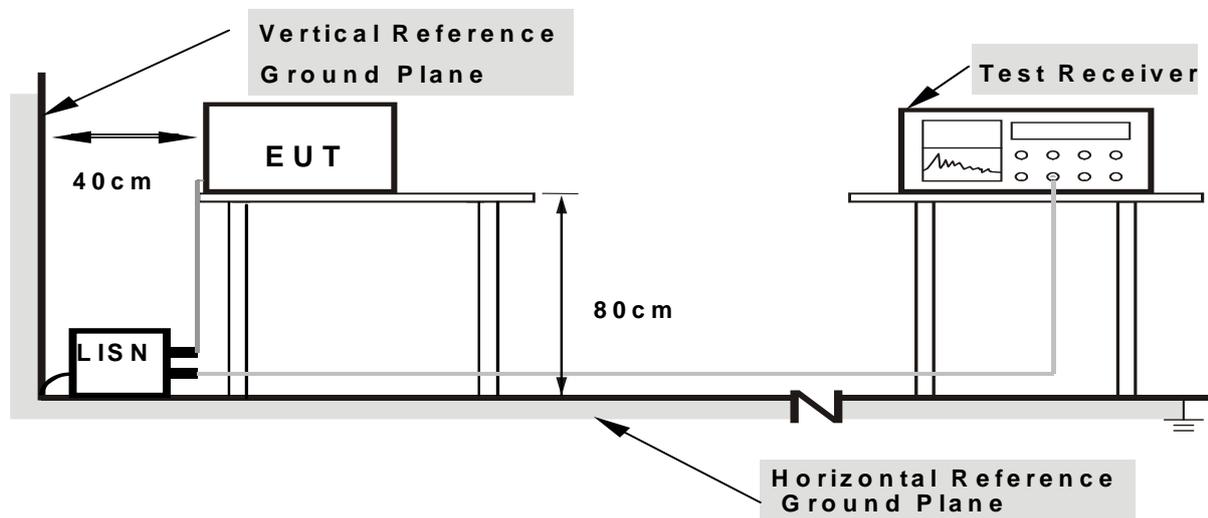
4.1.3 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

4.1.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

The EUT was programmed to be in continuously transmitting/TX mode.



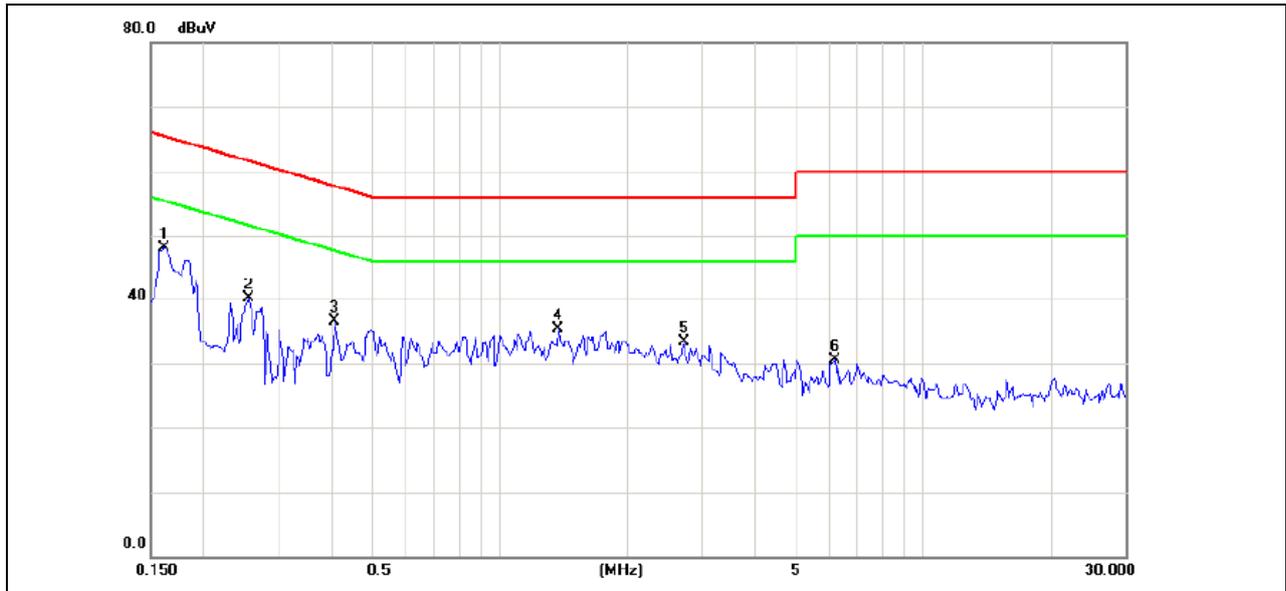
4.1.7 TEST RESULTS

Remark

- (1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a “ * ” marked in AVG Mode column of Interference Voltage Measured ◦
- (2) Measuring frequency range from 150KHz to 30MHz ◦



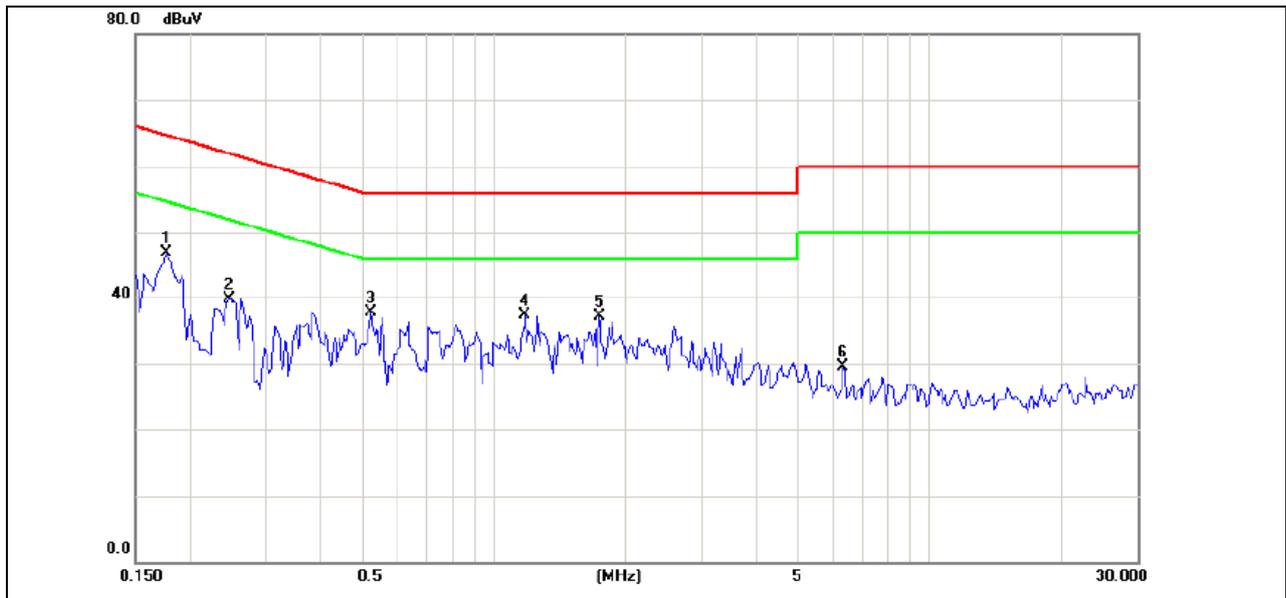
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	29 °C	Relative Humidity :	50 %
Pressure :	1010hPa	Test Power :	AC 120V/60Hz
Test Mode :	TX Mode	Phase:	Line
Adapter:	HK		



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1 *	0.1617	38.56	9.63	48.19	65.38	-17.19	peak	
2	0.2555	30.44	9.66	40.10	61.58	-21.48	peak	
3	0.4078	26.83	9.68	36.51	57.69	-21.18	peak	
4	1.3766	25.54	9.78	35.32	56.00	-20.68	peak	
5	2.7242	23.38	9.86	33.24	56.00	-22.76	peak	
6	6.1953	20.56	9.95	30.51	60.00	-29.49	peak	



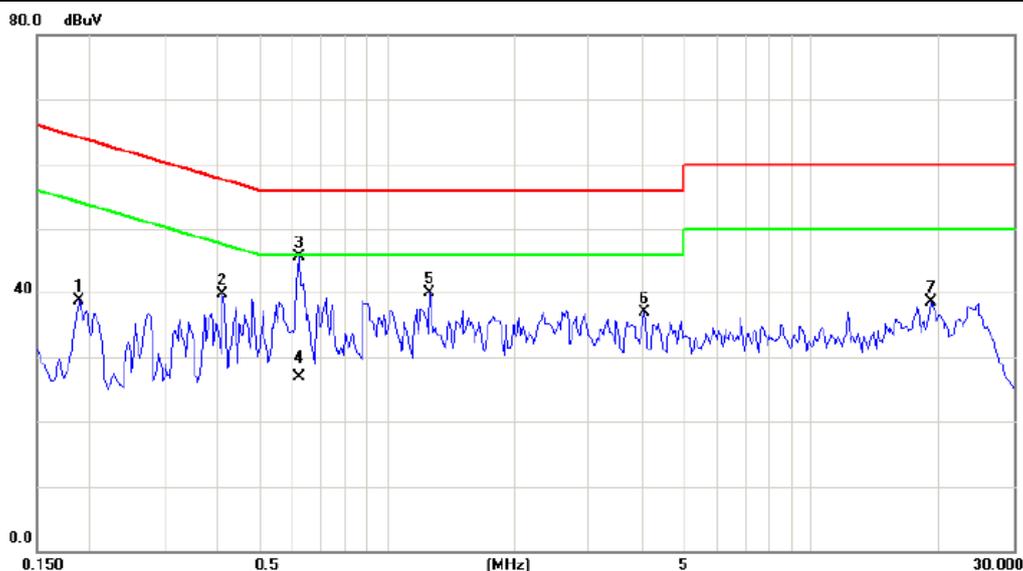
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	29 °C	Relative Humidity :	50 %
Pressure :	1010hPa	Test Power :	AC 120V/60Hz
Test Mode :	TX Mode	Phase:	Neutral
Adapter:	HK		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1773	37.18	9.71	46.89	64.61	-17.72	peak	
2		0.2477	30.04	9.71	39.75	61.83	-22.08	peak	
3		0.5211	27.99	9.74	37.73	56.00	-18.27	peak	
4		1.1812	27.48	9.78	37.26	56.00	-18.74	peak	
5		1.7477	27.23	9.84	37.07	56.00	-18.93	peak	
6		6.3398	19.49	9.99	29.48	60.00	-30.52	peak	



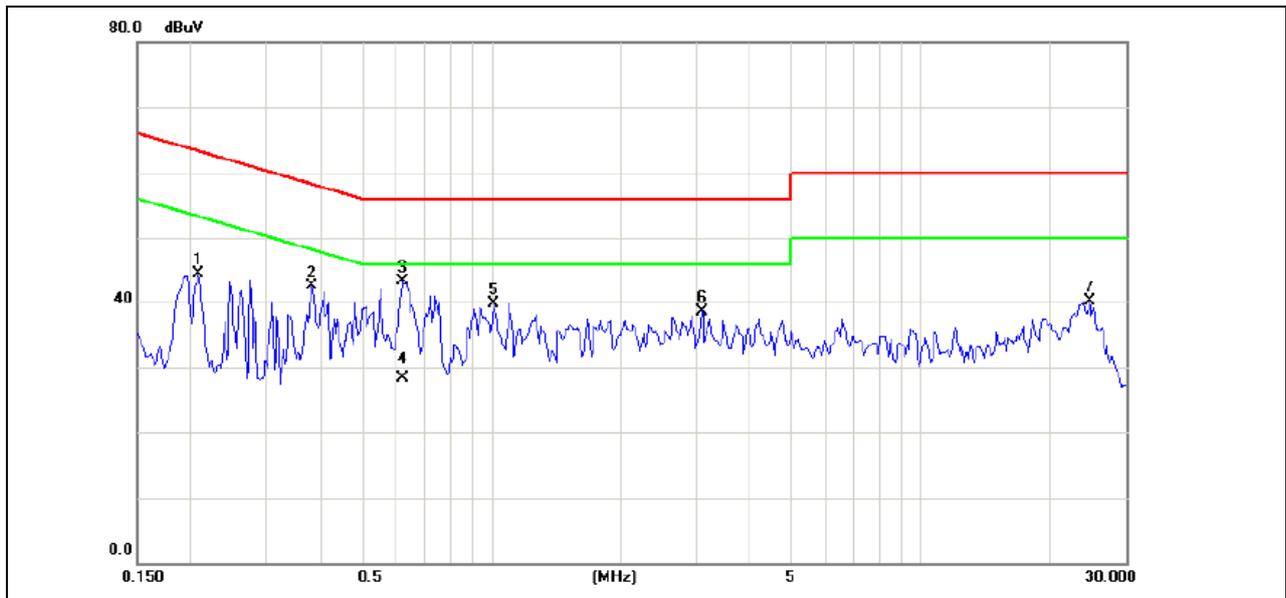
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	29 °C	Relative Humidity :	50 %
Pressure :	1010hPa	Test Power :	AC 120V/60Hz
Test Mode :	TX Mode	Phase:	Line
Adapter:	TPI		



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1891	29.14	9.65	38.79	64.08	-25.29	peak	
2	0.4117	30.02	9.68	39.70	57.61	-17.91	peak	
3 *	0.6266	35.93	9.72	45.65	56.00	-10.35	peak	
4	0.6266	17.20	9.72	26.92	46.00	-19.08	AVG	
5	1.2672	30.16	9.77	39.93	56.00	-16.07	peak	
6	4.0508	27.04	9.90	36.94	56.00	-19.06	peak	
7	19.1484	28.20	10.26	38.46	60.00	-21.54	peak	



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	29 °C	Relative Humidity :	50 %
Pressure :	1010hPa	Test Power :	AC 120V/60Hz
Test Mode :	TX Mode	Phase:	Neutral
Adapter:	TPI		



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.2086	34.74	9.71	44.45	63.26	-18.81	peak	
2	0.3844	32.75	9.73	42.48	58.18	-15.70	peak	
3 *	0.6266	33.57	9.75	43.32	56.00	-12.68	peak	
4	0.6266	18.60	9.75	28.35	46.00	-17.65	AVG	
5	1.0133	29.93	9.77	39.70	56.00	-16.30	peak	
6	3.1055	28.71	9.89	38.60	56.00	-17.40	peak	
7	24.6680	29.45	10.57	40.02	60.00	-19.98	peak	



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (Frequency Range 9KHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	(dBuV/m)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower



4.2.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Antenna	Schwarzbeck	VULB9160	9160-3232	May.25.2013	Apr. 25, 2014
2	Amplifier	HP	8447D	2944A09673	May.04.2013	Apr. 25, 2014
3	Test Receiver	R&S	ESCI	100382	May.04.2013	Apr. 25, 2014
4	Test Cable	N/A	C-01_CB03	N/A	Jul.01.2013	Jun.30.2014
5	Antenna	ETS	3115	00075789	May.25.2013	Apr. 25, 2014
6	Amplifier	Agilent	8449B	3008A02274	May.04.2013	Apr. 25, 2014
7	Spectrum	Agilent	E4408B	US39240143	Nov.24.2012	Nov. 16.2013
8	Test Cable	HUBER+SUHNER	C-45	N/A	May.02.2013	Apr. 30, 2014
9	Controller	CT	SC100	N/A	N/A	N/A
10	Active Loop Antenna	R&S	HFH2-Z2	830749/020	May.04.2013	Apr. 25, 2014
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	May.04.2013	Apr. 25, 2014
12	Horn Antenna	EMCO	3115	9605-4803	Oct.13.2012	Oct.12.2013

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz for PK/AVG detector
Start ~ Stop Frequency	90kHz~110kHz for QP detector
Start ~ Stop Frequency	110kHz~490kHz for PK/AVG detector
Start ~ Stop Frequency	490kHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector



4.2.3 TEST PROCEDURE

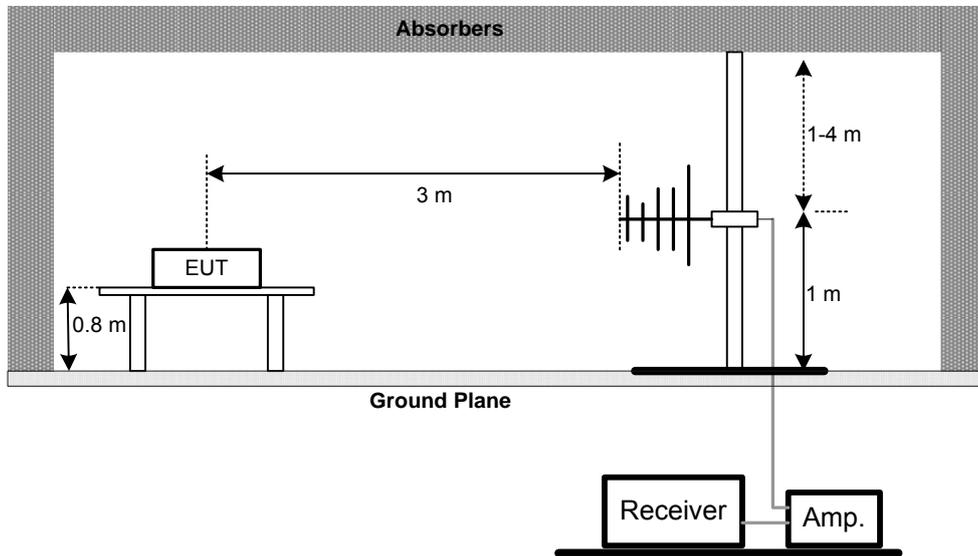
- a. The measuring distance of at 1.5 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

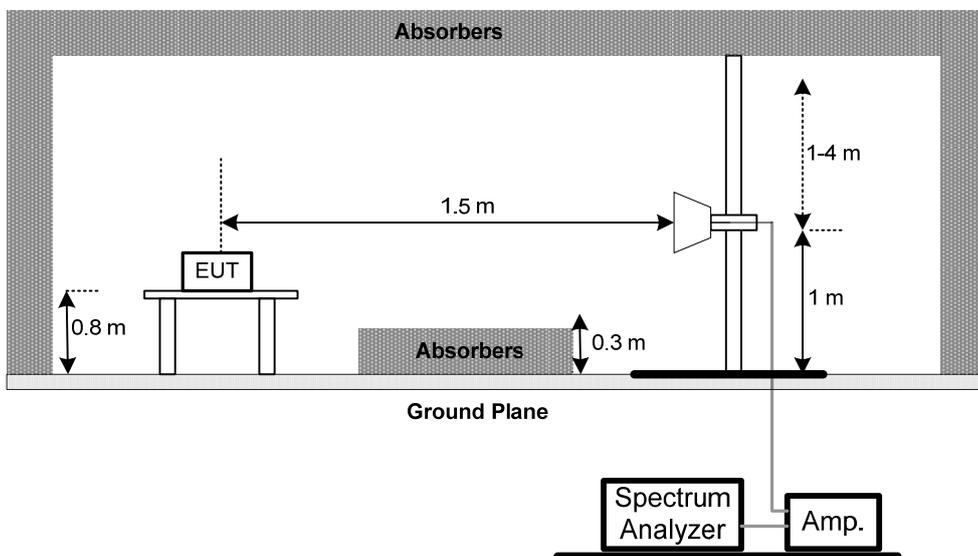
No deviation

4.2.5 TEST SETUP

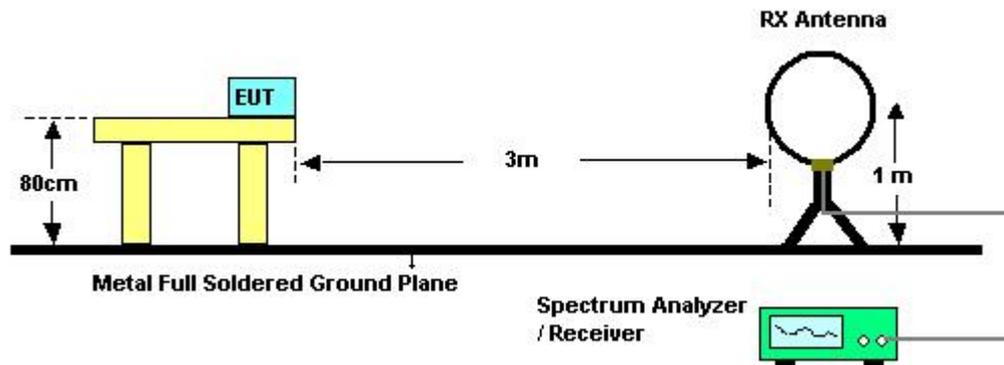
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For radiated emissions below 30MHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



4.2.7 TEST RESULTS (9K~ 30MHZ)

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	24 °C	Relative Humidity :	54 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX Mode		

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.0094	0°	17.20	24.30	41.50	128.19	-86.69	AV
0.0094	0°	19.65	24.30	43.95	148.19	-104.24	PK
0.0137	0°	18.12	24.30	42.42	124.87	-82.45	AV
0.0137	0°	20.68	24.30	44.98	144.87	-99.89	PK
0.0245	0°	17.32	24.02	41.34	119.82	-78.49	AV
0.0245	0°	20.25	24.02	44.27	139.82	-95.56	PK
0.0328	0°	18.21	23.49	41.70	117.29	-75.59	AV
0.0328	0°	20.64	23.49	44.13	137.29	-93.16	PK
0.4260	0°	18.51	19.98	38.49	95.02	-56.53	AVG
0.4260	0°	20.87	19.98	40.85	115.02	-74.17	PK
1.5250	0°	18.75	19.55	38.30	63.94	-25.64	QP

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.00925	90°	18.21	24.30	42.51	128.28	-85.77	AVG
0.00925	90°	20.75	24.30	45.05	148.28	-103.23	PK
0.0237	90°	17.26	24.07	41.33	120.11	-78.78	AVG
0.0237	90°	20.43	24.07	44.50	140.11	-95.61	PK
0.0318	90°	18.32	23.55	41.87	117.56	-75.68	AVG
0.0318	90°	20.54	23.55	44.09	137.56	-93.46	PK
0.0429	90°	17.64	22.85	40.49	114.96	-74.47	AVG
0.0429	90°	20.23	22.85	43.08	134.96	-91.88	PK
0.239	90°	17.15	20.42	37.57	100.04	-62.46	AVG
0.239	90°	20.68	20.42	41.10	120.04	-78.93	PK
1.675	90°	18.24	19.53	37.77	63.12	-25.35	QP

Remark :

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB);.
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor..



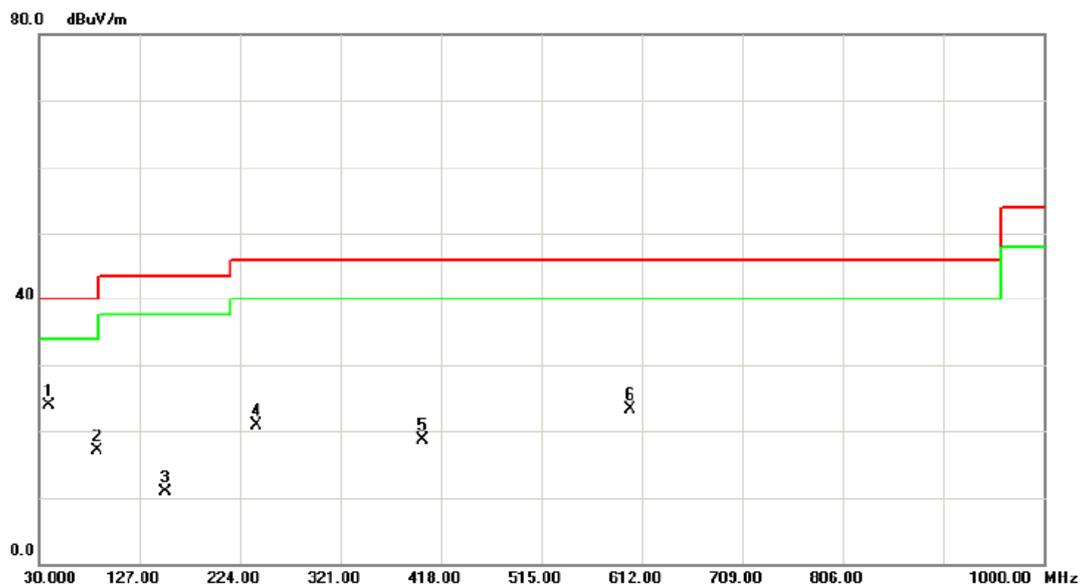
4.2.8 TEST RESULTS (BETWEEN 30 – 1000 MHZ)

Remark :

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz ◦
- (2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (3) Measuring frequency range from 30MHz to 1000MHz ◦
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦



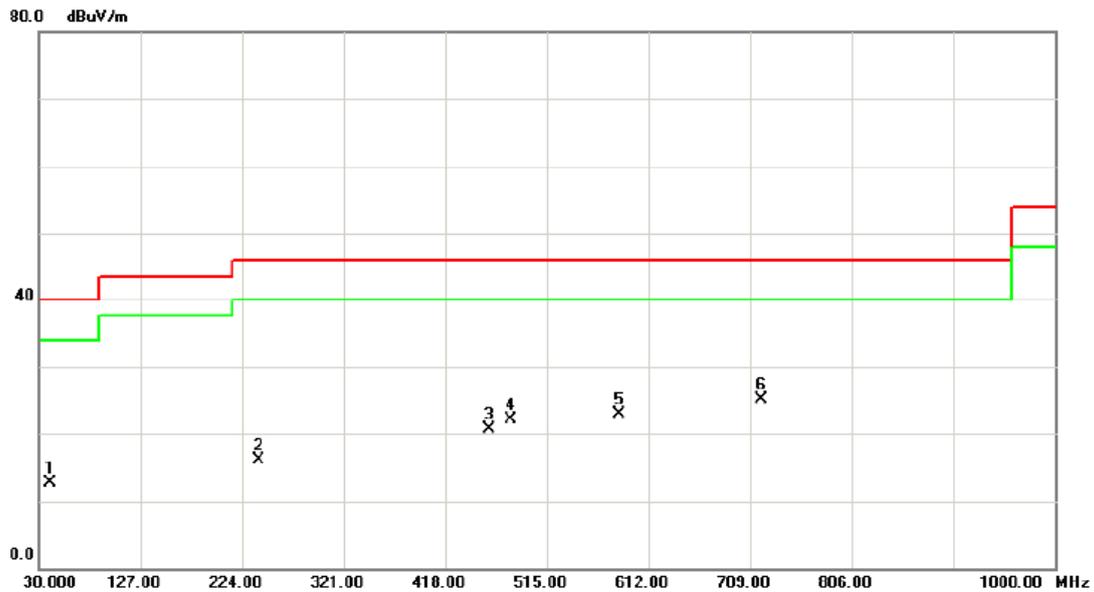
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5745MHz	Phase:	Vertical
Adapter:	HK		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	39.7000	40.82	-16.90	23.92	40.00	-16.08	peak	
2		86.2600	36.27	-19.26	17.01	40.00	-22.99	peak	
3		152.2200	28.71	-17.86	10.85	43.50	-32.65	peak	
4		240.4900	36.58	-15.67	20.91	46.00	-25.09	peak	
5		400.5400	28.60	-9.80	18.80	46.00	-27.20	peak	
6		600.3600	28.86	-5.49	23.37	46.00	-22.63	peak	



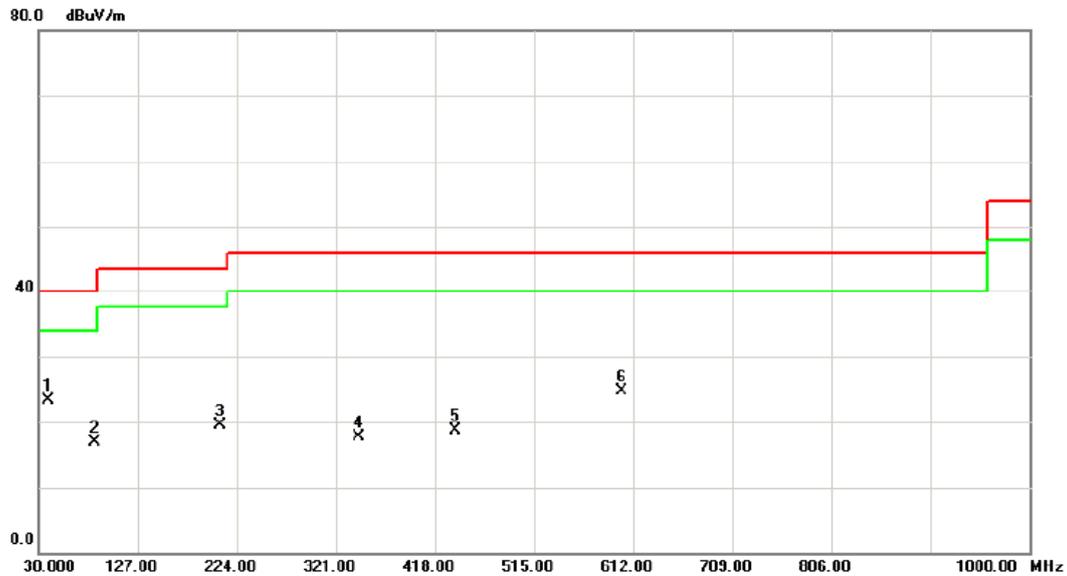
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5745MHz	Phase:	Horizontal
Adapter:	HK		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		40.6700	29.51	-16.83	12.68	40.00	-27.32	peak	
2		239.5200	31.80	-15.71	16.09	46.00	-29.91	peak	
3		459.7100	29.68	-8.88	20.80	46.00	-25.20	peak	
4		480.0800	30.76	-8.64	22.12	46.00	-23.88	peak	
5		583.8700	28.80	-5.83	22.97	46.00	-23.03	peak	
6	*	719.6700	29.69	-4.49	25.20	46.00	-20.80	peak	



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5785MHz	Phase:	Vertical
Adapter:	HK		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	39.7000	40.20	-16.90	23.30	40.00	-16.70	peak	
2		84.3200	36.18	-19.27	16.91	40.00	-23.09	peak	
3		207.5100	36.34	-16.81	19.53	43.50	-23.97	peak	
4		343.3100	29.28	-11.67	17.61	46.00	-28.39	peak	
5		438.3700	27.88	-9.19	18.69	46.00	-27.31	peak	
6		600.3600	30.19	-5.49	24.70	46.00	-21.30	peak	



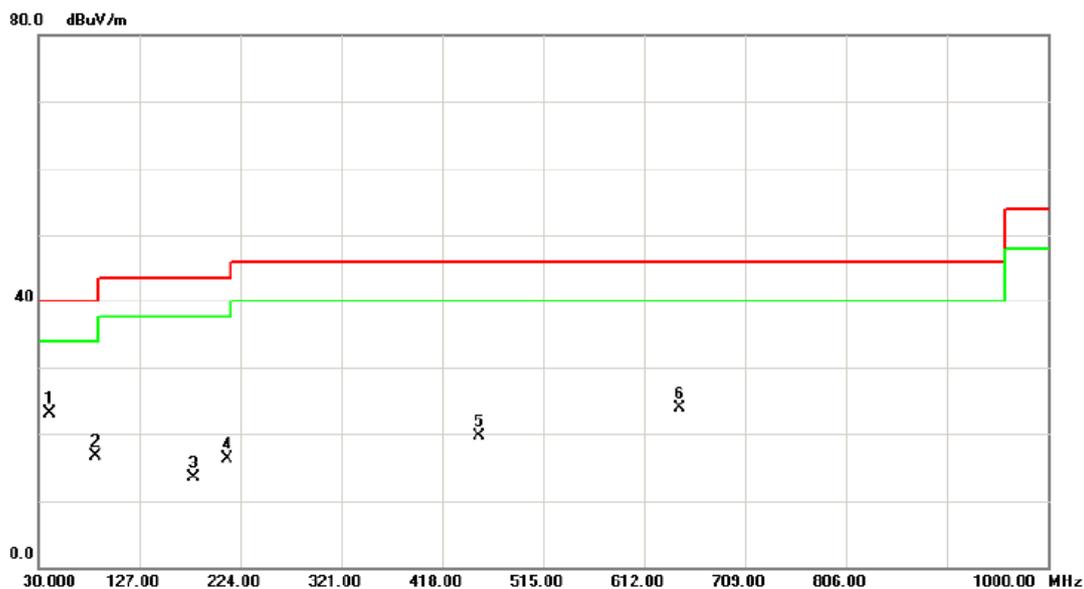
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5785MHz	Phase:	Horizontal
Adapter:	HK		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		87.2300	30.44	-19.26	11.18	40.00	-28.82	peak	
2		240.4900	31.66	-15.67	15.99	46.00	-30.01	peak	
3		362.7100	28.10	-11.08	17.02	46.00	-28.98	peak	
4		480.0800	30.84	-8.64	22.20	46.00	-23.80	peak	
5		598.4200	28.56	-5.53	23.03	46.00	-22.97	peak	
6	*	720.6400	29.22	-4.48	24.74	46.00	-21.26	peak	



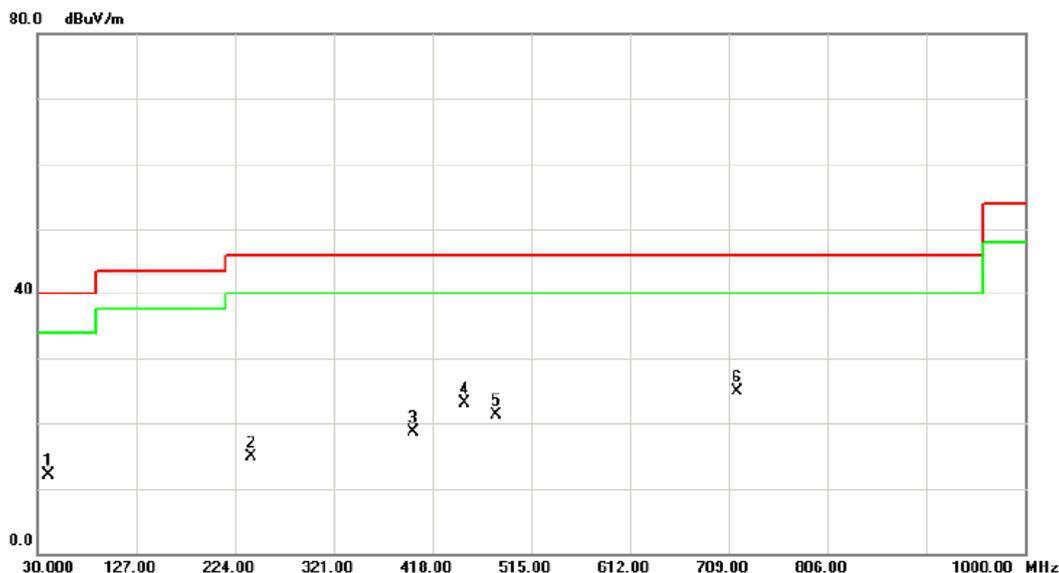
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5825MHz	Phase:	Vertical
Adapter:	HK		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	40.6700	39.95	-16.83	23.12	40.00	-16.88	peak	
2		84.3200	35.95	-19.27	16.68	40.00	-23.32	peak	
3		179.3800	30.73	-17.28	13.45	43.50	-30.05	peak	
4		211.3900	33.04	-16.70	16.34	43.50	-27.16	peak	
5		453.8900	28.59	-8.94	19.65	46.00	-26.35	peak	
6		645.9500	28.68	-4.74	23.94	46.00	-22.06	peak	



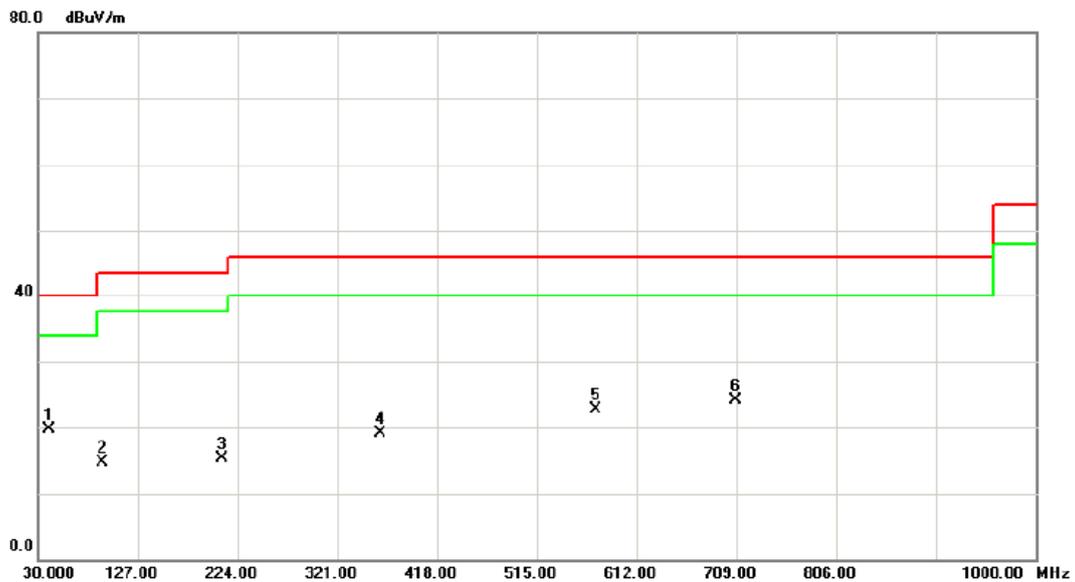
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5825MHz	Phase:	Horizontal
Adapter:	HK		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		40.6700	28.98	-16.83	12.15	40.00	-27.85	peak	
2		240.4900	30.55	-15.67	14.88	46.00	-31.12	peak	
3		399.5700	28.45	-9.82	18.63	46.00	-27.37	peak	
4		450.0100	32.08	-8.99	23.09	46.00	-22.91	peak	
5		480.0800	30.04	-8.64	21.40	46.00	-24.60	peak	
6	*	717.7300	29.38	-4.50	24.88	46.00	-21.12	peak	



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5745MHz	Phase:	Vertical
Adapter:	TPI		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	40.6700	36.52	-16.83	19.69	40.00	-20.31	peak	
2		93.0500	33.69	-18.92	14.77	43.50	-28.73	peak	
3		208.4800	32.11	-16.80	15.31	43.50	-28.19	peak	
4		362.7100	30.17	-11.08	19.09	46.00	-26.91	peak	
5		572.2300	28.80	-6.11	22.69	46.00	-23.31	peak	
6		708.0300	28.63	-4.58	24.05	46.00	-21.95	peak	



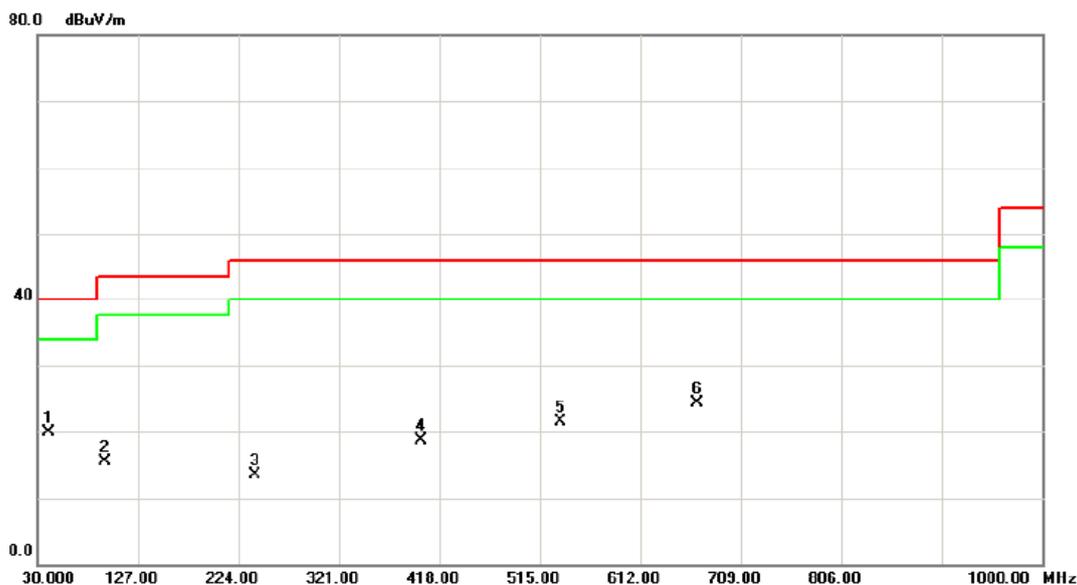
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5745MHz	Phase:	Horizontal
Adapter:	TPI		



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	41.6400	29.99	-16.77	13.22	40.00	-26.78	peak	
2	113.4200	30.86	-18.58	12.28	43.50	-31.22	peak	
3	239.5200	32.92	-15.71	17.21	46.00	-28.79	peak	
4	334.5800	31.11	-11.88	19.23	46.00	-26.77	peak	
5 *	450.0100	32.46	-8.99	23.47	46.00	-22.53	peak	
6	599.3900	28.03	-5.51	22.52	46.00	-23.48	peak	



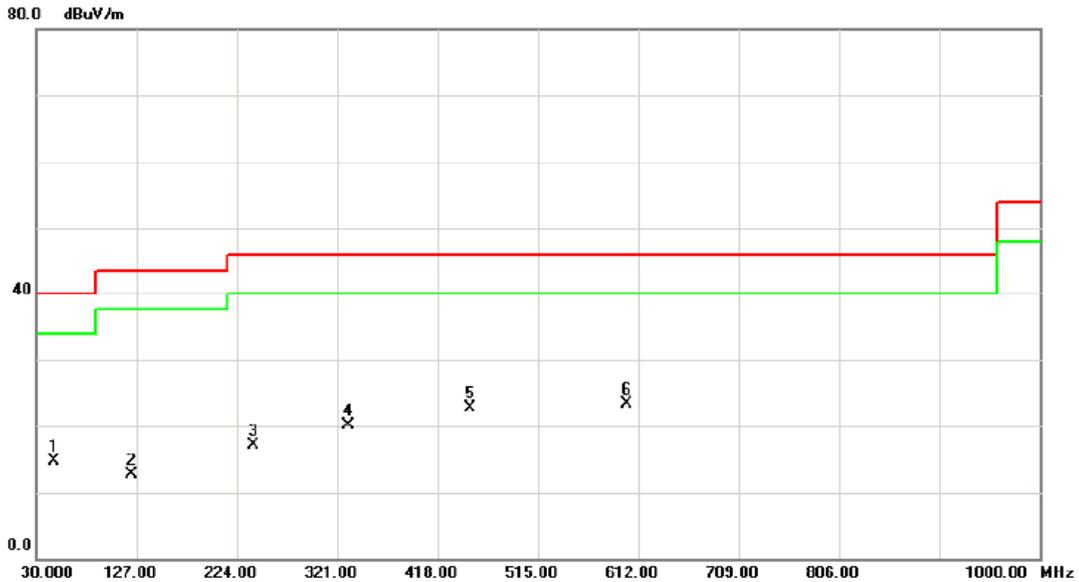
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5785MHz	Phase:	Vertical
Adapter:	TPI		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	40.6700	36.66	-16.83	19.83	40.00	-20.17	peak	
2		94.9900	34.14	-18.70	15.44	43.50	-28.06	peak	
3		240.4900	29.11	-15.67	13.44	46.00	-32.56	peak	
4		400.5400	28.46	-9.80	18.66	46.00	-27.34	peak	
5		534.4000	28.69	-7.15	21.54	46.00	-24.46	peak	
6		666.3200	28.93	-4.67	24.26	46.00	-21.74	peak	



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5785MHz	Phase:	Horizontal
Adapter:	TPI		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		47.4600	31.82	-17.20	14.62	40.00	-25.38	peak	
2		122.1500	31.17	-18.50	12.67	43.50	-30.83	peak	
3		240.4900	32.80	-15.67	17.13	46.00	-28.87	peak	
4		331.6700	32.15	-11.95	20.20	46.00	-25.80	peak	
5		450.0100	31.69	-8.99	22.70	46.00	-23.30	peak	
6	*	600.3600	28.83	-5.49	23.34	46.00	-22.66	peak	



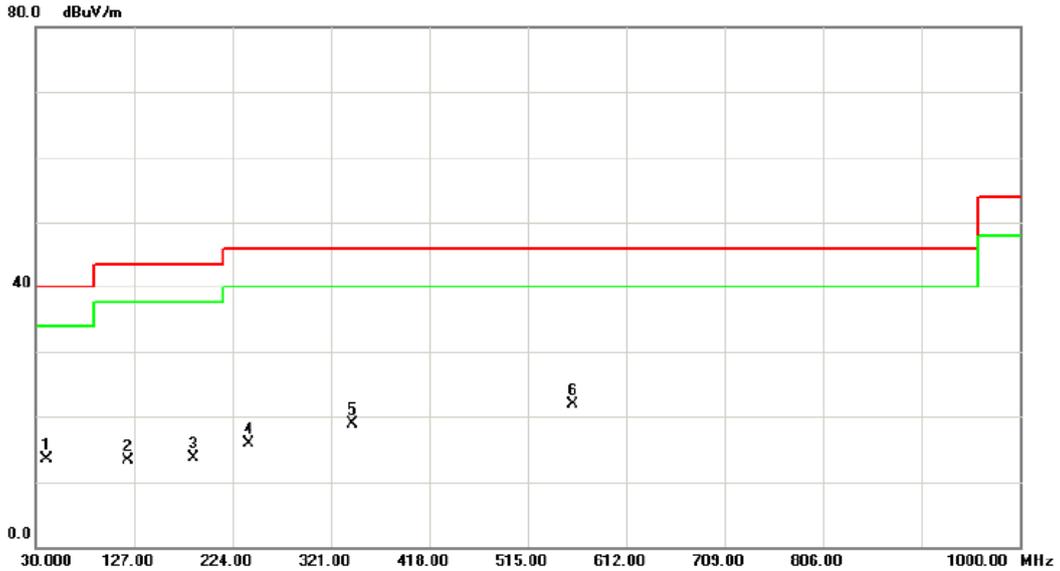
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5825MHz	Phase:	Vertical
Adapter:	TPI		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	40.6700	36.95	-16.83	20.12	40.00	-19.88	peak	
2		94.0200	34.94	-18.80	16.14	43.50	-27.36	peak	
3		152.2200	30.96	-17.86	13.10	43.50	-30.40	peak	
4		230.7900	34.65	-16.03	18.62	46.00	-27.38	peak	
5		400.5400	29.34	-9.80	19.54	46.00	-26.46	peak	
6		600.3600	29.33	-5.49	23.84	46.00	-22.16	peak	



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25°C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5825MHz	Phase:	Horizontal
Adapter:	TPI		



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	40.6700	30.41	-16.83	13.58	40.00	-26.42	peak	
2	121.1800	31.86	-18.51	13.35	43.50	-30.15	peak	
3	186.1700	30.87	-17.17	13.70	43.50	-29.80	peak	
4	240.4900	31.55	-15.67	15.88	46.00	-30.12	peak	
5	342.3400	30.57	-11.69	18.88	46.00	-27.12	peak	
6 *	559.6200	28.30	-6.39	21.91	46.00	-24.09	peak	



4.2.9 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5745MHz		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
#5725.00	V	13.48	5.45	41.90	55.38	47.35	69.53	61.13	X/E
5741.10	V	47.57	39.17	41.96	89.53	81.13			X/F
11490.45	V	39.75	28.26	14.25	54.00	42.51	74.00	54.00	X/H

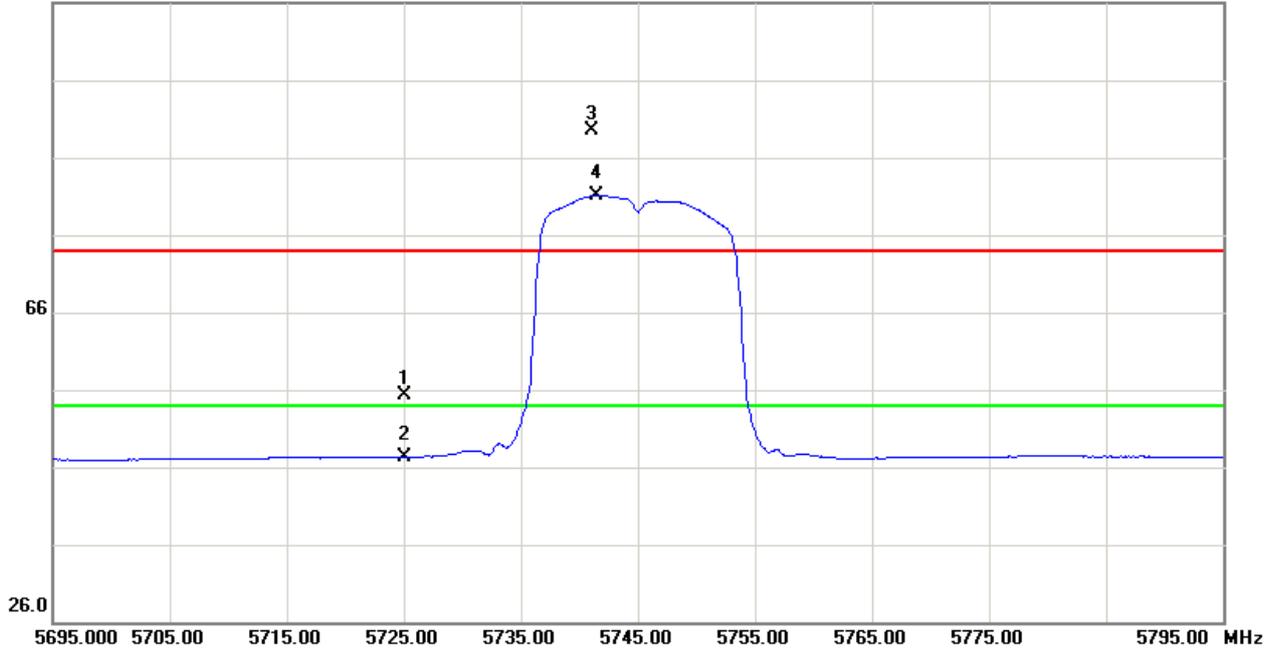
Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦“F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ * ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) “#” The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB

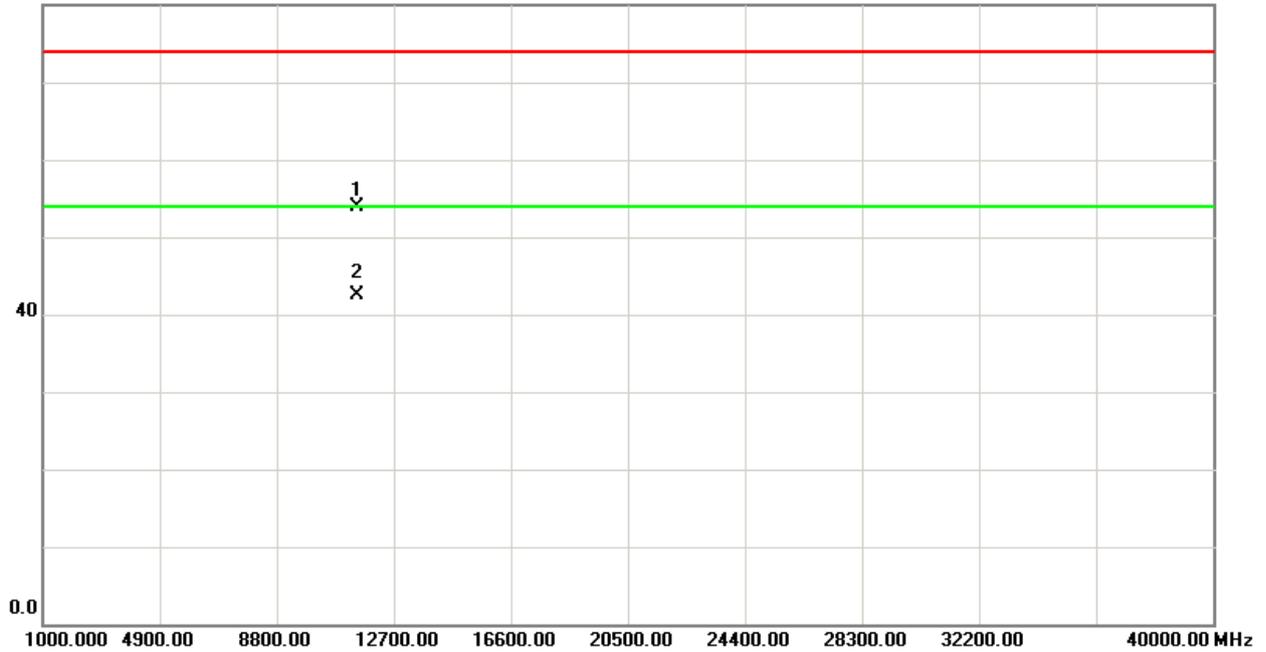


TX CH149 (Above 1000 MHz, Vertical)

106.0 dBuV/m



80.0 dBuV/m





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5745MHz		

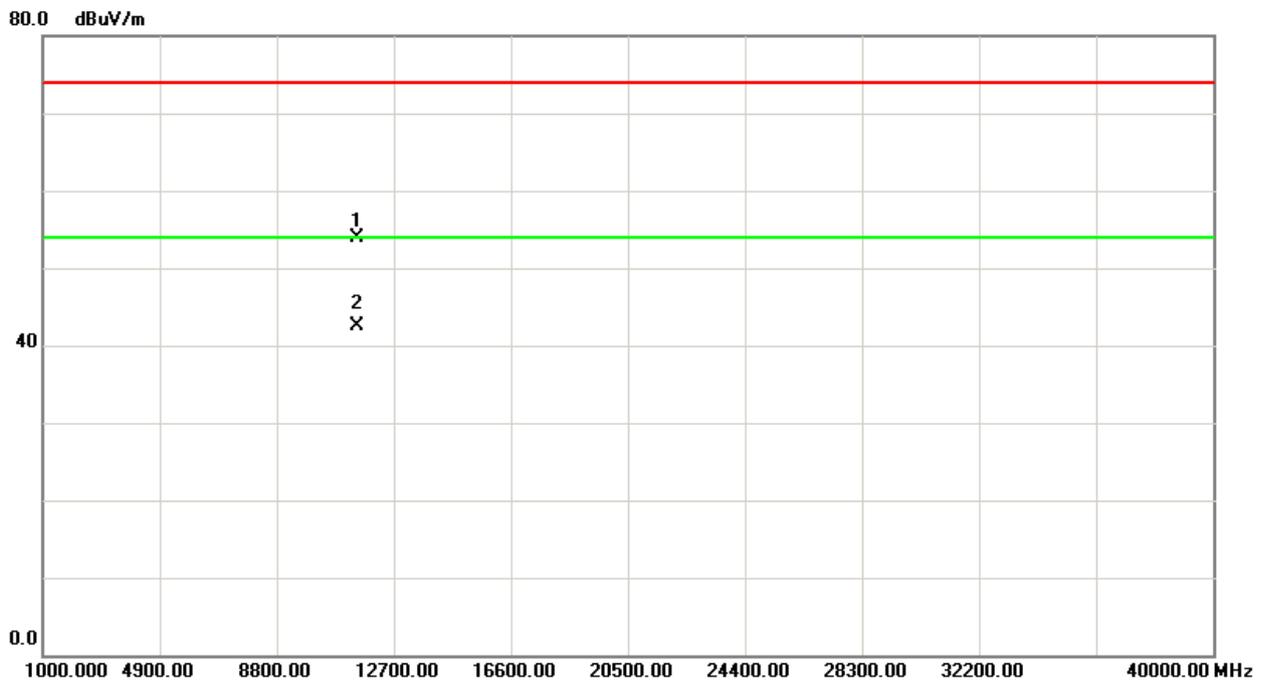
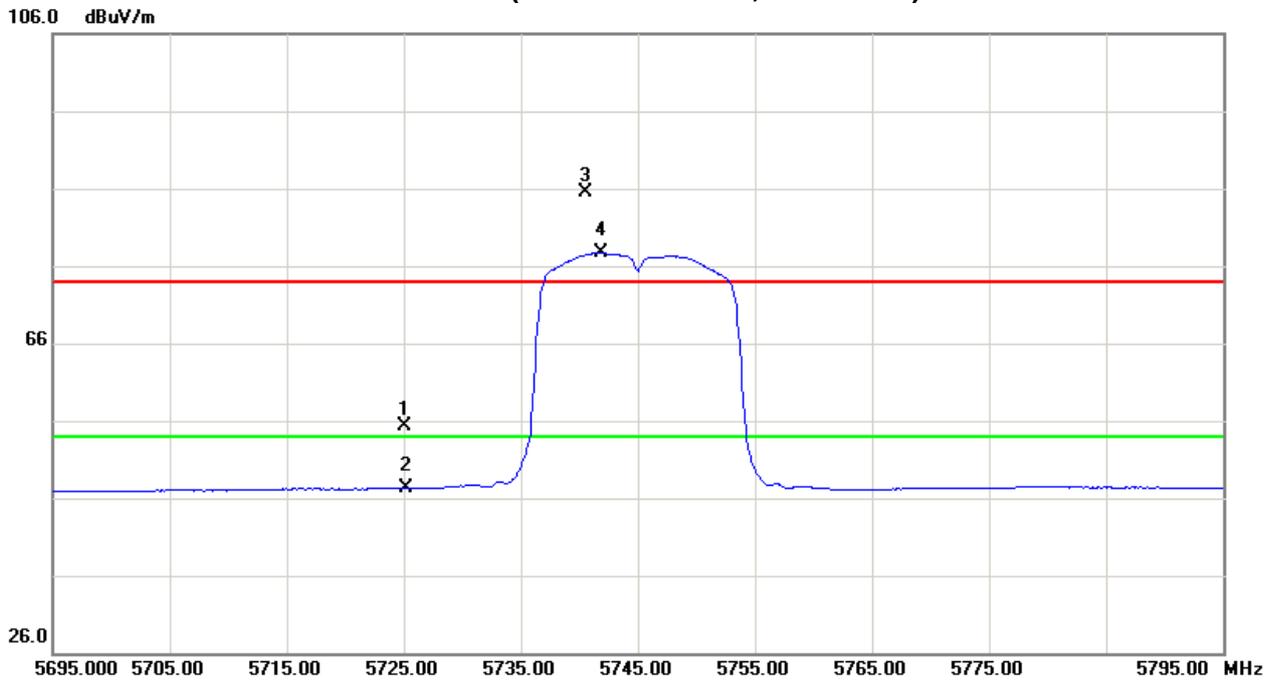
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
# 5725.00	H	13.41	5.43	41.90	55.31	47.33	65.57	57.64	X/E
5740.50	H	43.61	35.68	41.96	85.57	77.64			X/F
11489.65	H	39.75	28.34	14.25	54.00	42.59	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦“F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ * ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) “#” The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH149 (Above 1000 MHz, Horizontal)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5785MHz		

Freq. (MHz)	Ant.Pd. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5782.30	V	45.91	38.00	1.00	46.91	39.00			X/F
11569.28	V	39.54	28.25	14.30	53.84	42.55	74.00	54.00	X/H

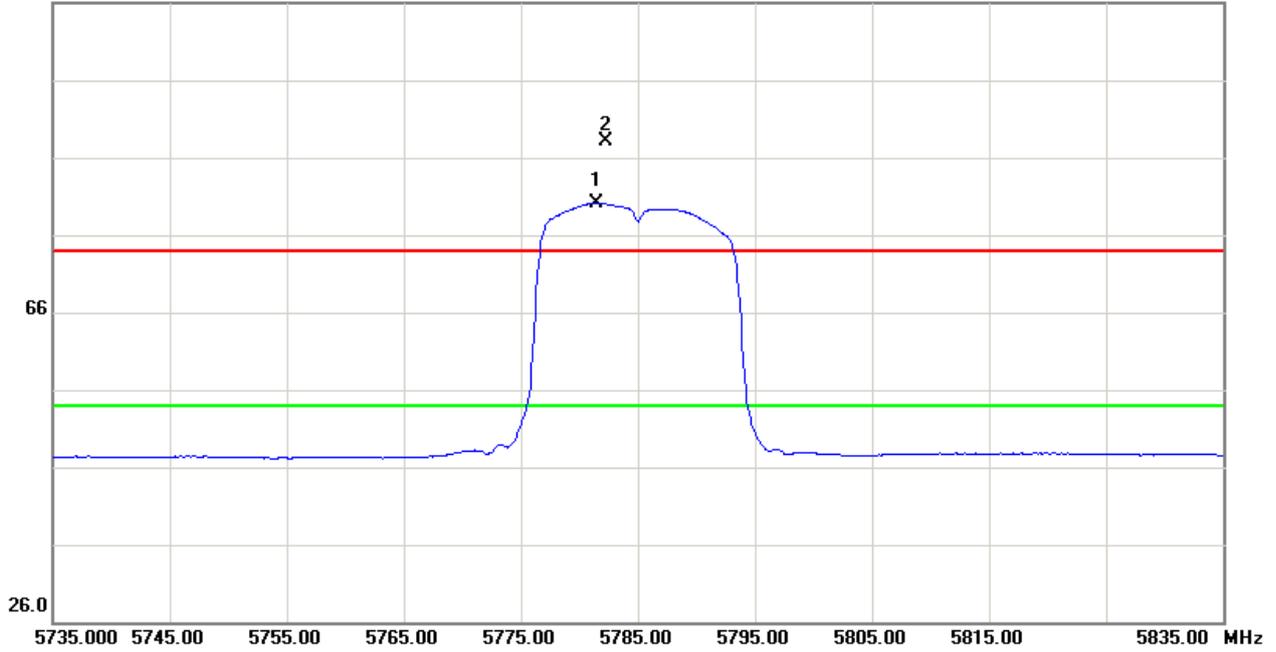
Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

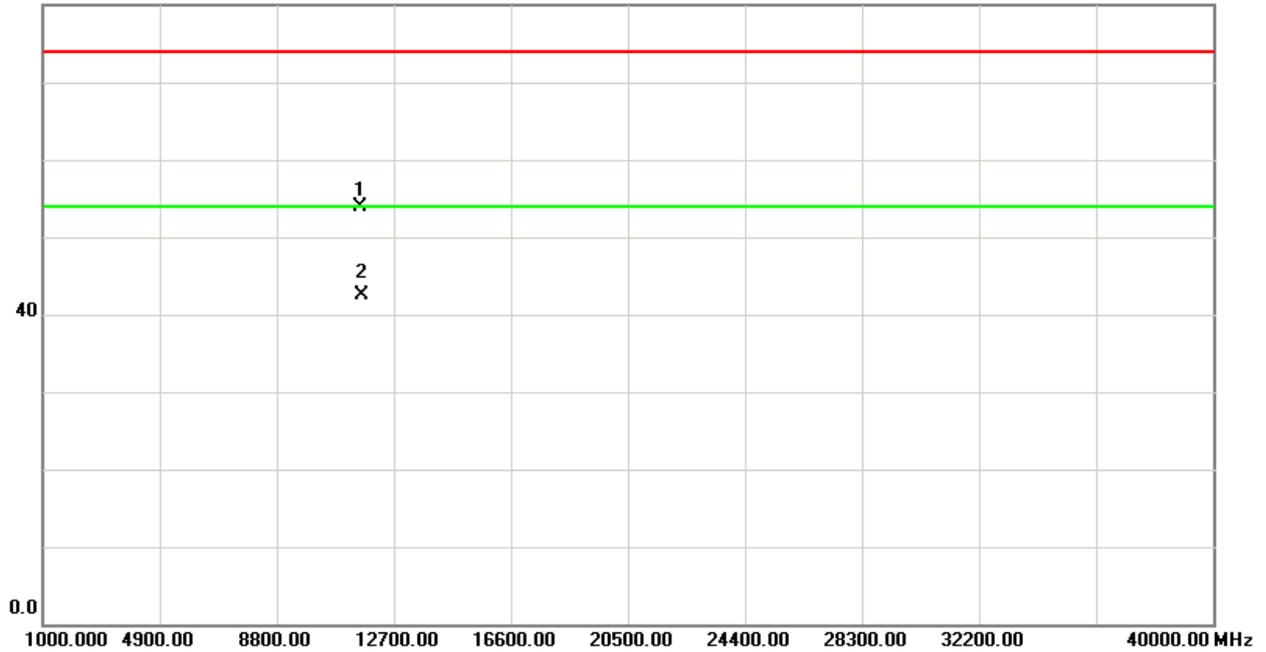


TX CH157 (Above 1000 MHz, Vertical)

106.0 dBuV/m



80.0 dBuV/m





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5785MHz		

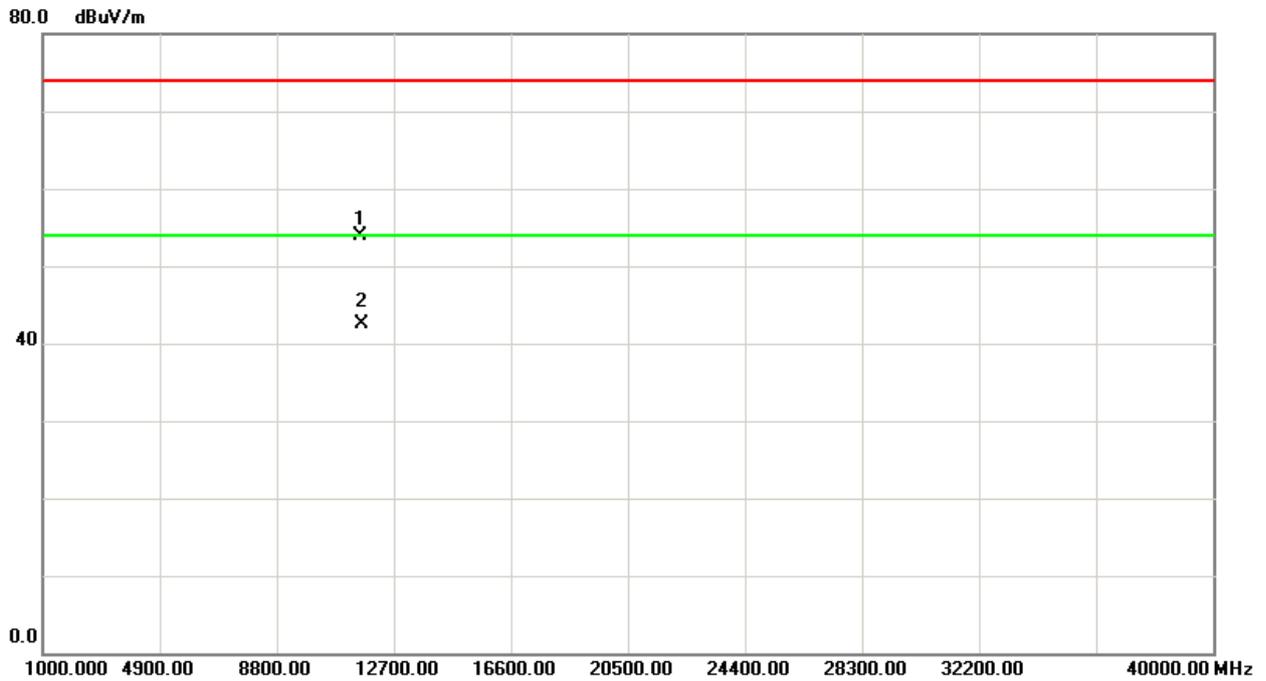
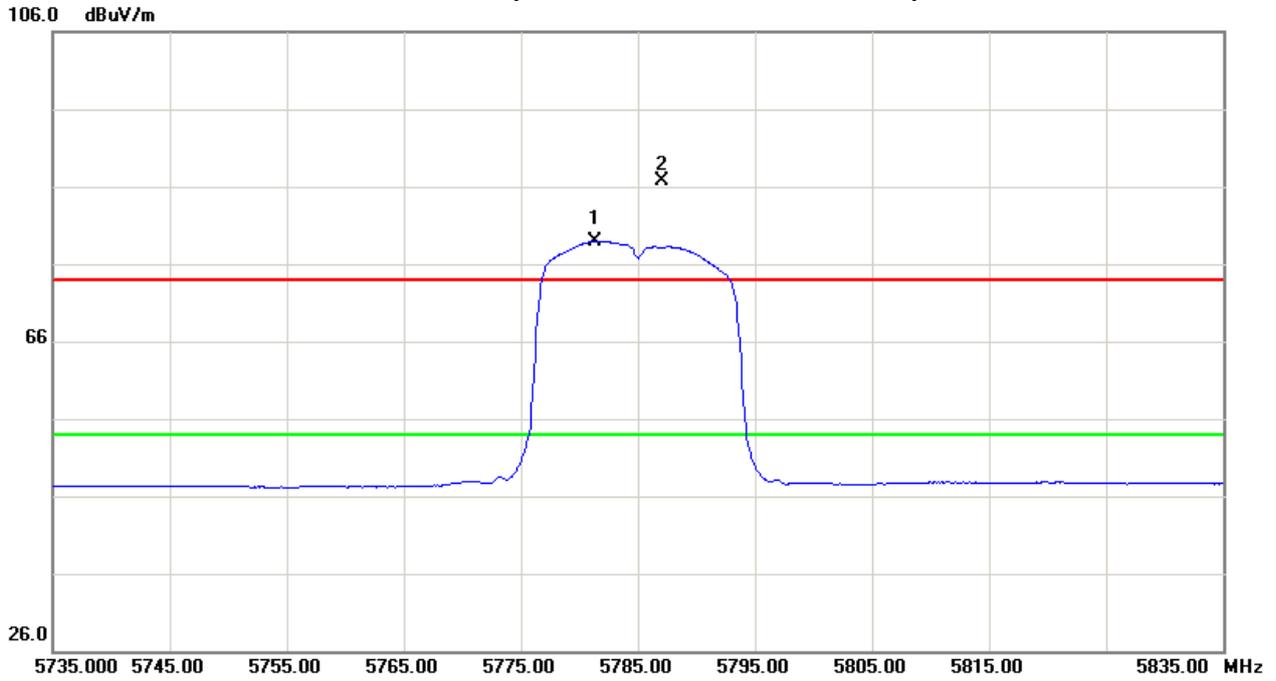
Freq. (MHz)	Ant.Pd. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5787.00	H	44.55	36.85	42.13	86.68	78.98			X/F
11570.64	H	39.68	28.30	14.30	53.98	42.60	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



TX CH157 (Above 1000 MHz, Horizontal)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5825MHz		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5820.20	V	44.98	36.49	42.28	87.26	78.77			X/F
#5850.00	V	13.44	5.18	42.40	55.84	47.58	67.26	58.77	X/E
11651.20	V	39.74	28.40	14.34	54.08	42.74	74.00	54.00	X/H

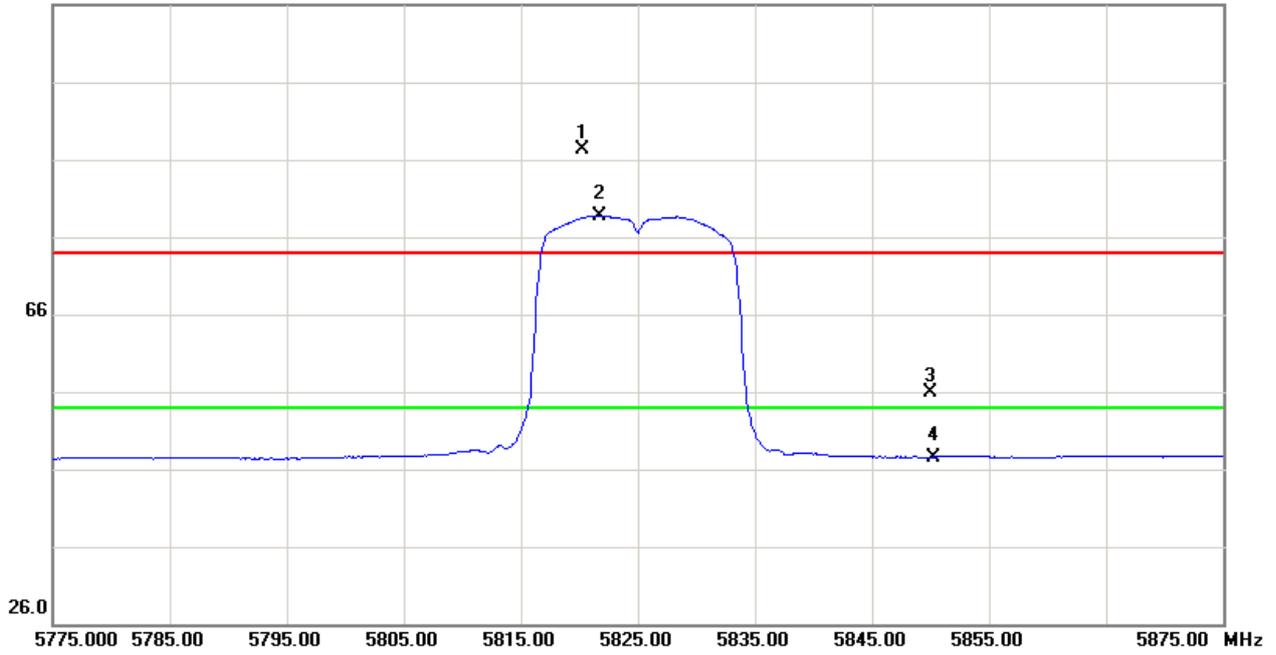
Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB

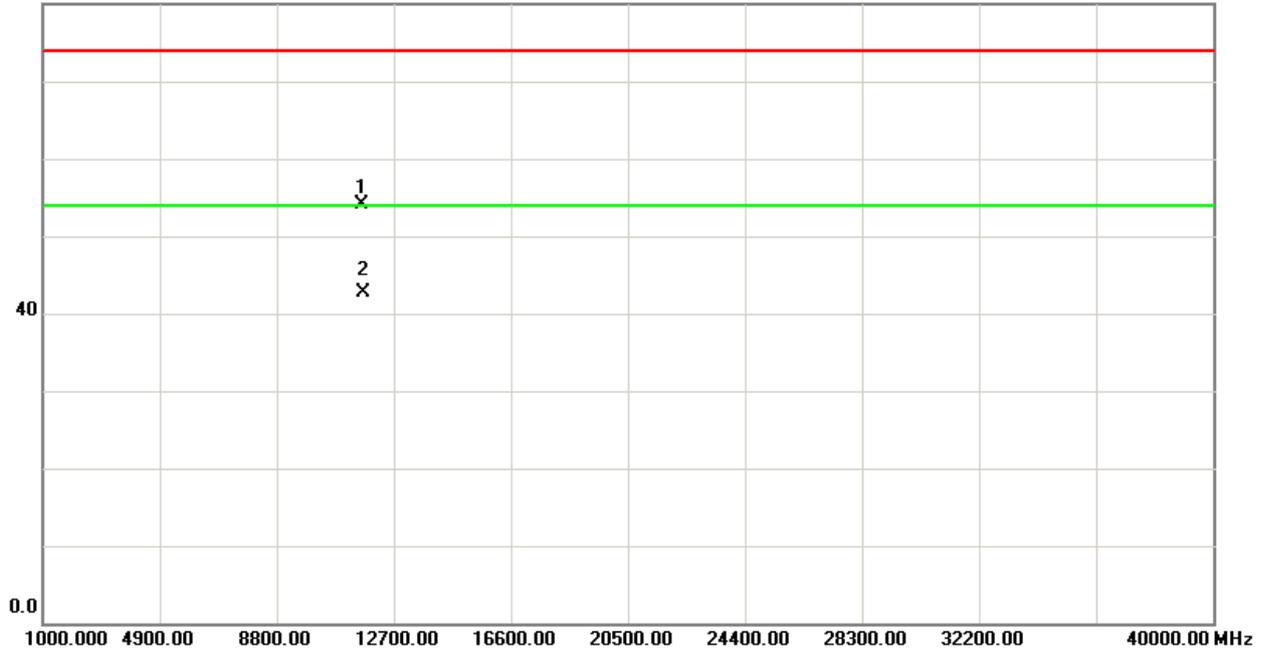


TX CH165 (Above 1000 MHz, Vertical)

106.0 dBuV/m



80.0 dBuV/m





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode 5825MHz		

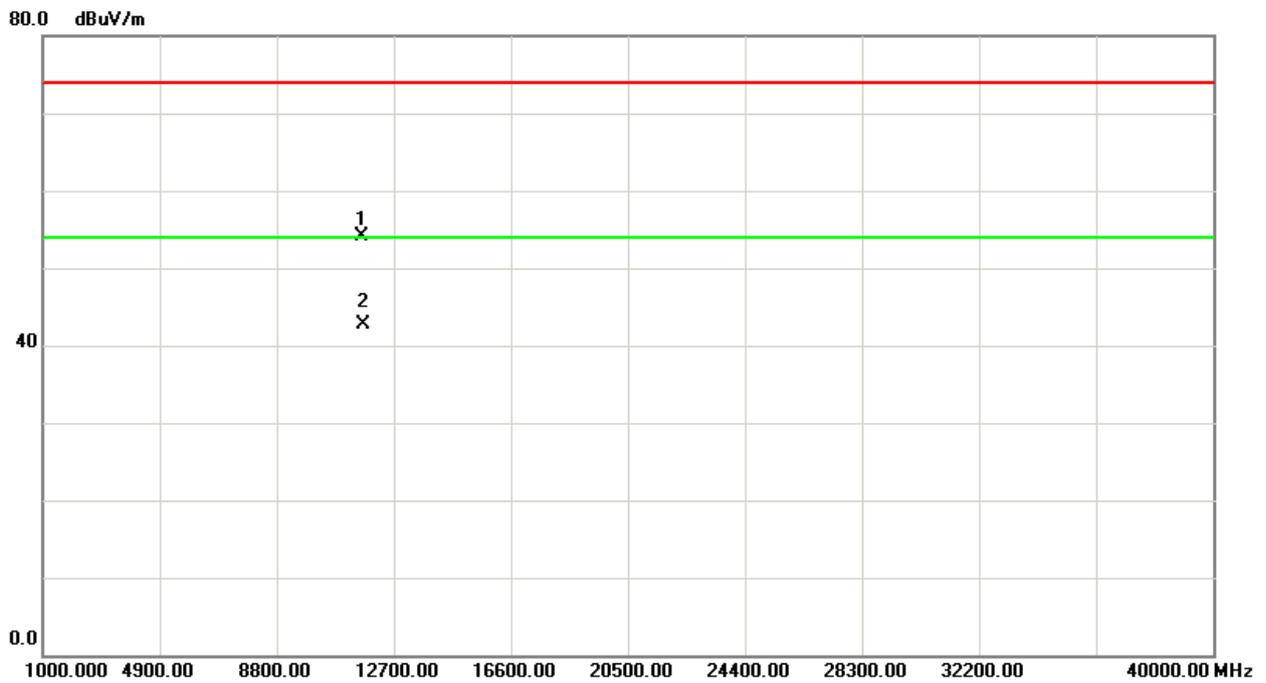
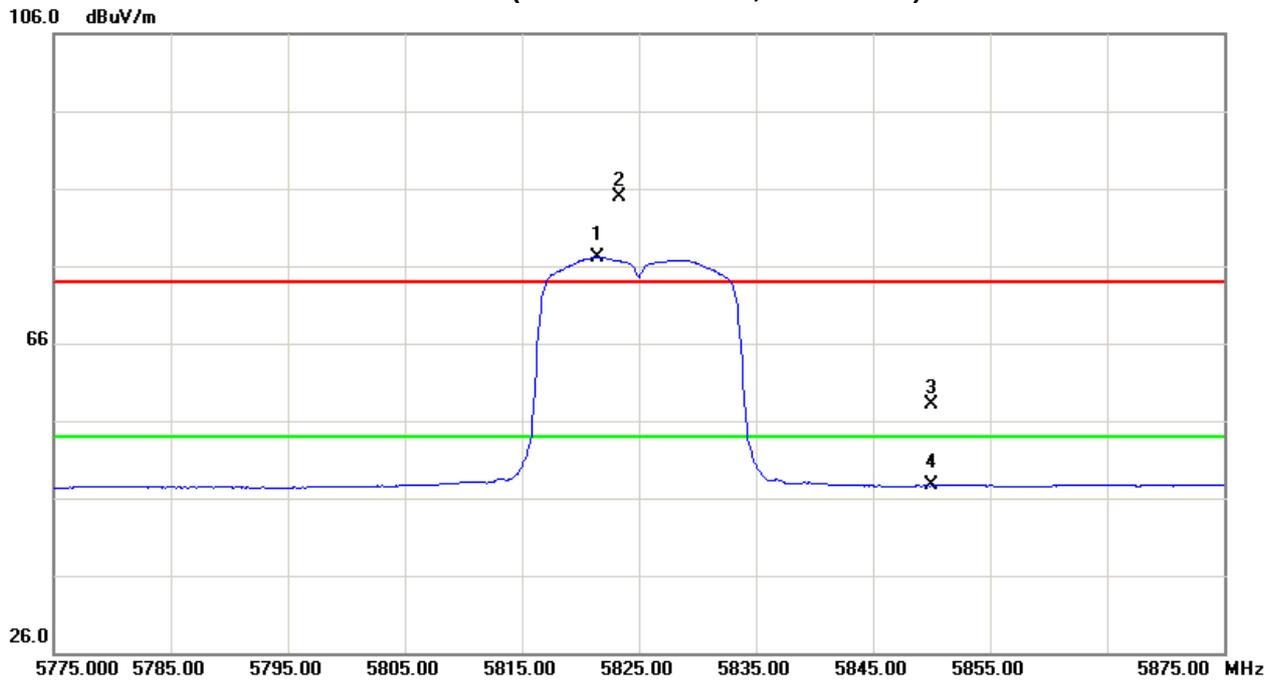
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5823.30	H	42.69	34.82	42.28	84.97	77.10			X/F
#5850.00	H	15.62	5.24	42.40	58.02	47.64	64.97	57.10	X/E
11649.25	H	39.72	28.35	14.34	54.06	42.69	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH165 (Above 1000 MHz, Horizontal)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode 5745MHz		

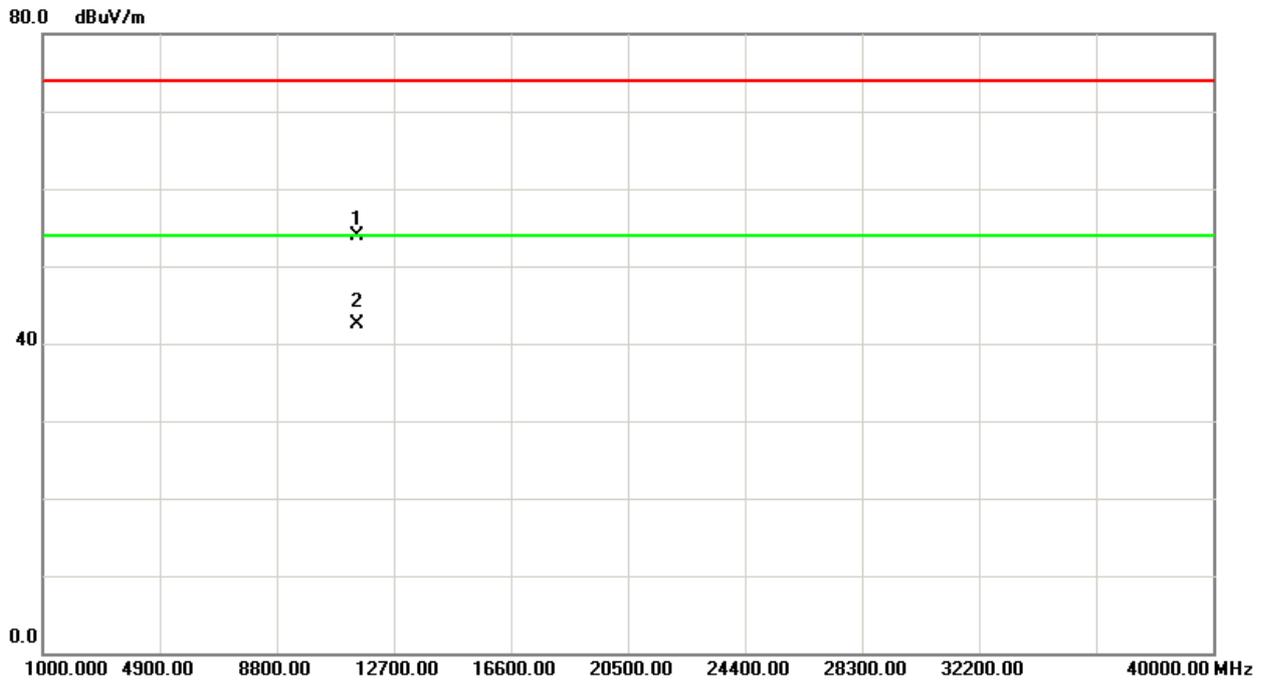
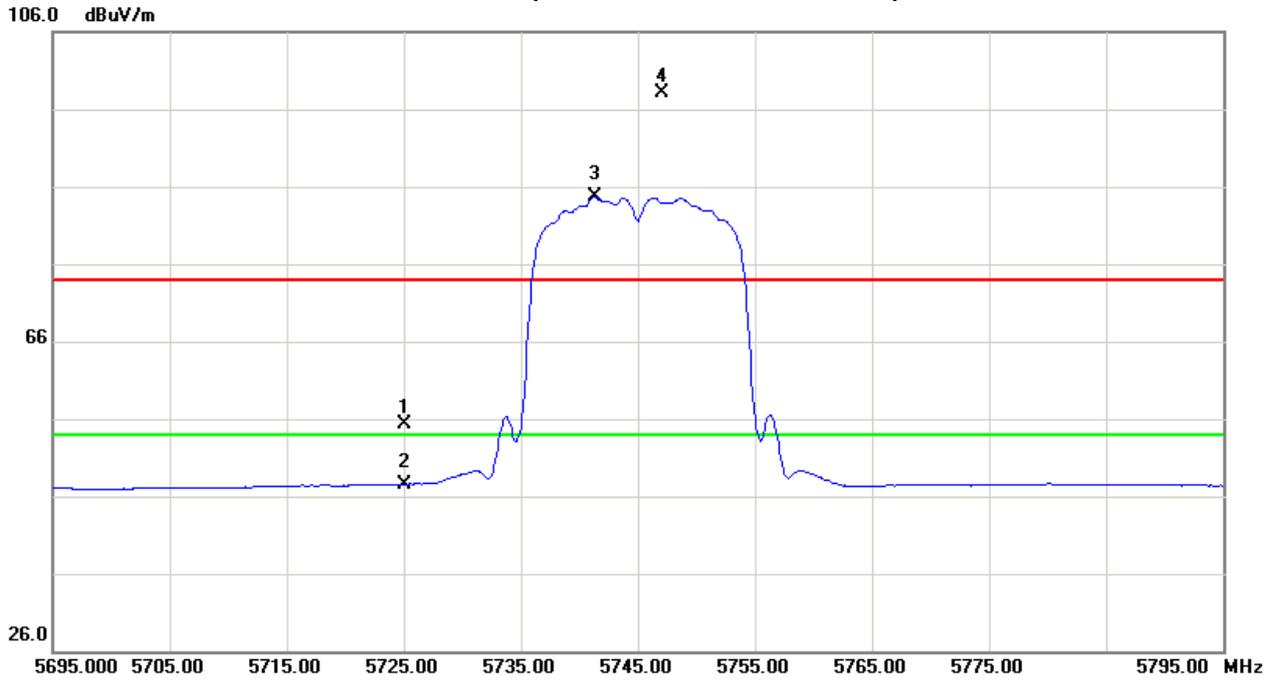
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
# 5725.00	V	13.48	5.66	41.90	55.38	47.56	78.17	64.72	X/E
5747.00	V	56.18	42.73	41.99	98.17	84.72			X/F
11489.15	V	39.57	28.22	14.25	53.82	42.47	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH149 (Above 1000 MHz, Vertical)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode 5745MHz		

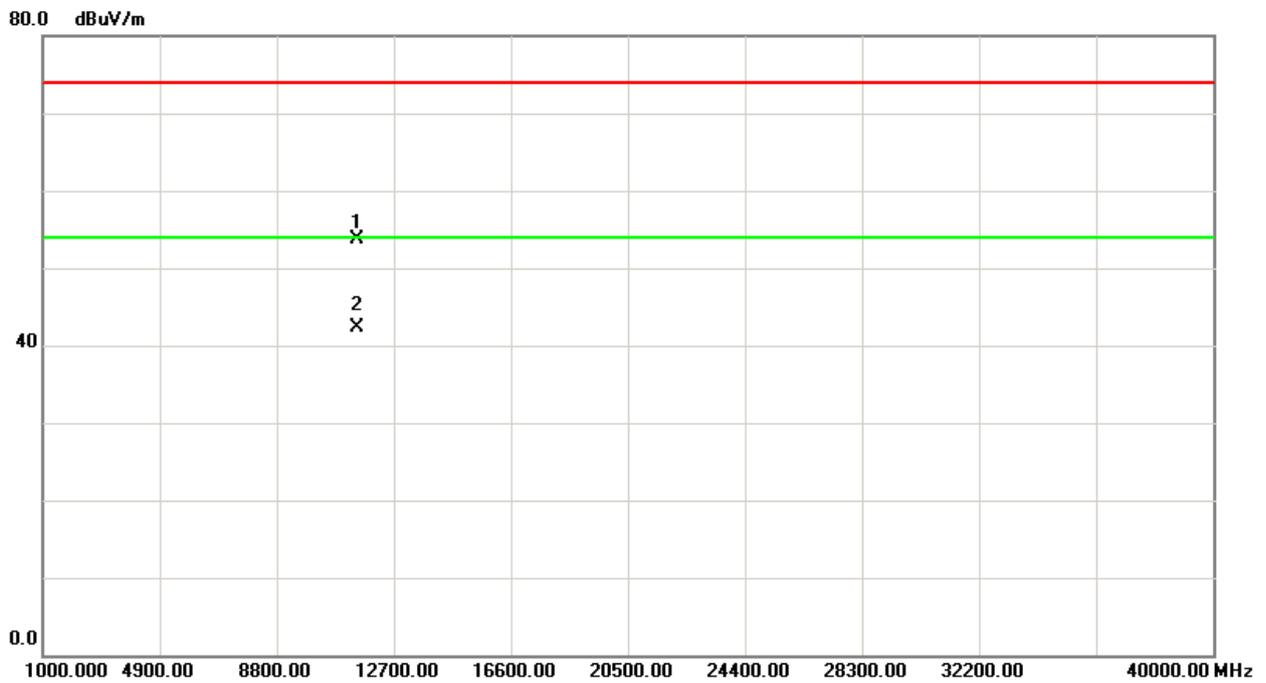
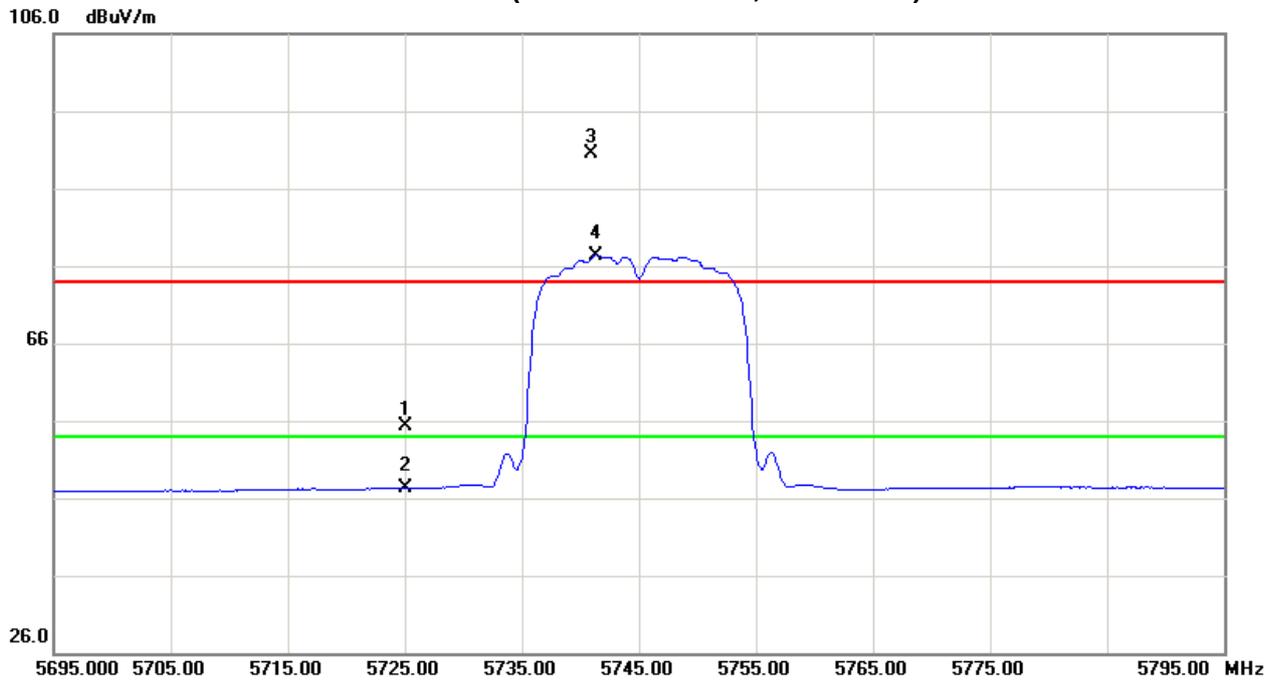
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
# 5725.00	H	13.32	5.35	41.90	55.22	47.25	70.58	57.40	X/E
5740.90	H	48.62	35.44	41.96	90.58	77.40			X/F
11488.50	H	39.48	28.15	14.25	53.73	42.40	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH149 (Above 1000 MHz, Horizontal)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode 5785MHz		

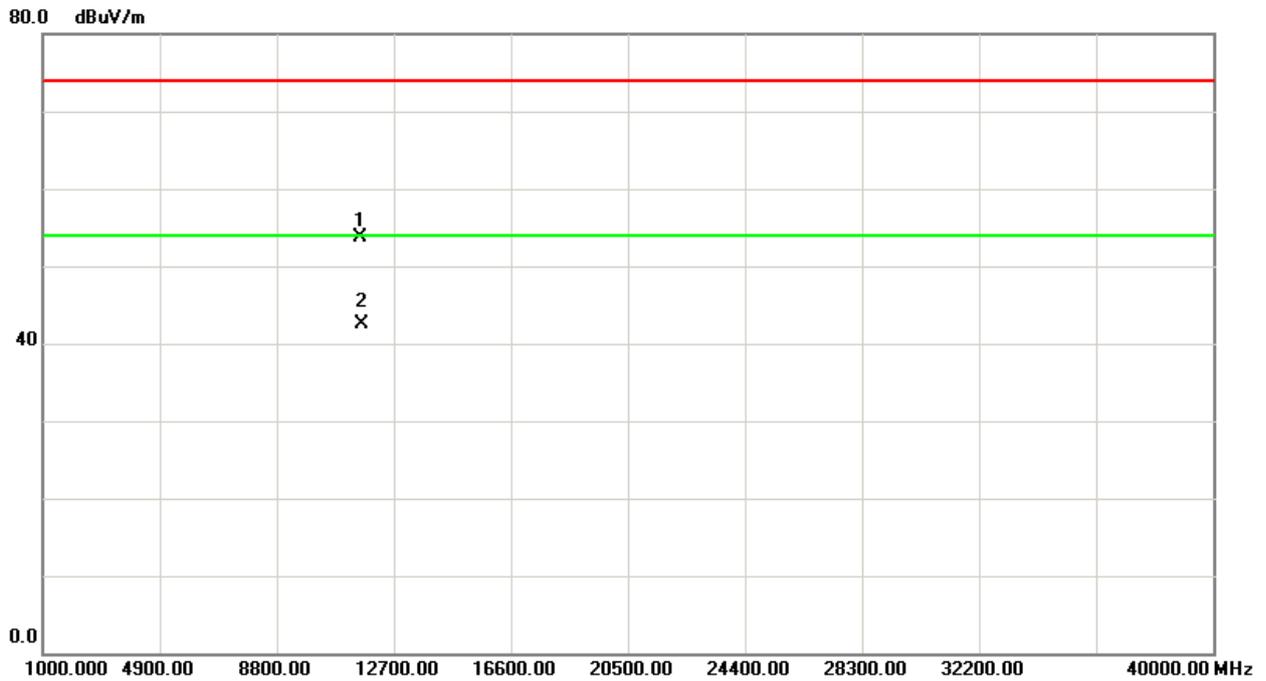
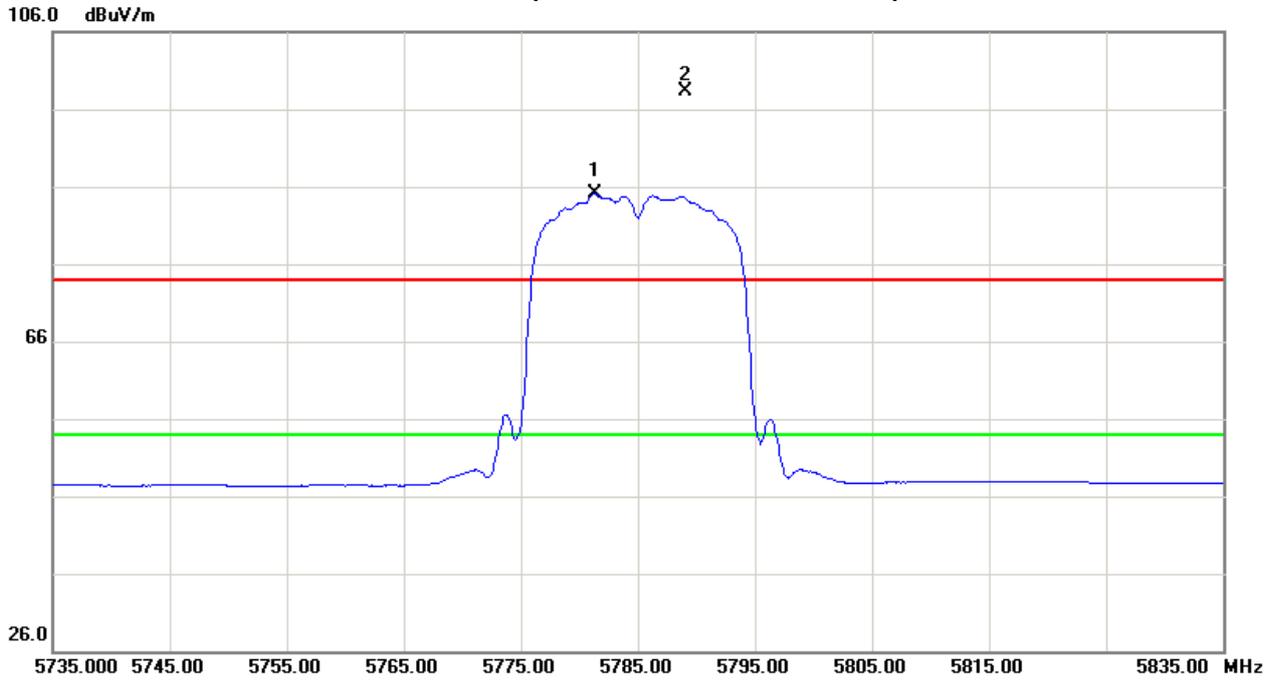
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5789.00	V	56.12	42.95	42.15	98.27	85.10			X/F
11572.10	V	39.45	28.20	14.30	53.75	42.50	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



TX CH157 (Above 1000 MHz, Vertical)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode 5785MHz		

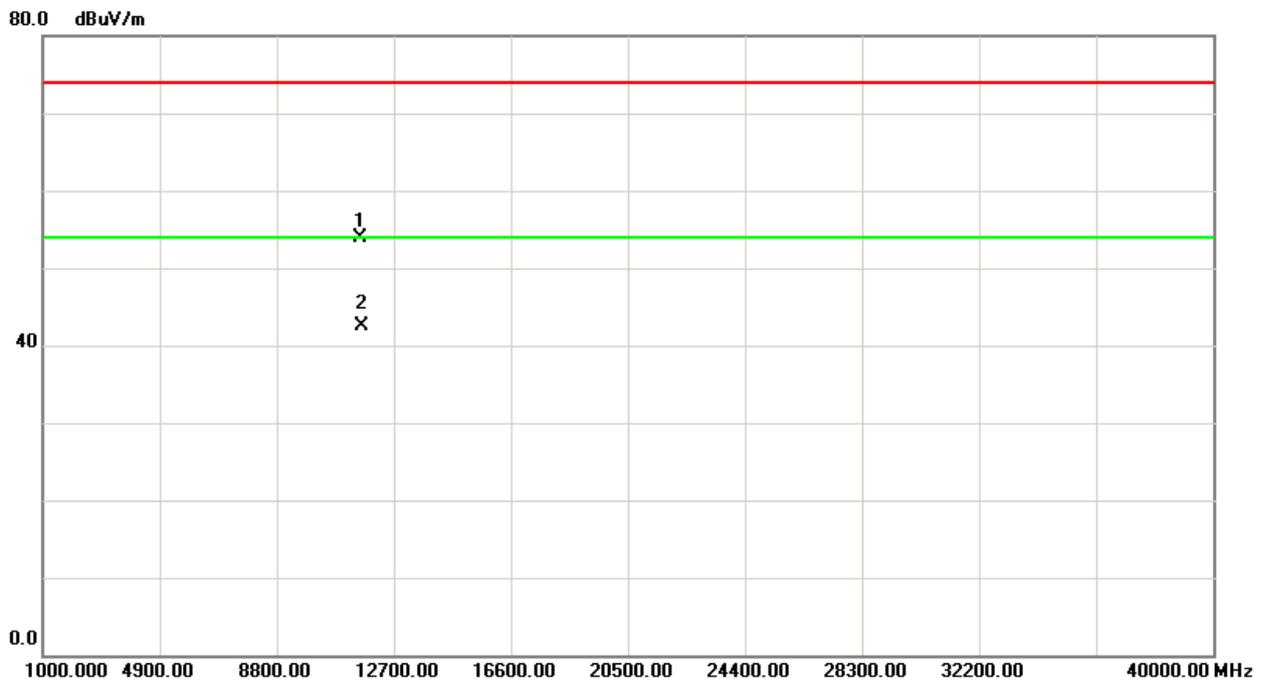
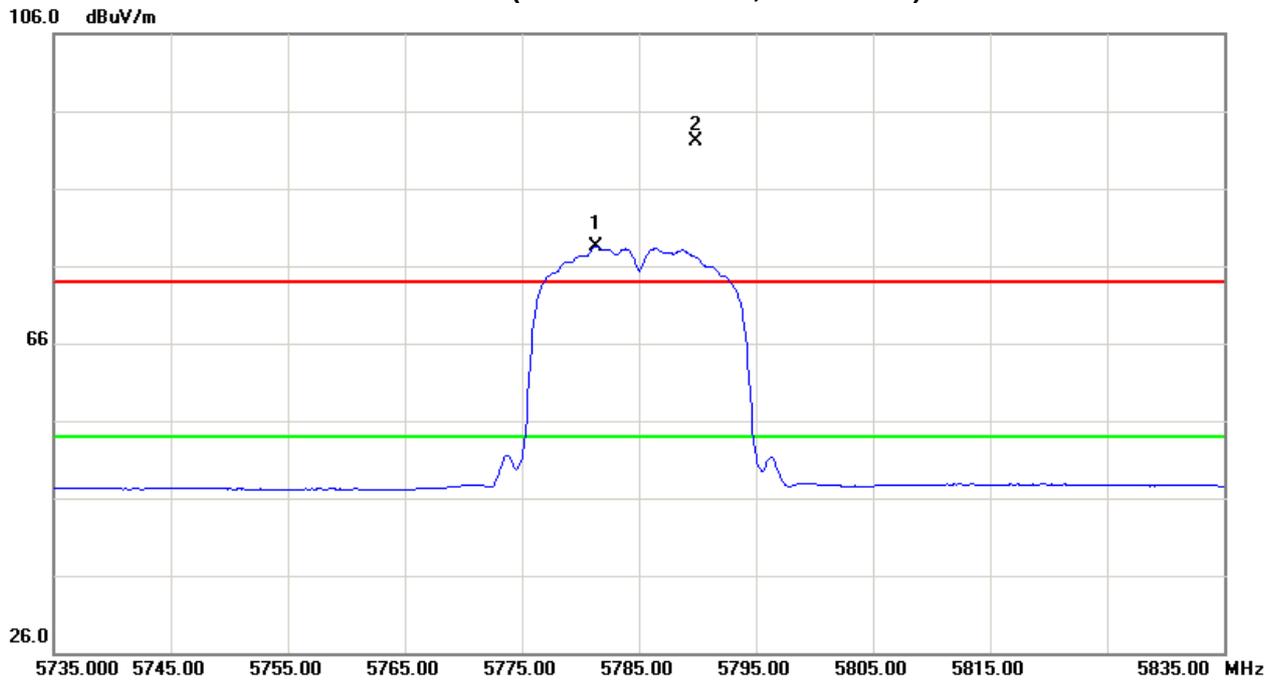
Freq. (MHz)	Ant. Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5789.80	H	49.94	36.39	42.16	92.10	78.55			X/F
11571.58	H	39.56	28.16	14.30	53.86	42.46	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



TX CH157 (Above 1000 MHz, Horizontal)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode 5825MHz		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5822.00	V	56.90	44.02	42.28	99.18	86.30			X/F
#5850.00	V	13.71	5.45	42.40	56.11	47.85	79.18	66.30	X/E
11648.52	V	39.58	28.24	14.34	53.92	42.58	74.00	54.00	X/H

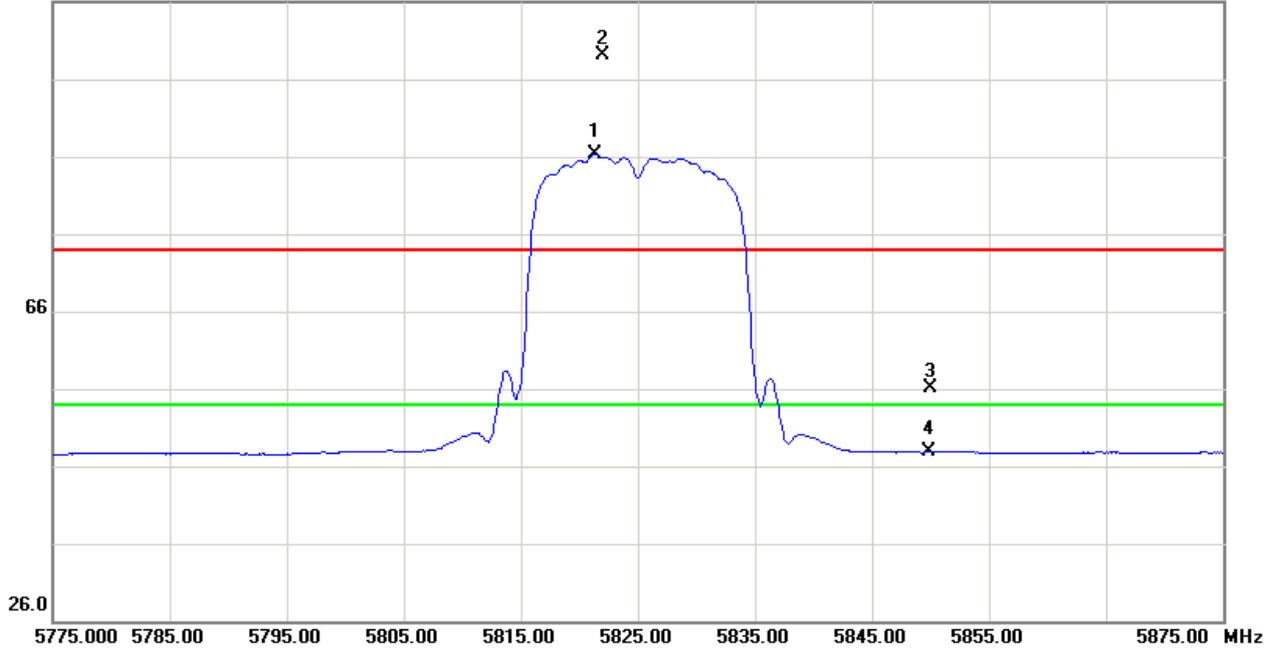
Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB

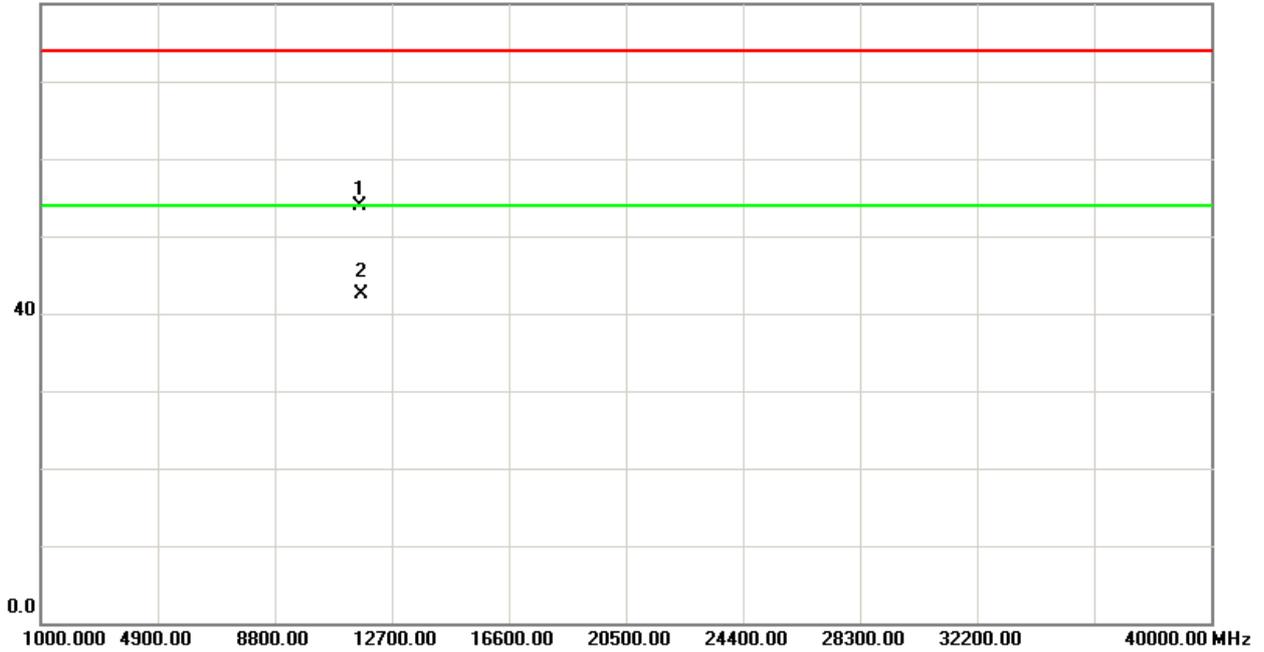


TX CH165 (Above 1000 MHz, Vertical)

106.0 dBuV/m



80.0 dBuV/m





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20Mode 5825MHz		

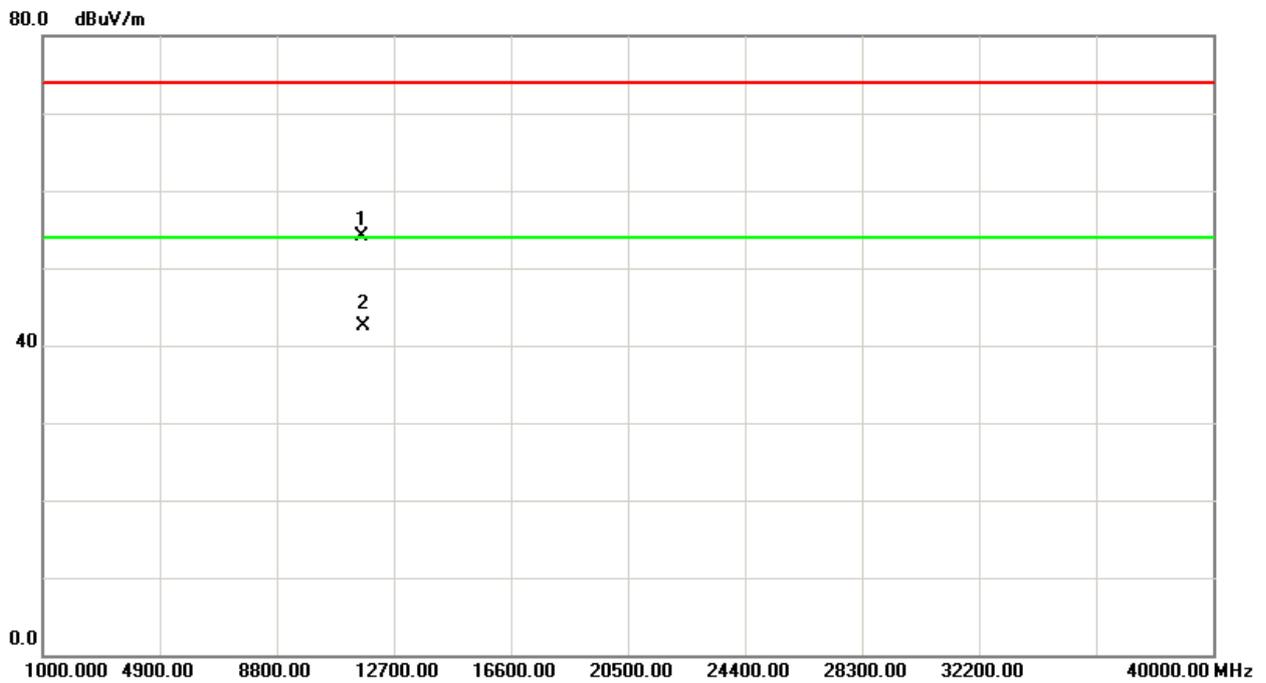
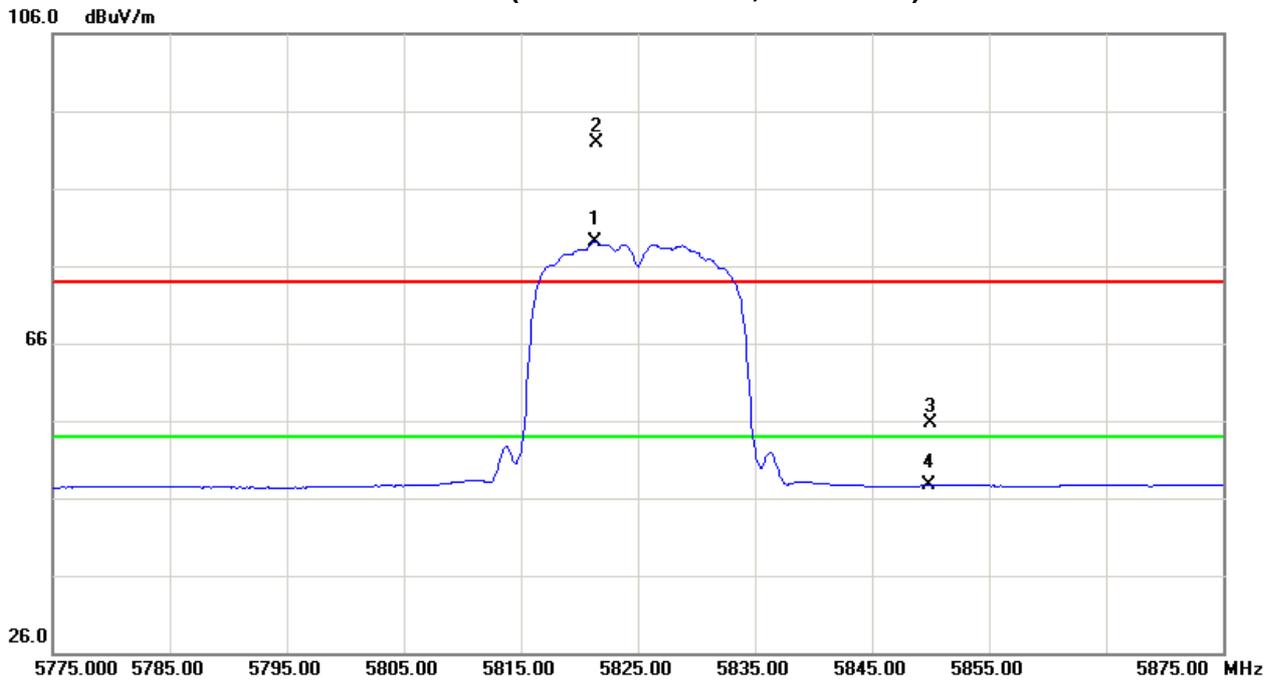
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5821.40	H	49.64	36.87	42.28	91.92	79.15			X/F
#5850.00	H	13.21	5.21	42.40	55.61	47.61	71.92	59.15	X/E
11648.20	H	39.68	28.19	14.34	54.02	42.53	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH165 (Above 1000 MHz, Horizontal)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode 5755MHz		

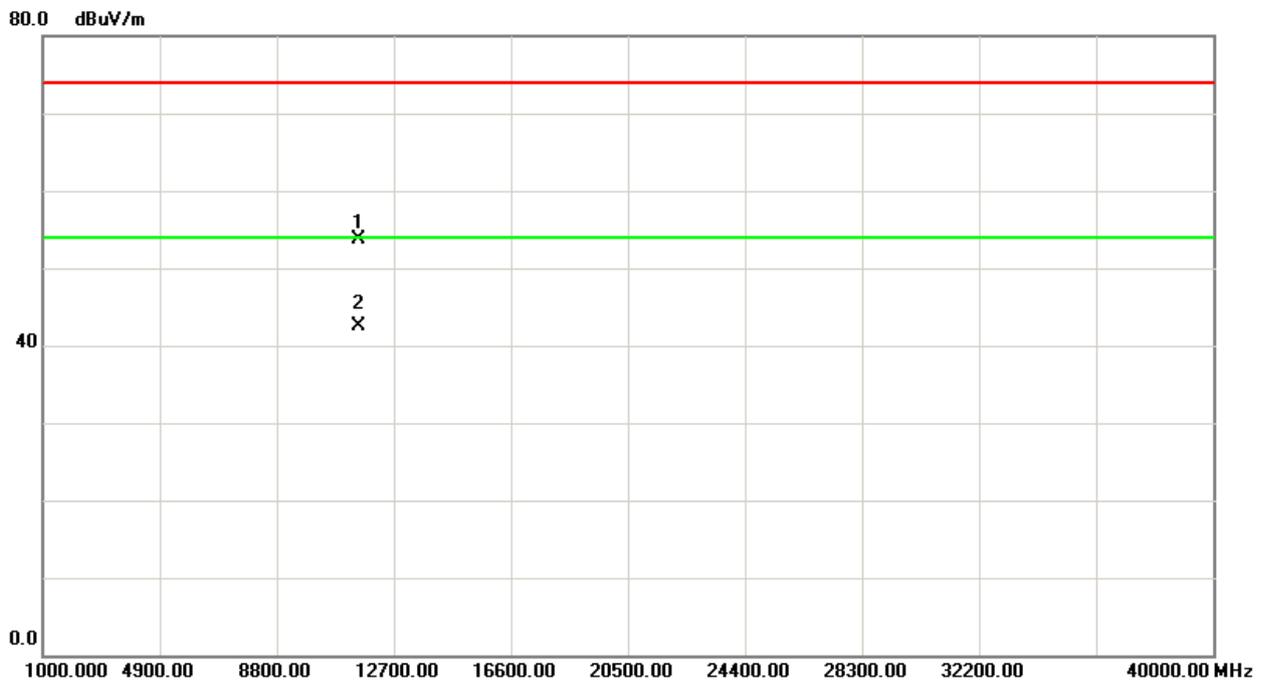
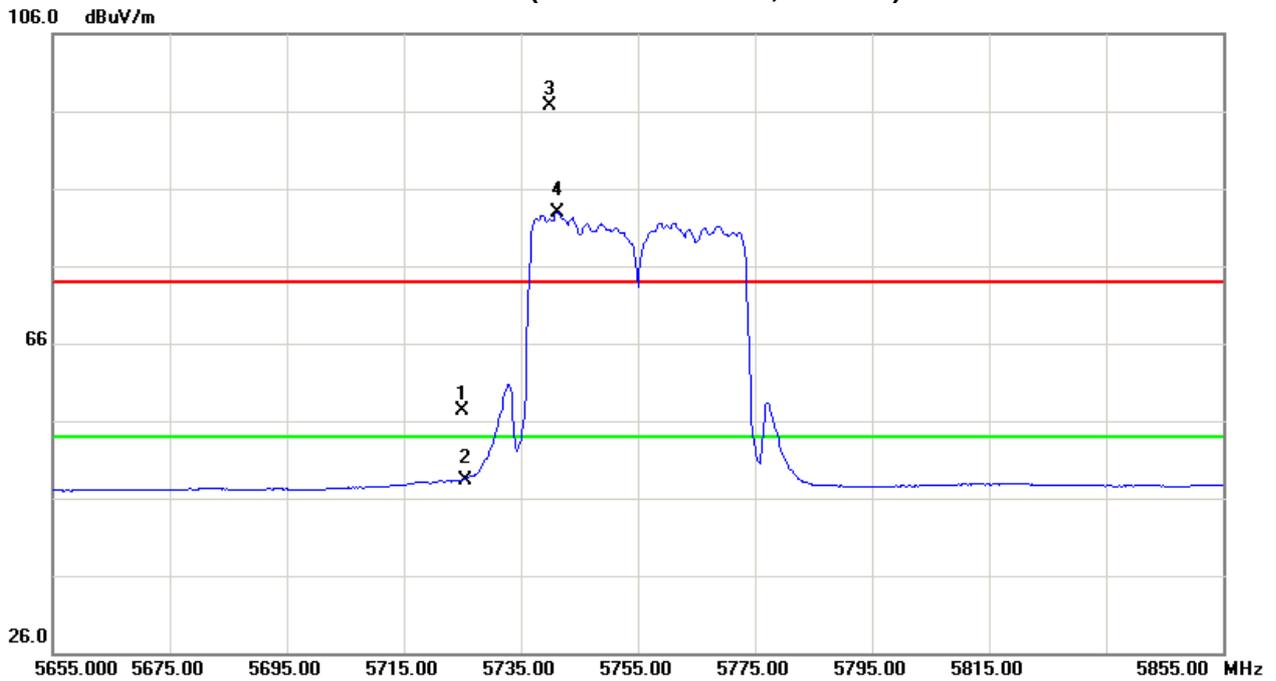
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
# 5725.00	V	15.48	6.43	41.90	57.38	48.33	76.51	62.72	X/E
5739.80	V	54.82	41.03	41.69	96.51	82.72			X/F
11510.87	V	39.52	28.17	14.27	53.79	42.44	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH151 (Above 1000 MHz, Vertical)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode 5755MHz		

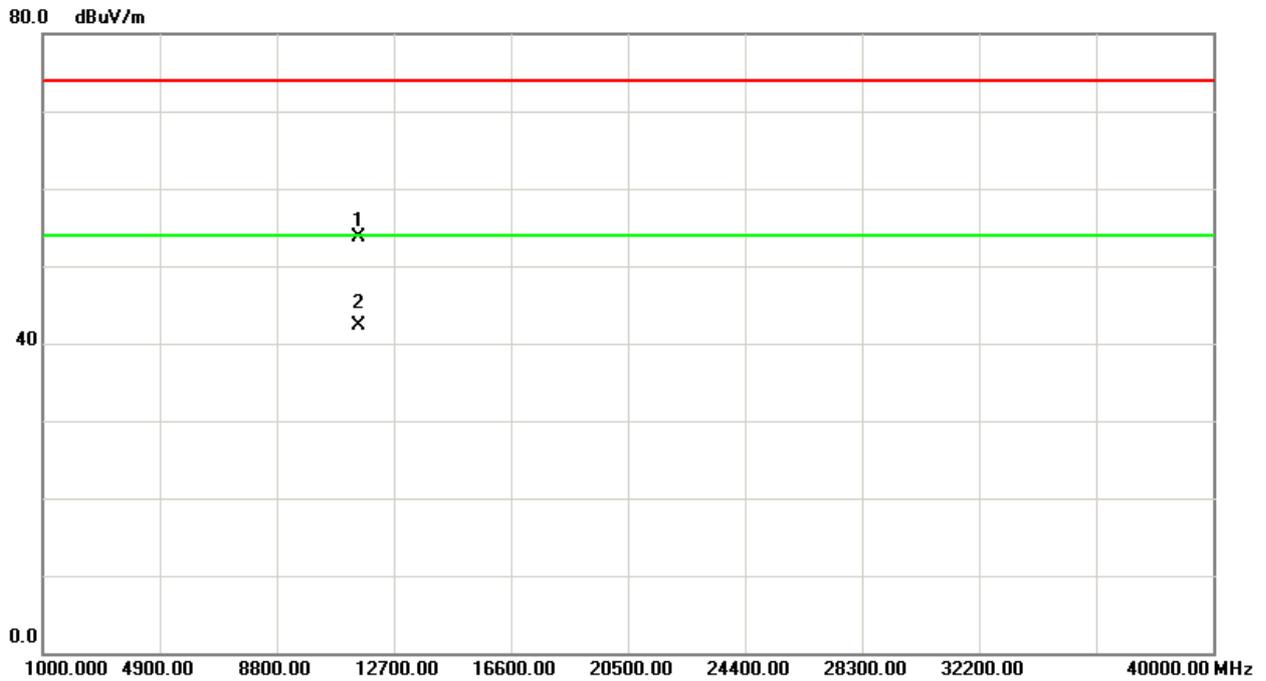
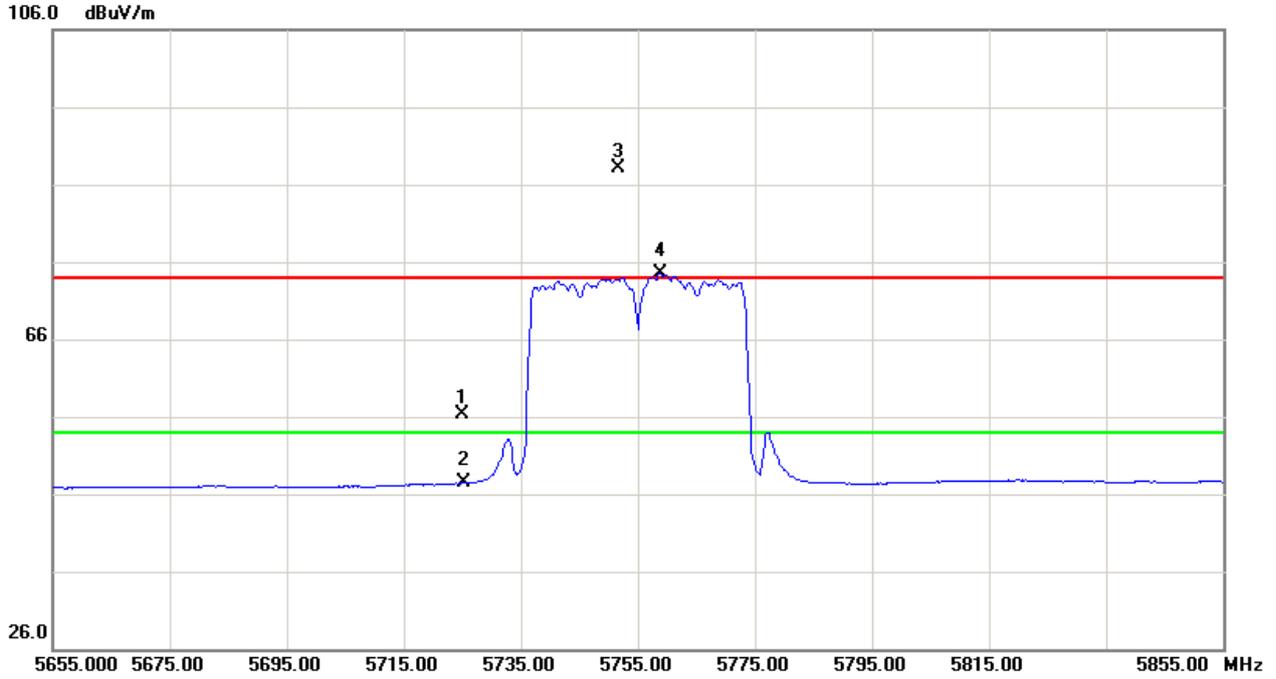
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
# 5725.00	H	14.43	5.54	41.90	56.33	47.44	68.09	54.40	X/E
5851.60	H	46.08	32.39	42.01	88.09	74.40			X/F
11512.45	H	39.38	28.12	14.28	53.66	42.40	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH151 (Above 1000 MHz, Horizontal)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode 5795MHz		

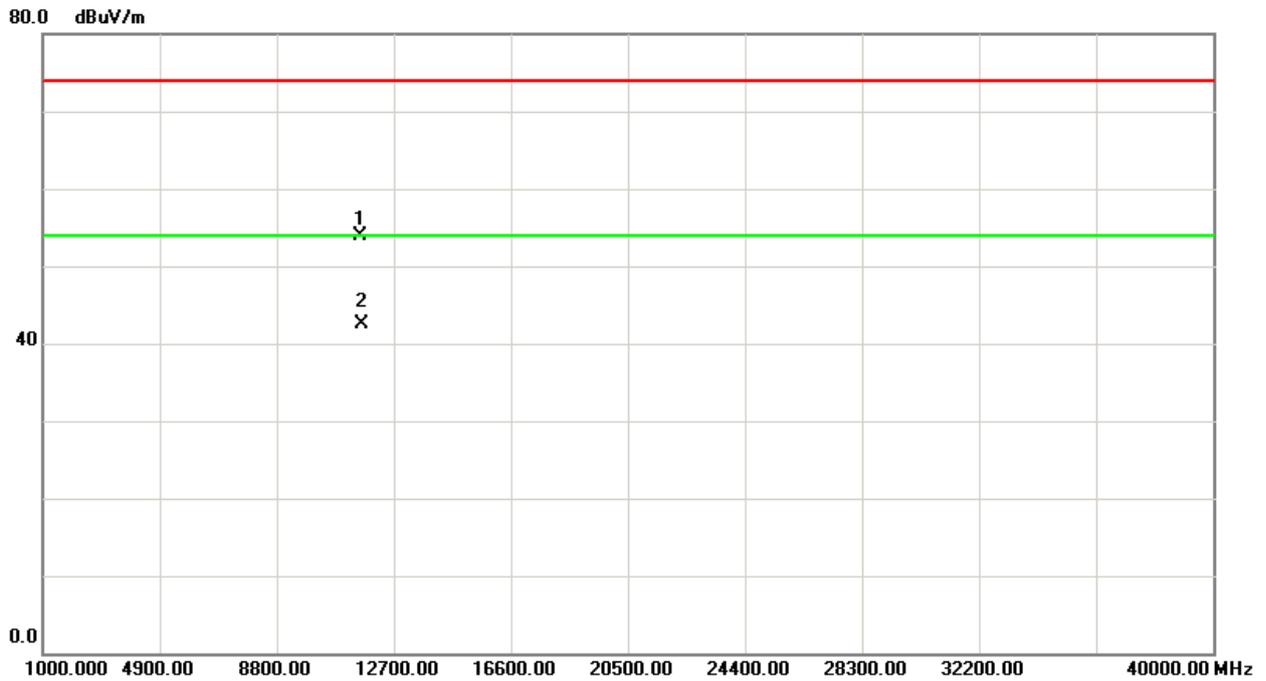
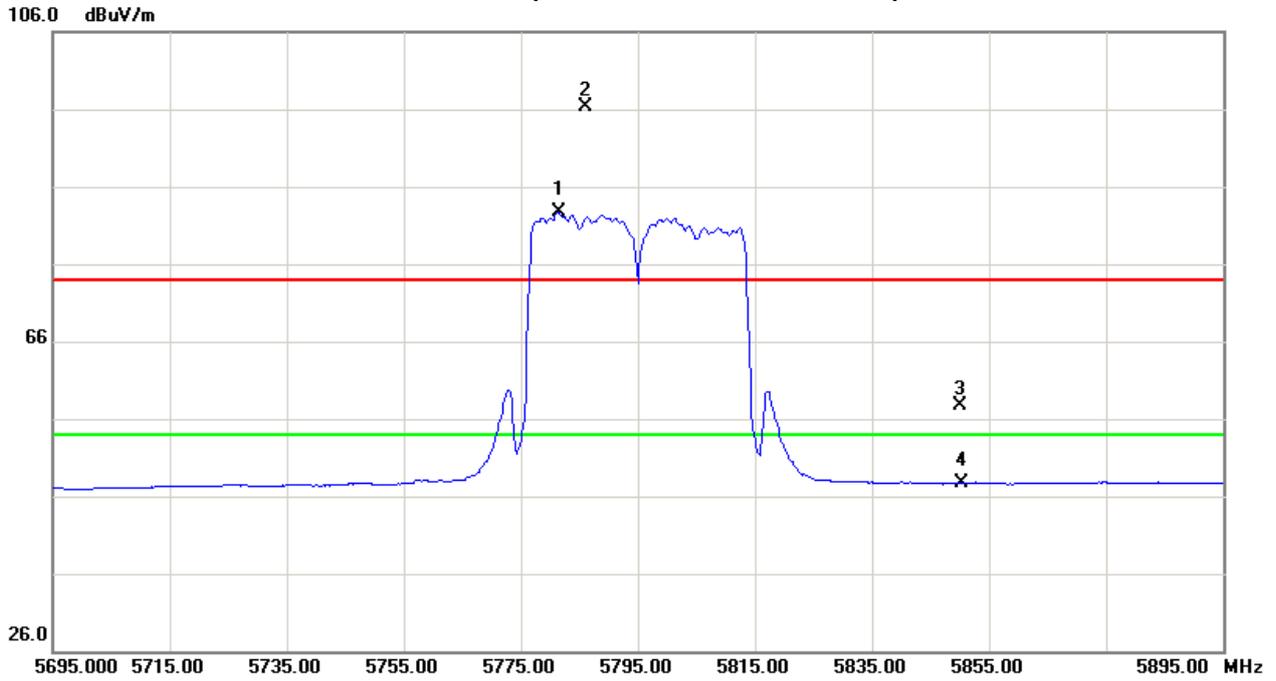
Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
5786.00	V	54.11	40.63	42.14	96.25	82.77			X/F
#5850.00	V	15.37	5.29	42.40	57.77	47.69	76.25	62.77	X/E
11589.42	V	39.50	28.15	14.31	53.81	42.46	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) "#" The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH159 (Above 1000 MHz, Vertical)





EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode 5795MHz		

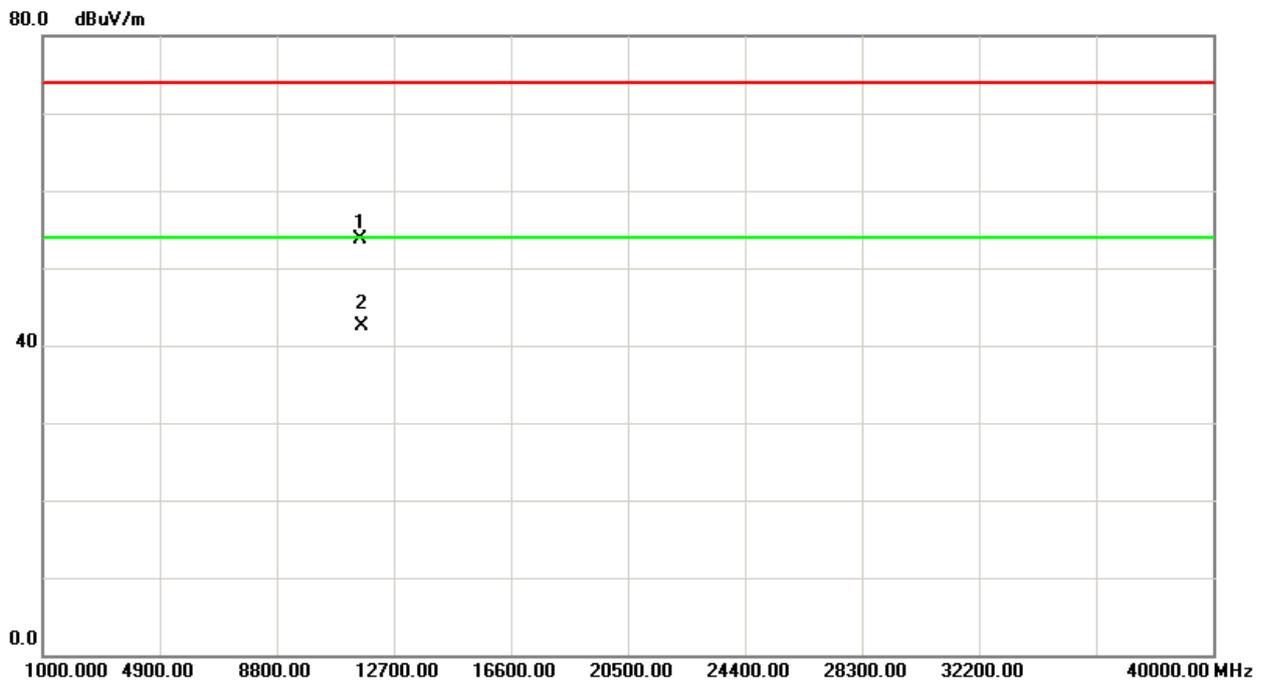
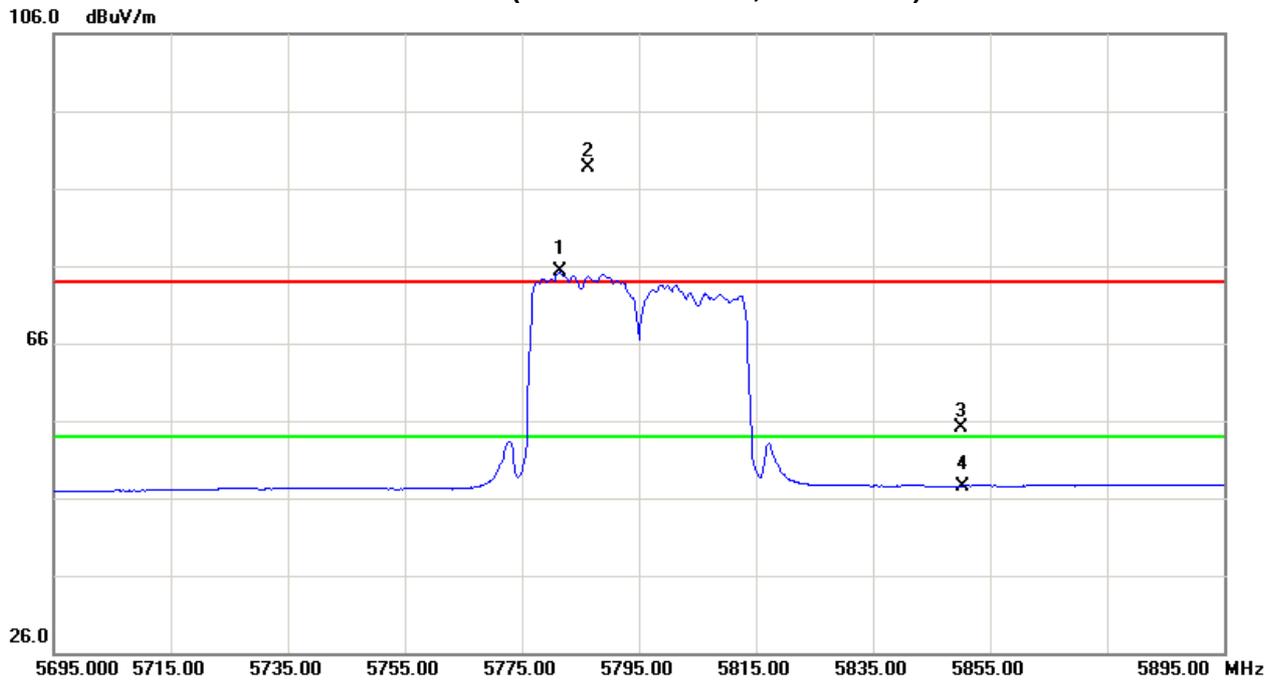
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
5786.40	H	46.54	33.08	42.14	88.68	75.22			X/F
#5850.00	H	12.75	5.16	42.40	55.15	47.56	68.68	55.22	X/E
11588.30	H	39.45	28.13	14.31	53.76	42.44	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ * ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) “#” The radiated frequency is out of the restricted band. Limit line= fundamental - 20dB



TX CH159 (Above 1000 MHz, Horizontal)





5. BANDWIDTH TEST

5.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	N/A	5725 - 5825	PASS

5.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Spectrum Analyzer	R&S	FSP_40	100185	Nov.17.2012	Nov.16.2013

Remark: "N/A" denotes no model name, serial no. or calibration specified.
 All calibration period of Equipment List is One Year.

5.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = Auto

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP



5.1.5 EUT OPERATION CONDITIONS

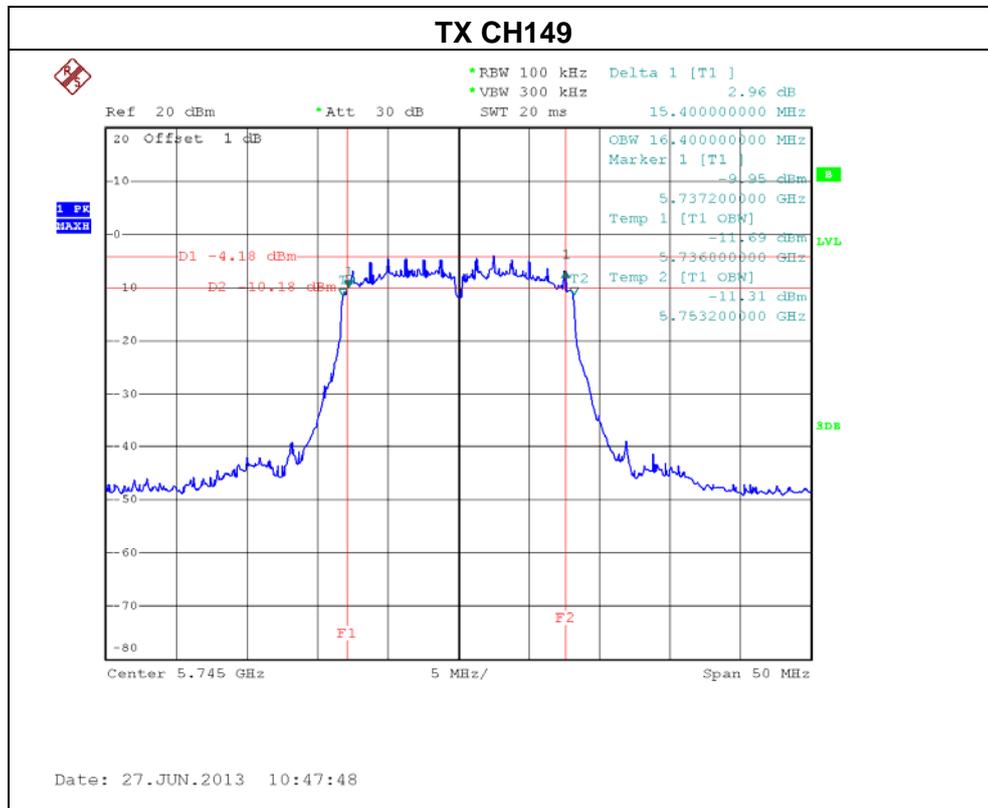
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

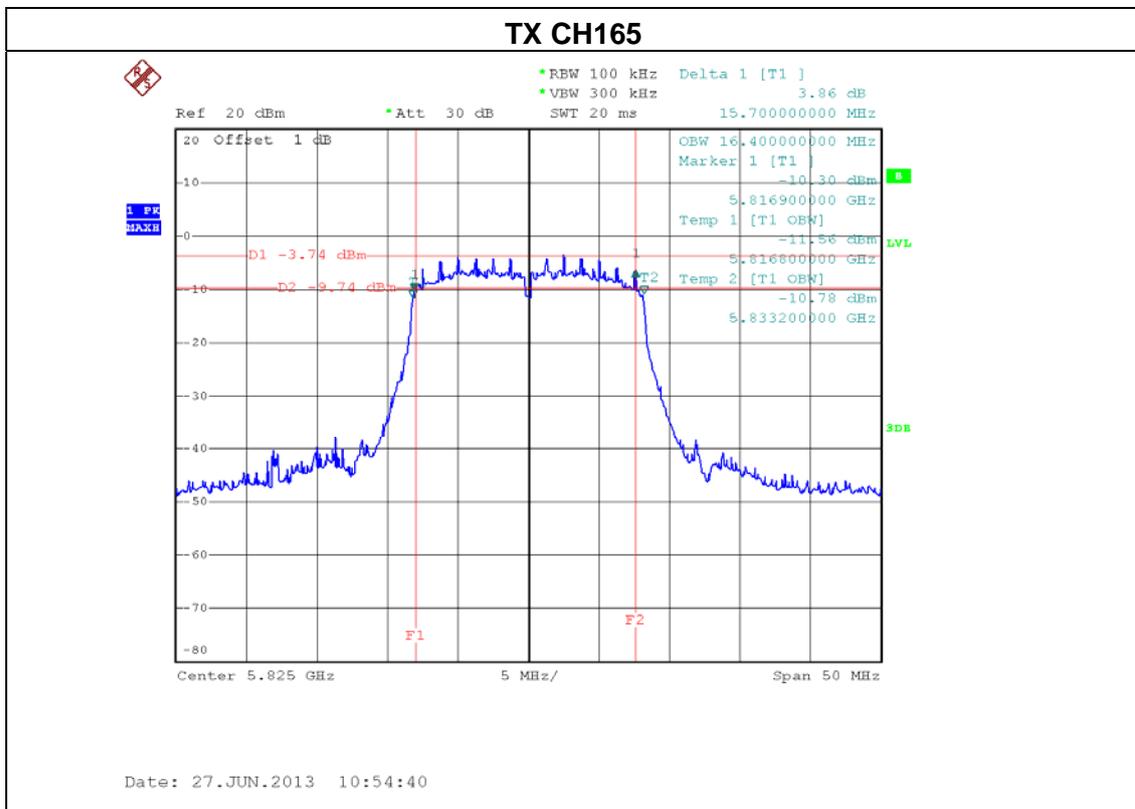
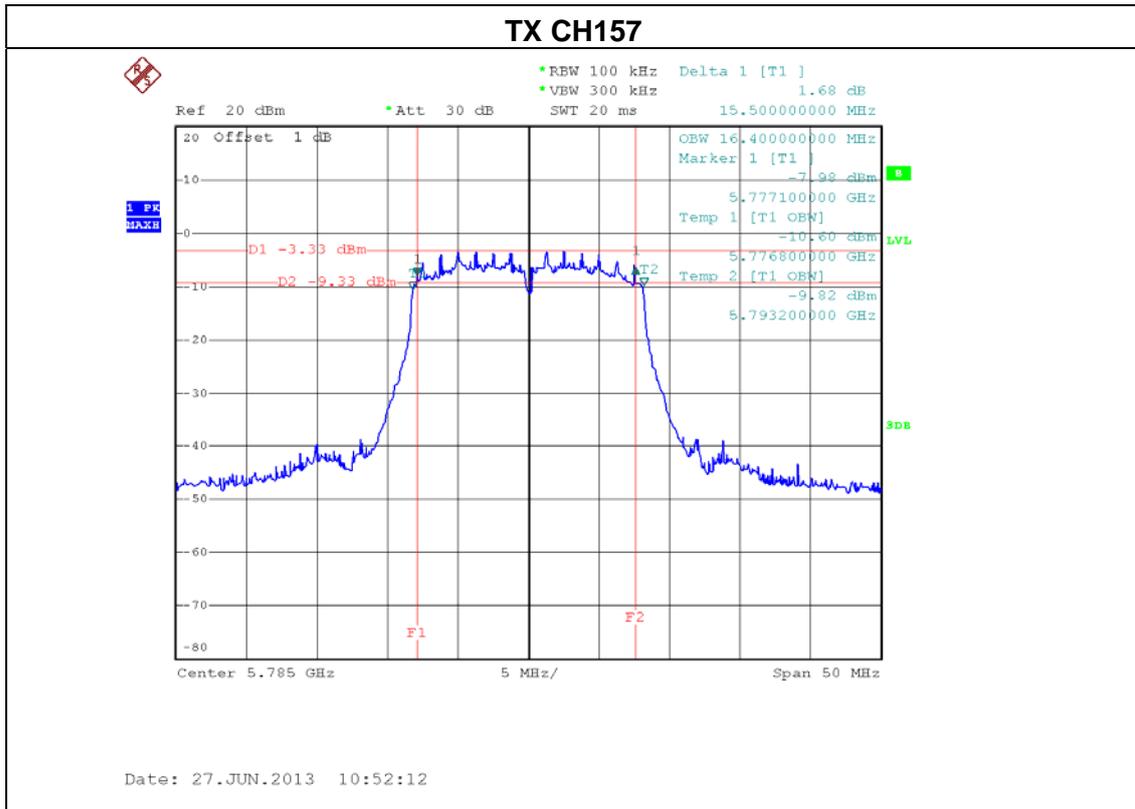


5.1.6 TEST RESULTS

EUT :	Vodafone Mobile Wi-Fi	Model Name. :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode /CH149, CH157, CH165		

Test Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Test Result
CH149	5745	15.40	PASS
CH157	5785	15.50	PASS
CH165	5825	15.70	PASS

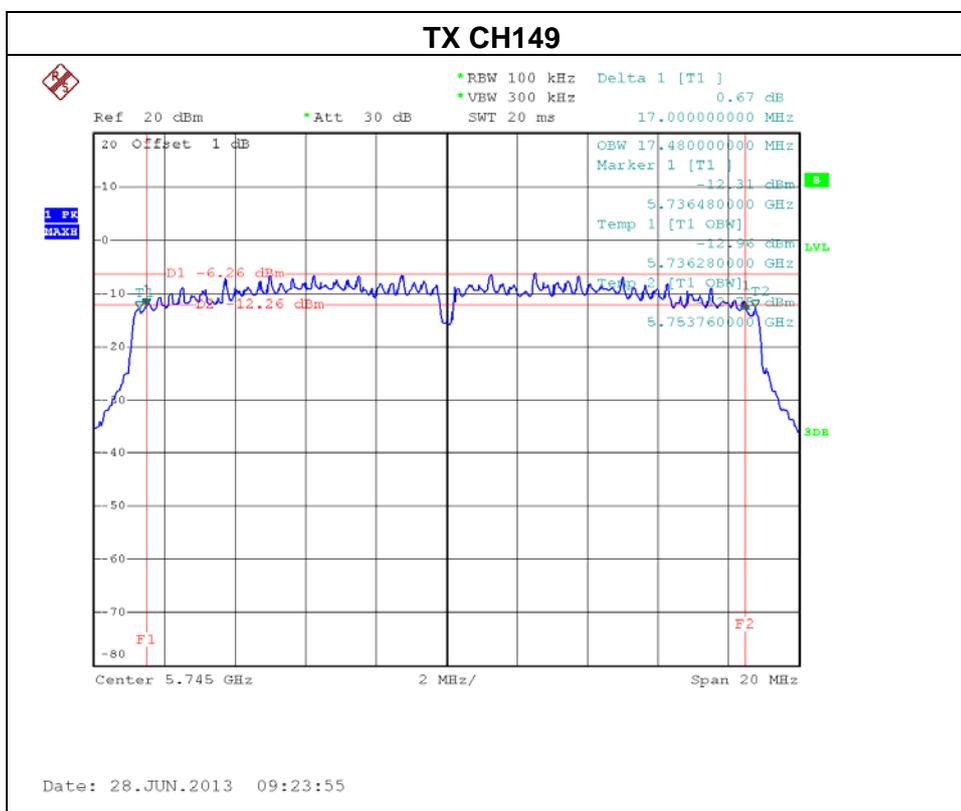


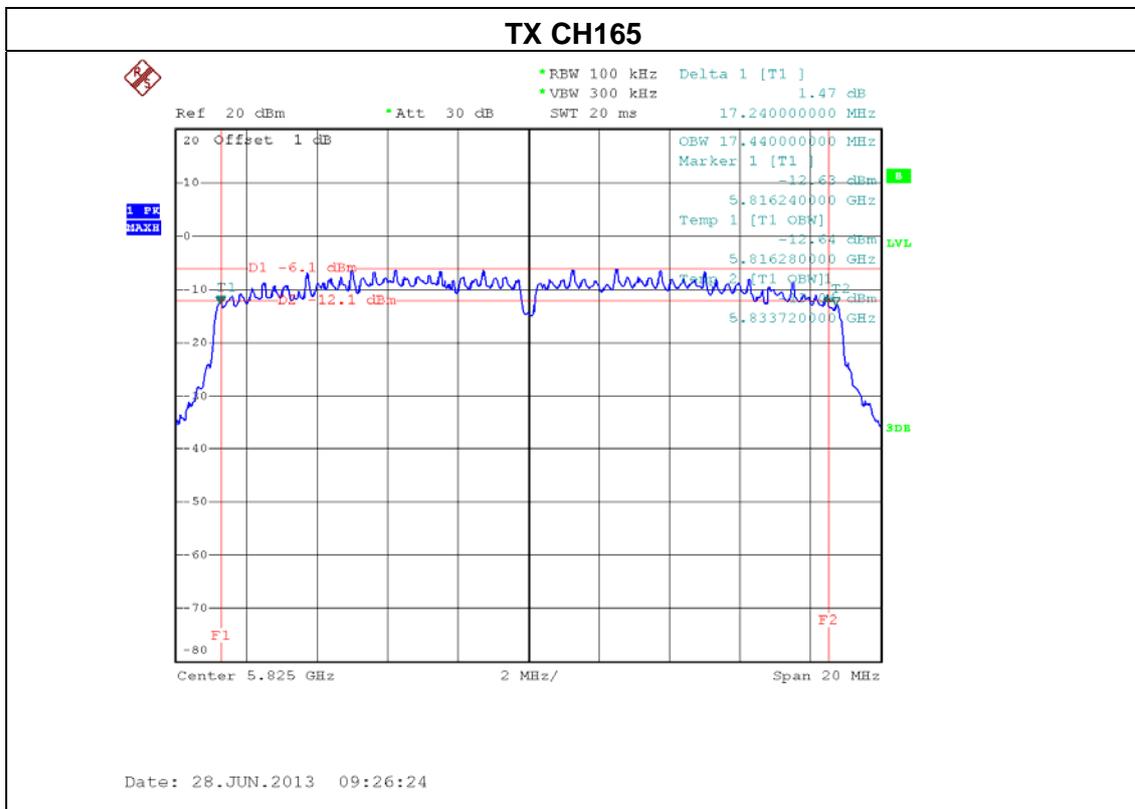
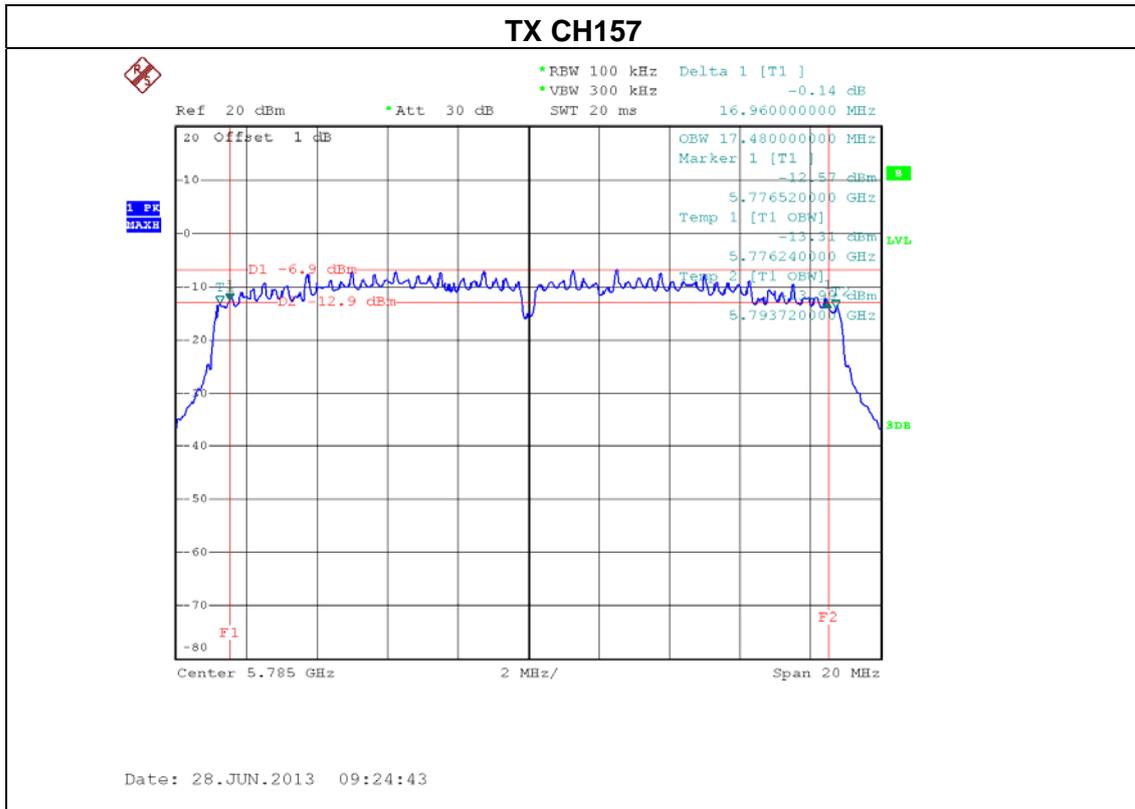




EUT :	Vodafone Mobile Wi-Fi	Model Name. :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 1		

Test Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Test Result
CH149	5745	17.00	PASS
CH157	5785	16.96	PASS
CH165	5825	17.24	PASS

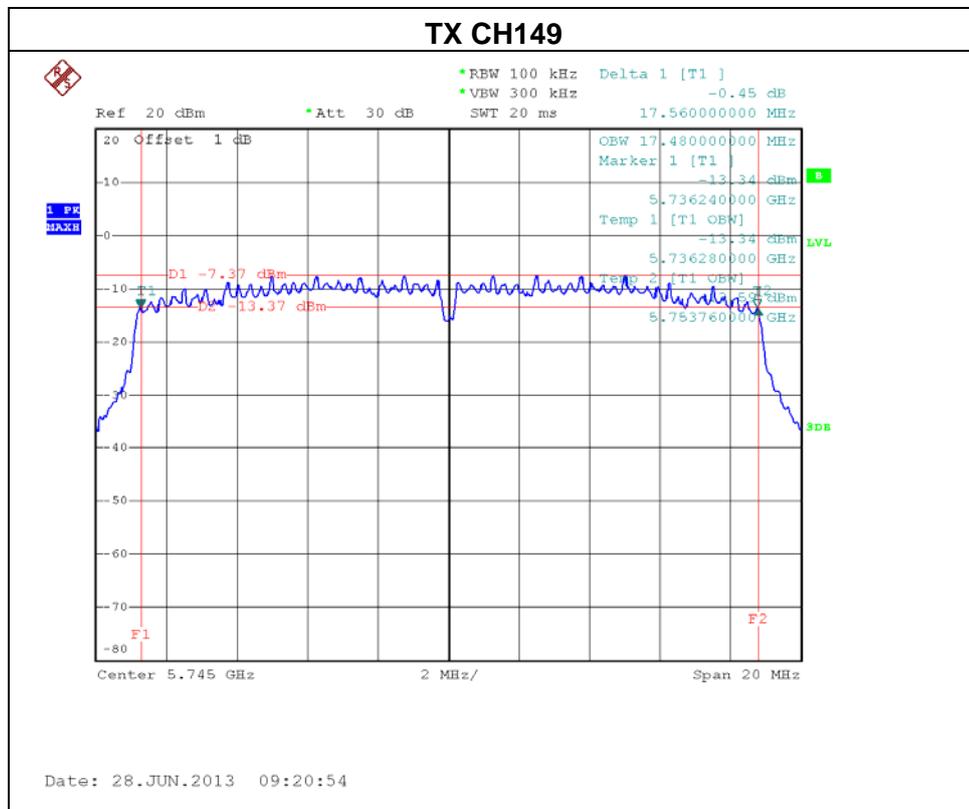


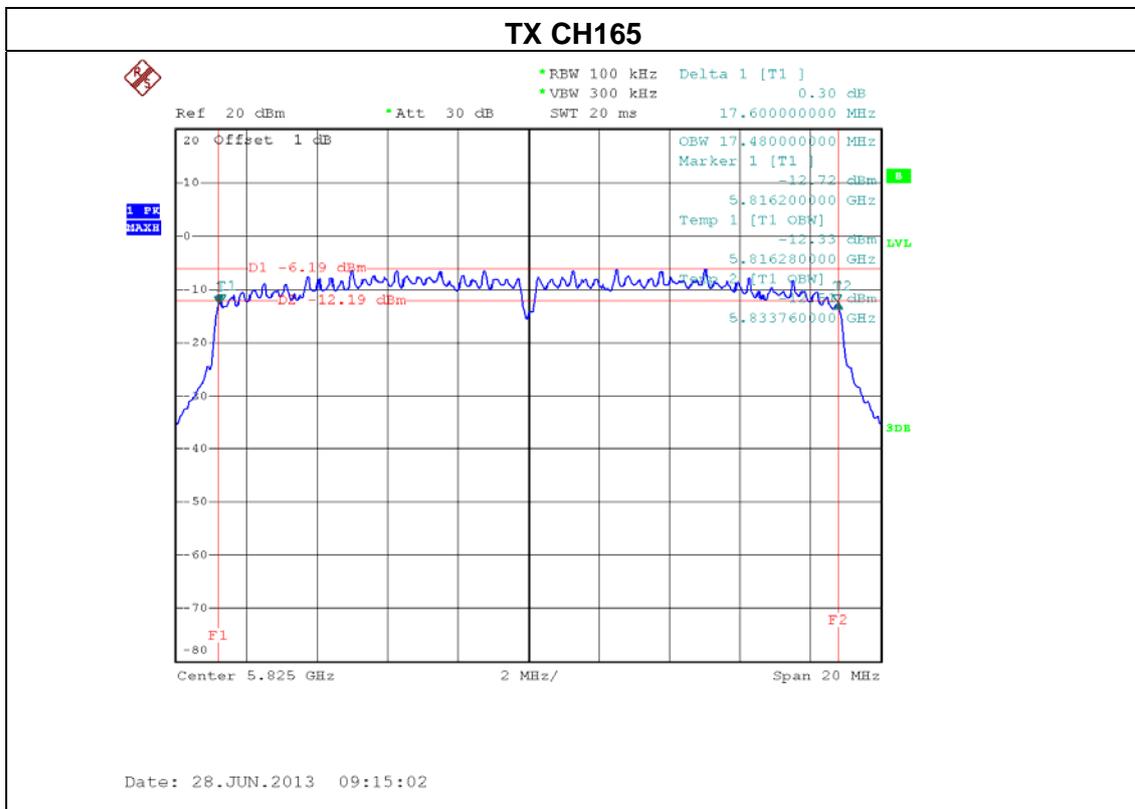
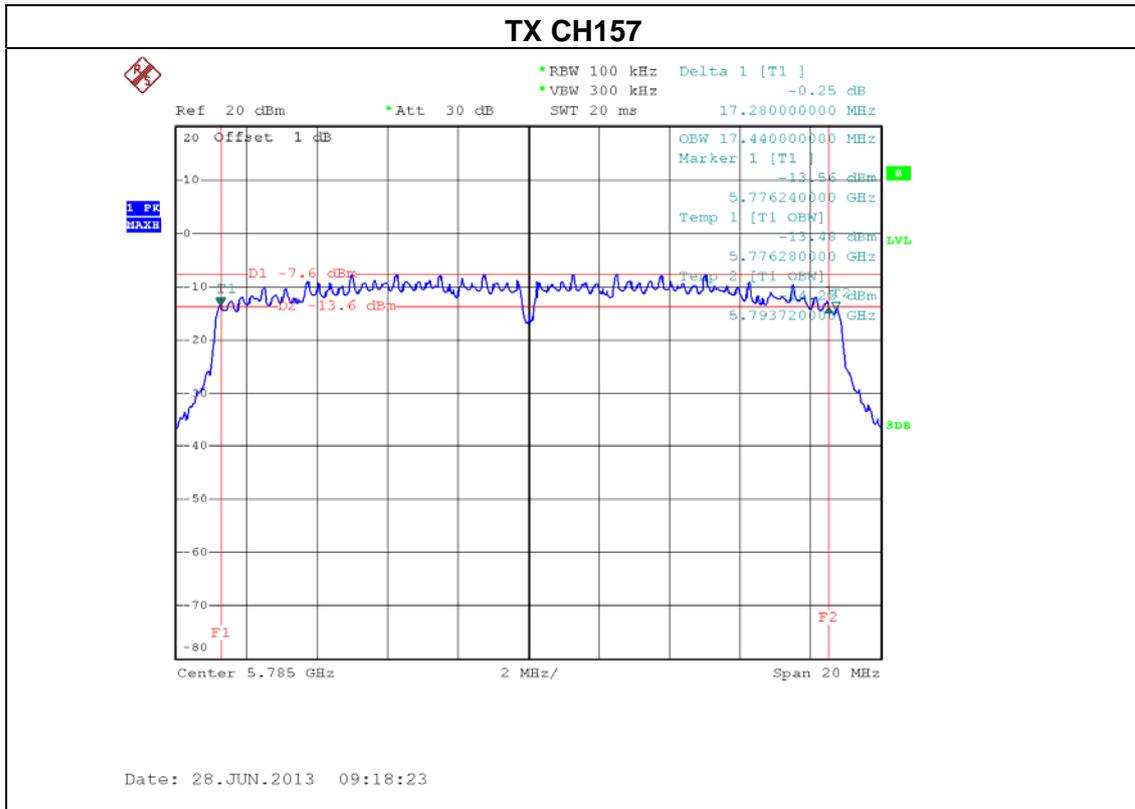




EUT :	Vodafone Mobile Wi-Fi	Model Name. :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 2		

Test Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Test Result
CH149	5745	17.56	PASS
CH157	5785	17.28	PASS
CH165	5825	17.60	PASS

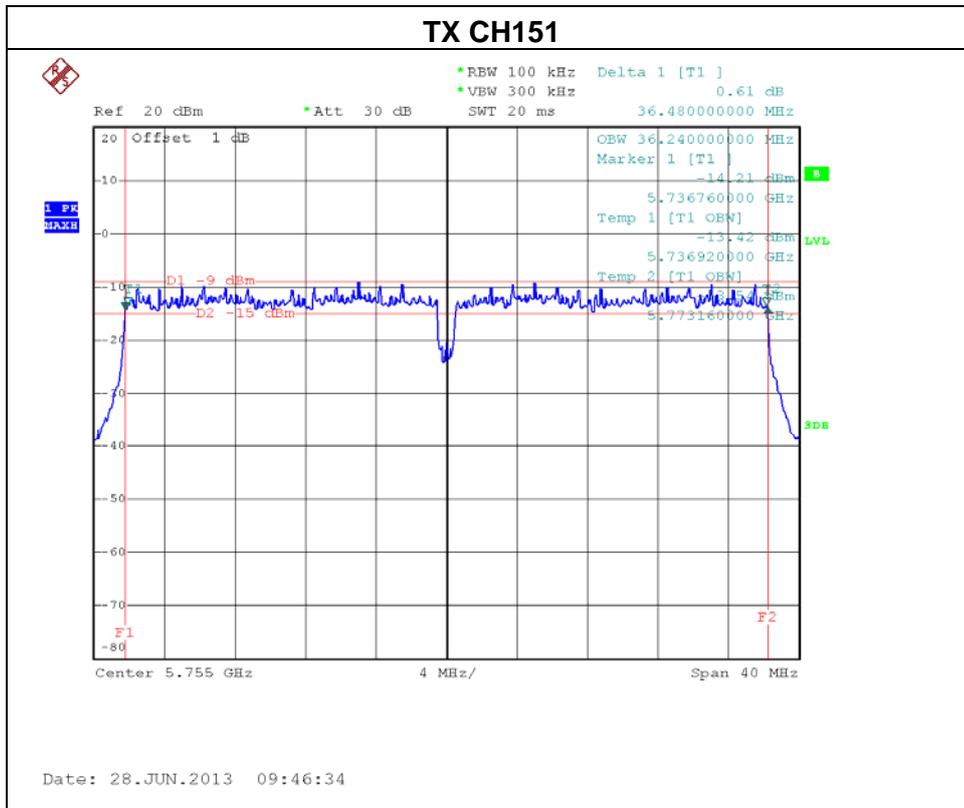


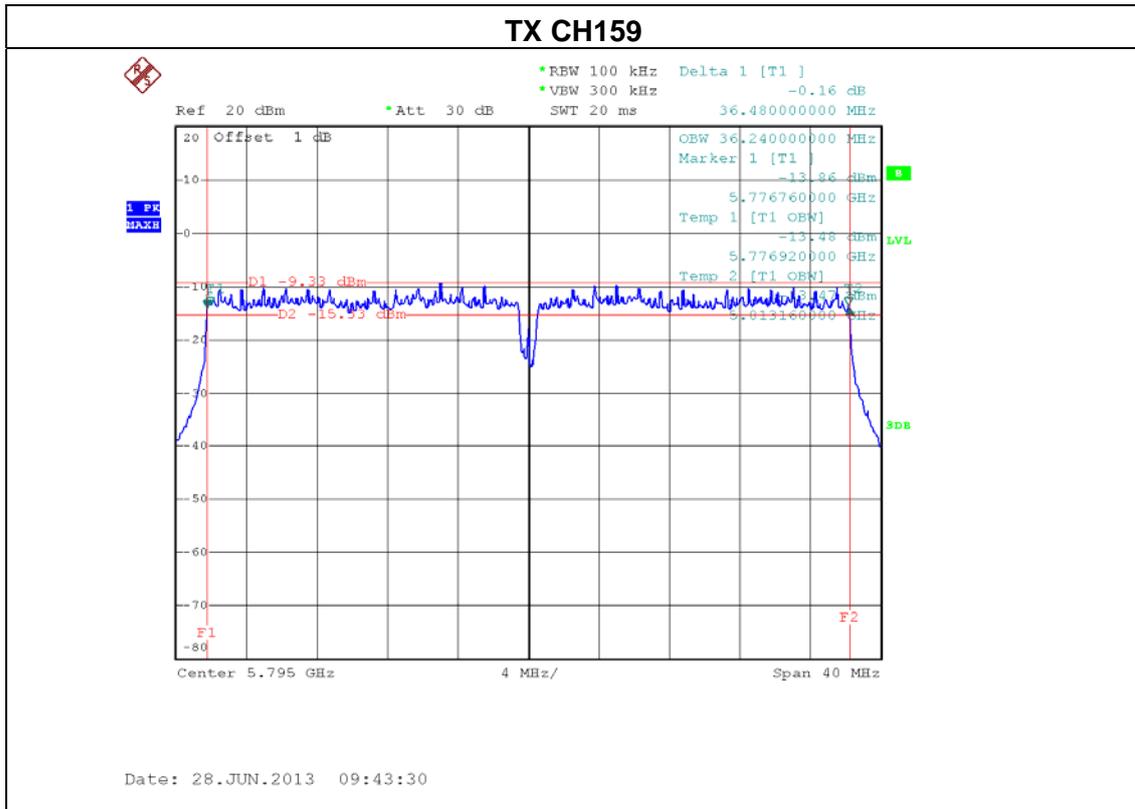




EUT :	Vodafone Mobile Wi-Fi	Model Name. :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 1		

Test Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Test Result
CH151	5755	36.48	PASS
CH159	5795	36.48	PASS

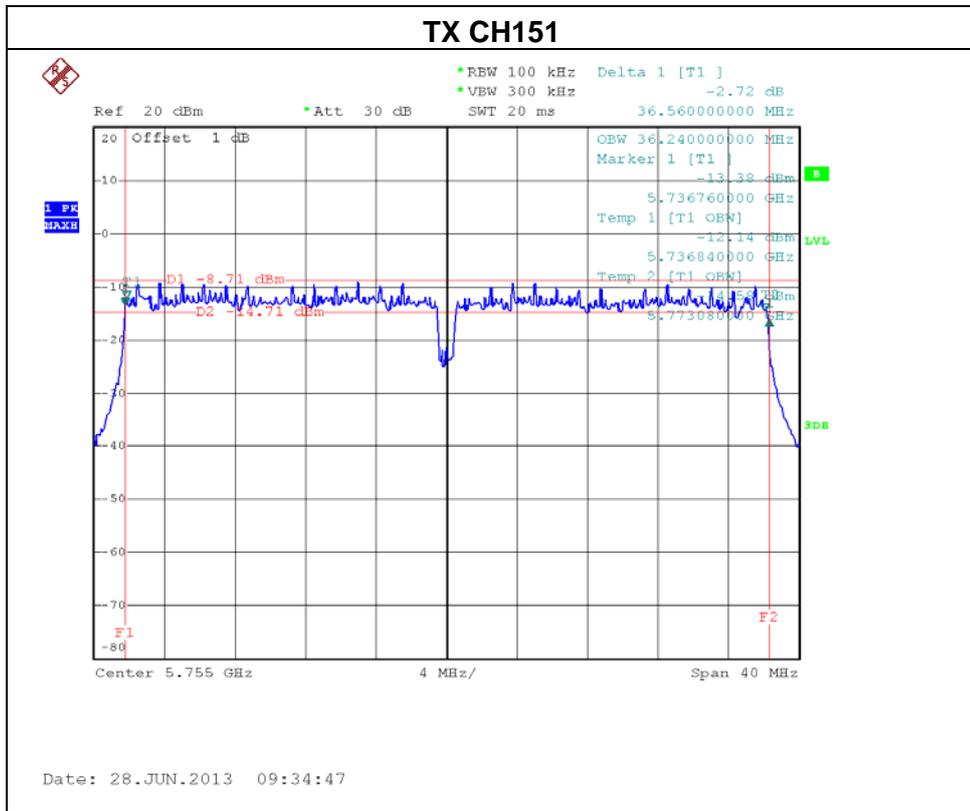


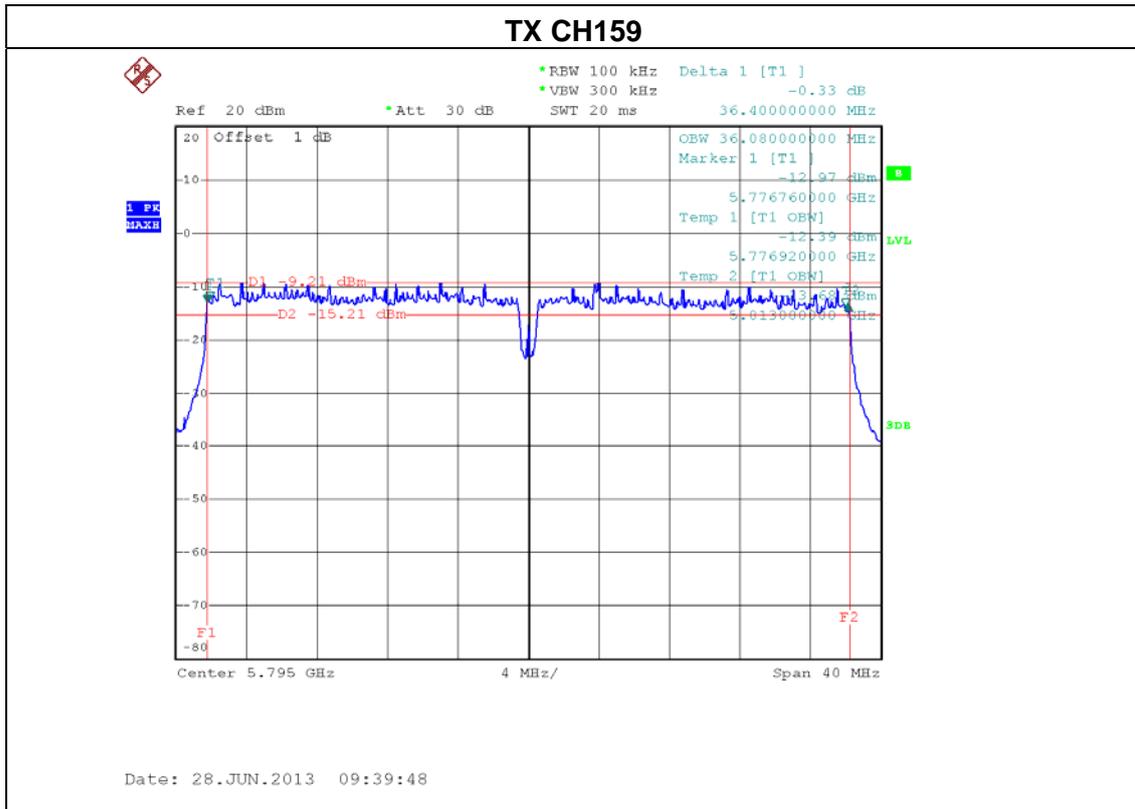




EUT :	Vodafone Mobile Wi-Fi	Model Name. :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 2		

Test Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Test Result
CH151	5755	36.56	PASS
CH159	5795	36.40	PASS







6. MAXIMUM OUTPUT POWER TEST

6.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	5725 - 5825	PASS

6.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Power Meter	ANRITSU	ML2495A	1128009	Nov.01.2012	Nov.01.2013
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Nov.01.2012	Nov.01.2013

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

6.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- b. The maximum peak conducted output power was performed in accordance with method 9.1.3 of FCC KDB 558074 D01 DTS Meas Guidance v03r01(A,N20,N40 mode) and 662911 D01 Multiple Transmitter Output v01r02(N20,N40 mode)

6.1.3 DEVIATION FROM STANDARD

No deviation.

6.1.4 TEST SETUP



6.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



6.1.6 TEST RESULTS

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode /CH149, CH157, CH165-ANT 1		

Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH149	5745 MHz	14.15	30	1
CH157	5785 MHz	14.26	30	1
CH165	5825 MHz	14.09	30	1

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode /CH149, CH157, CH165-ANT 2		

Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH149	5745 MHz	13.96	30	1
CH157	5785 MHz	14.05	30	1
CH165	5825 MHz	13.80	30	1



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 1		

Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH149	5745 MHz	11.25	30	1
CH157	5785 MHz	11.16	30	1
CH165	5825 MHz	11.23	30	1

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 2		

Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH149	5745 MHz	10.95	30	1
CH157	5785 MHz	10.87	30	1
CH165	5825 MHz	11.02	30	1

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 1+ANT 2		

Total ANT 1+ANT 2				
Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH149	5745 MHz	14.11	30	1
CH157	5785 MHz	14.03	30	1
CH165	5825 MHz	14.14	30	1

Note: This total output power in dBm is transformed from a plus of mW transformed from the output power of ANT1 and ANT2 in dBm.



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 1		

Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH151	5755 MHz	11.36	30	1
CH159	5795 MHz	11.24	30	1

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 2		

Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH151	5755 MHz	11.15	30	1
CH159	5795 MHz	11.05	30	1

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 1+ANT 2		

Total ANT 1+ ANT 2				
Test Channel	Frequency (MHz)	Maximum Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH151	5755 MHz	14.27	30	1
CH159	5795 MHz	14.16	30	1

Note: This total output power in dBm is transformed from a plus of mW transformed from the output power of ANT1 and ANT2 in dBm.



7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 Applied procedures / limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

7.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Spectrum Analyzer	R&S	FSP_40	100185	Nov.17.2012	Nov.16.2013

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of Equipment List is One Year.

7.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time =20 ms.

7.1.3 DEVIATION FROM STANDARD

No deviation.

7.1.4 TEST SETUP



7.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



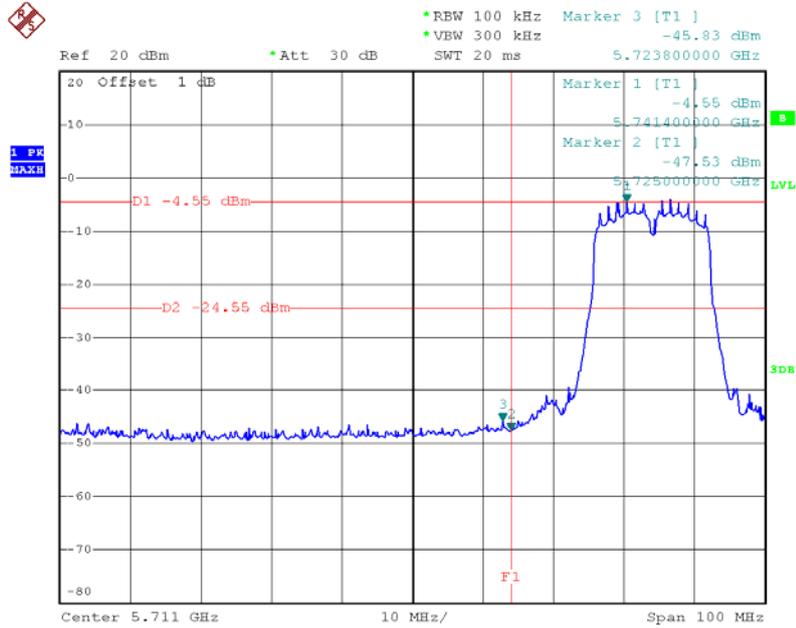
7.1.6 TEST RESULTS

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode /CH149, CH157, CH165		

Channel of Worst Data: CH149			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5723.80	-45.83	5854.00	-47.57
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.			

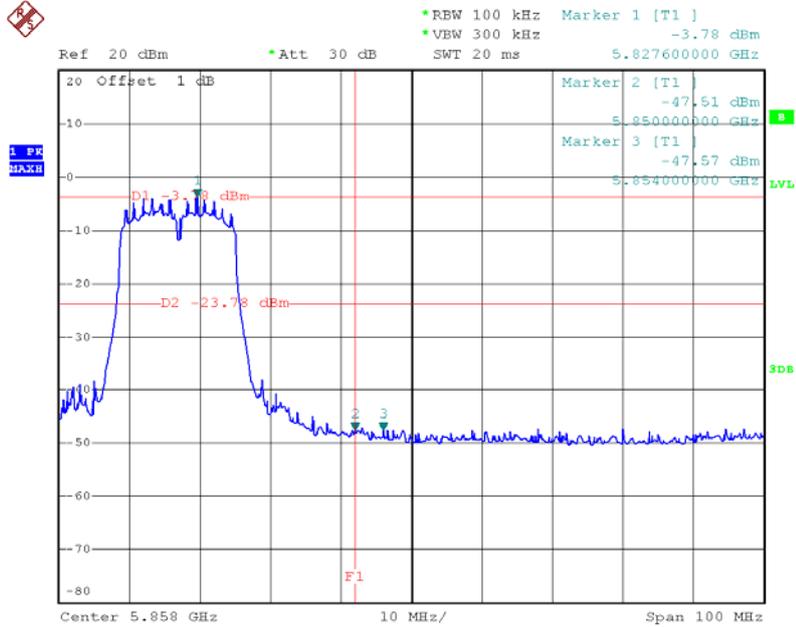


TX mode CH149

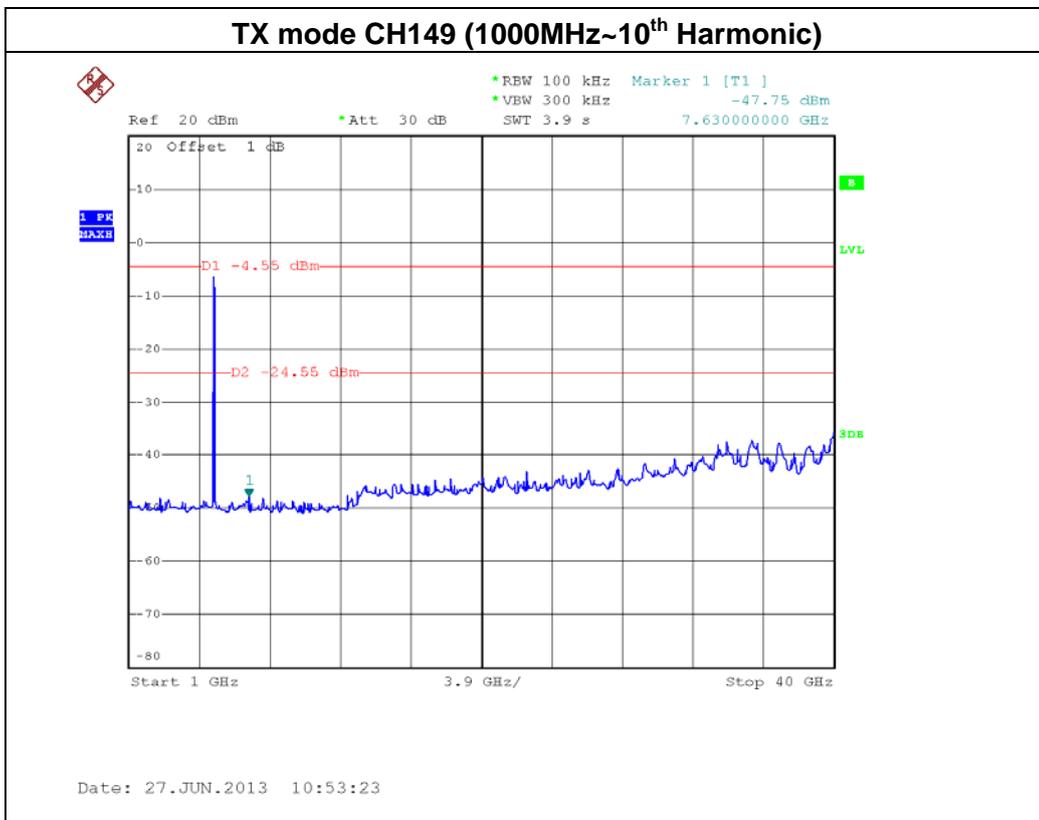
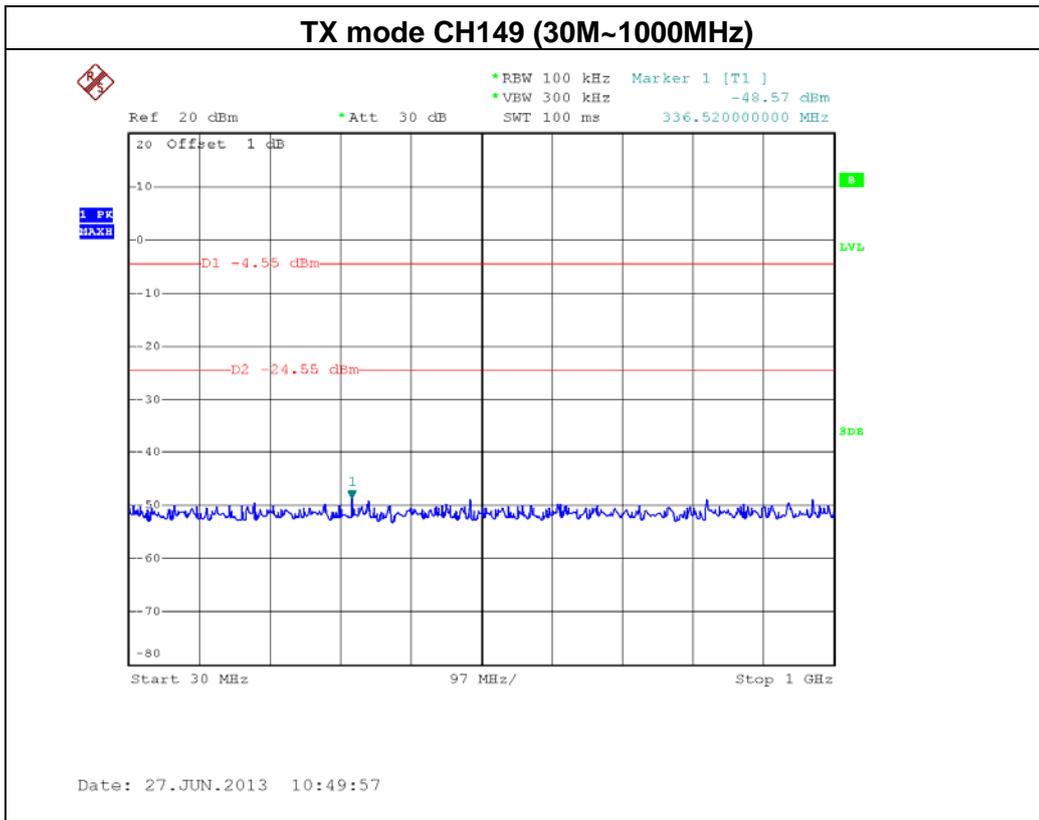


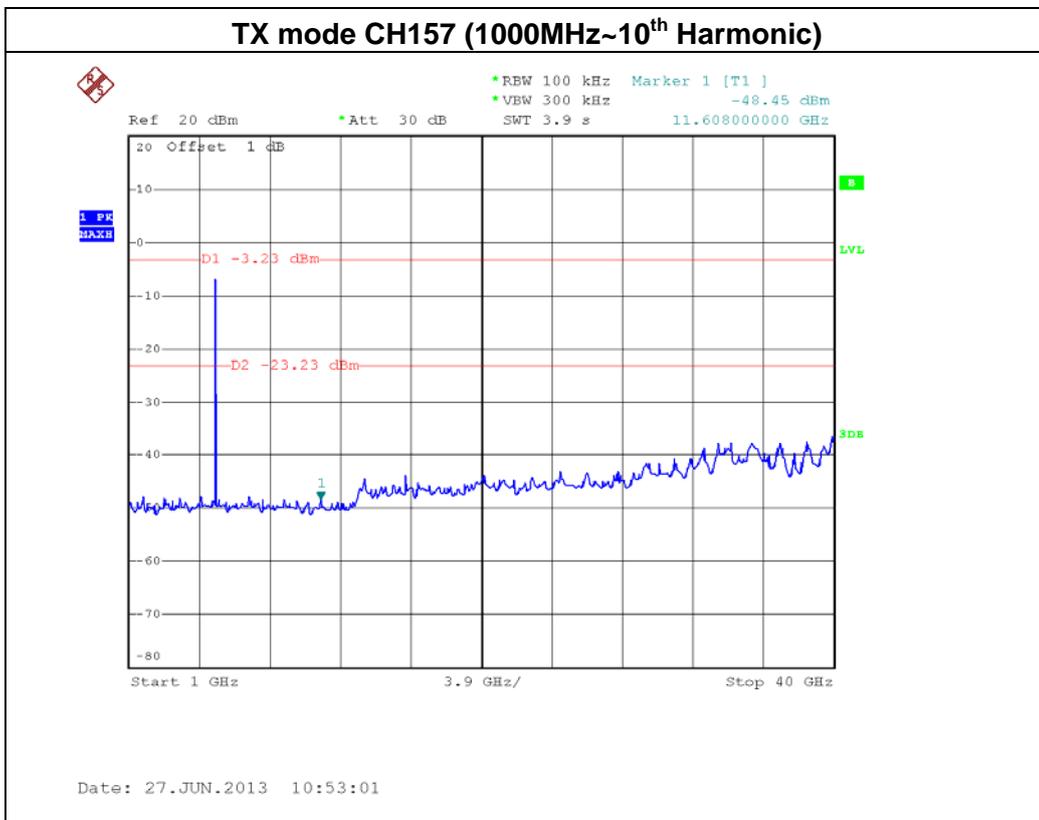
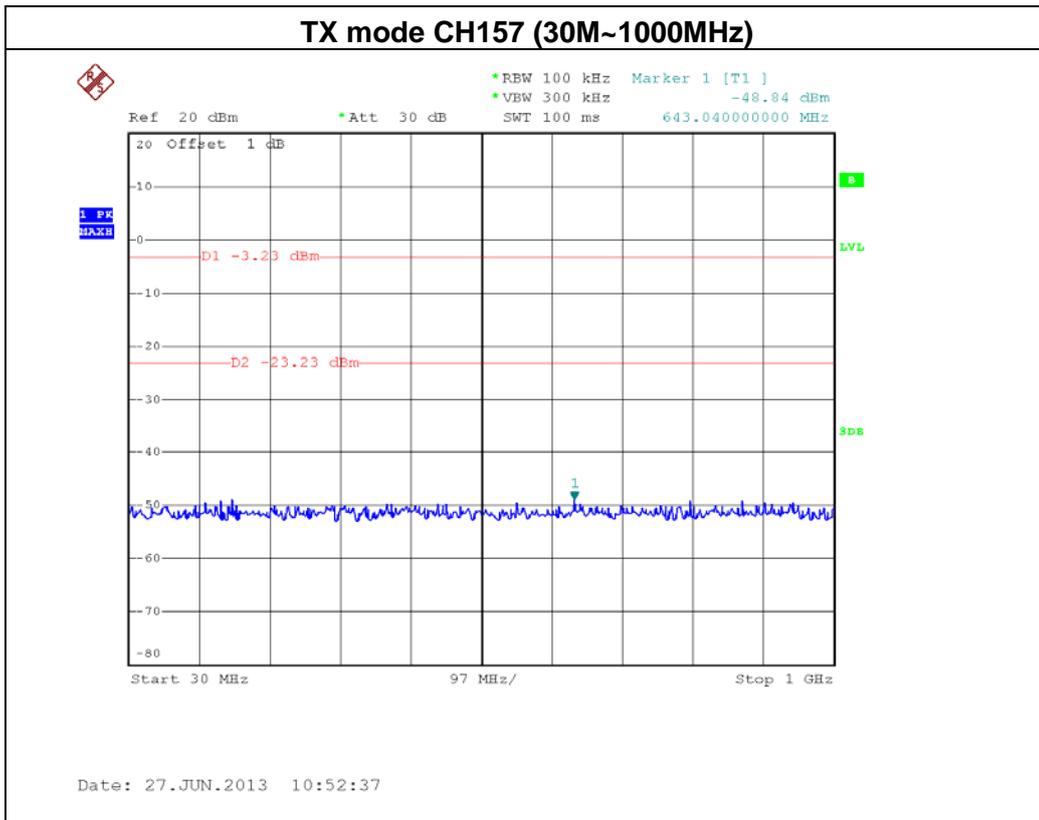
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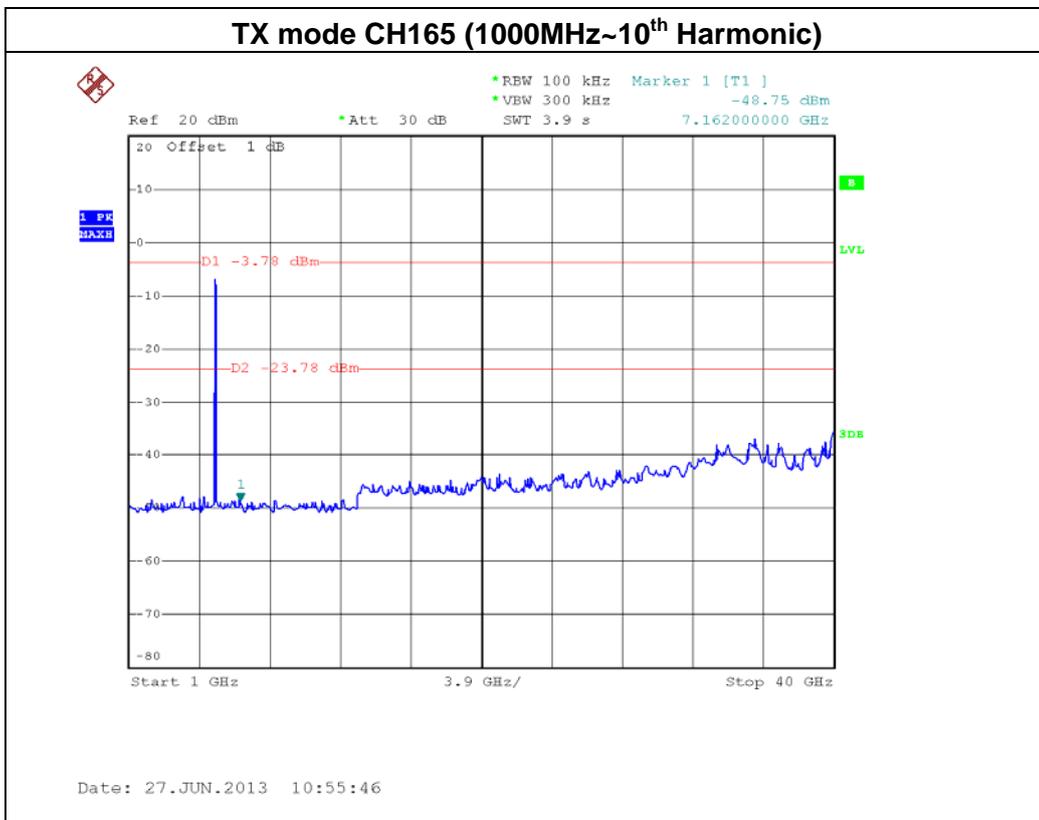
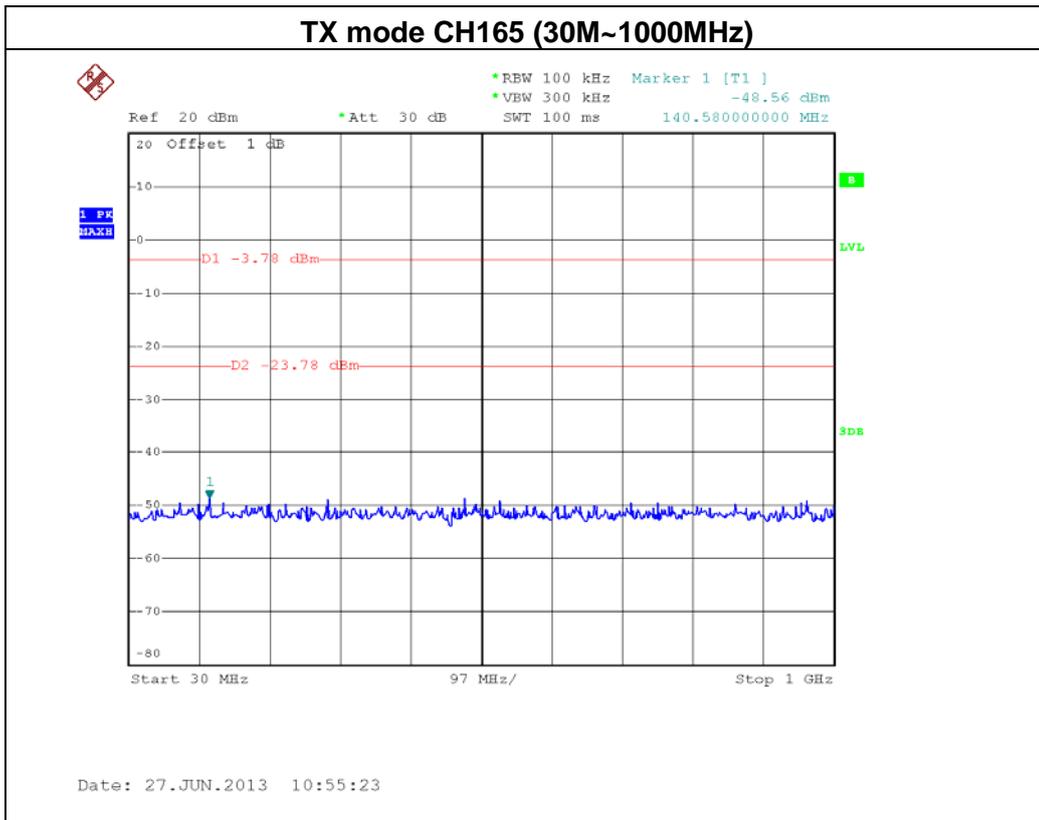
TX mode CH165



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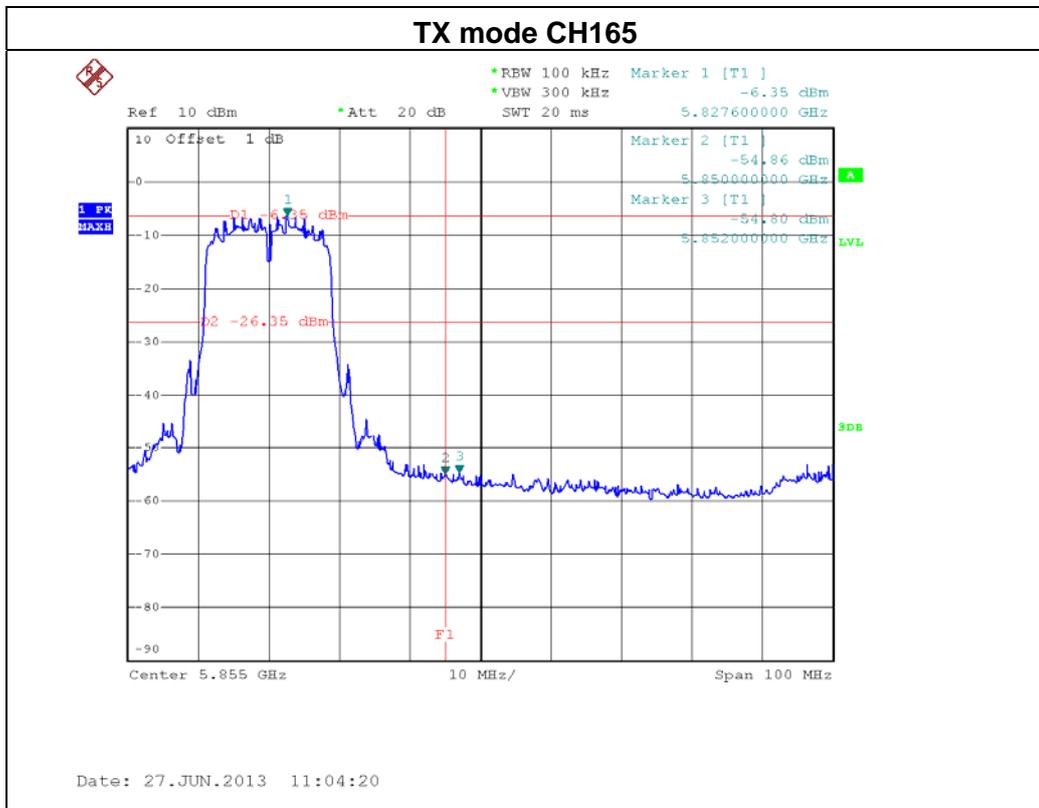
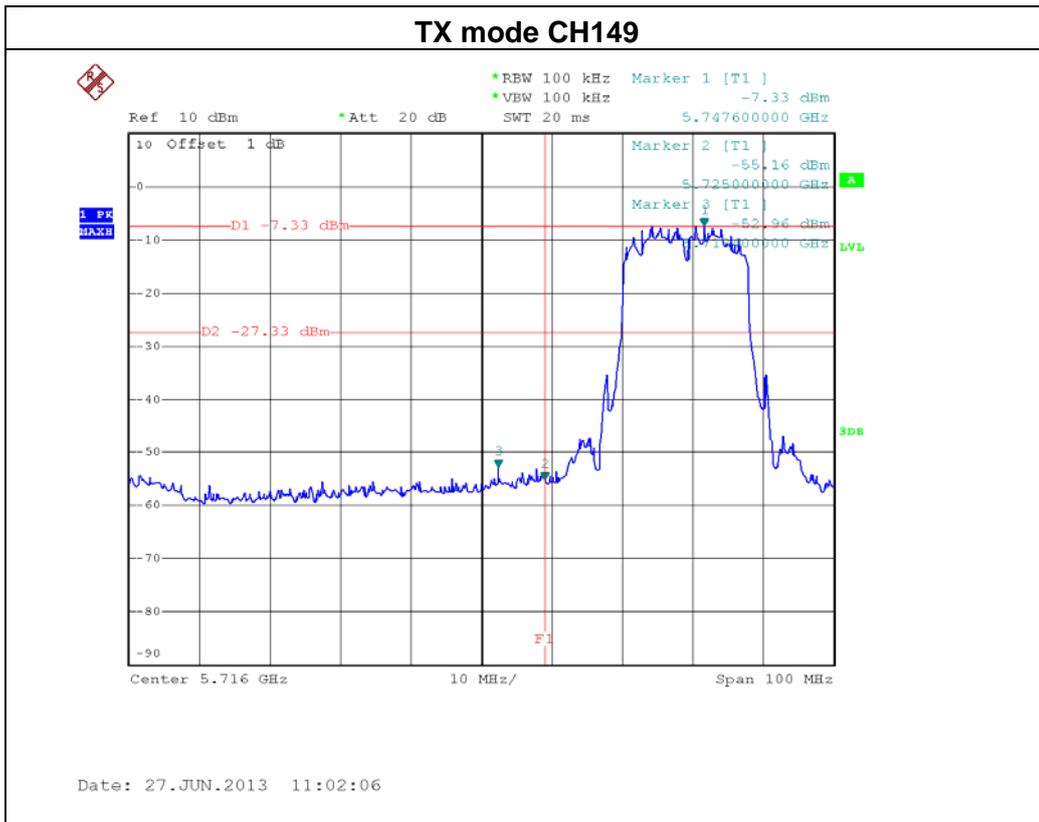


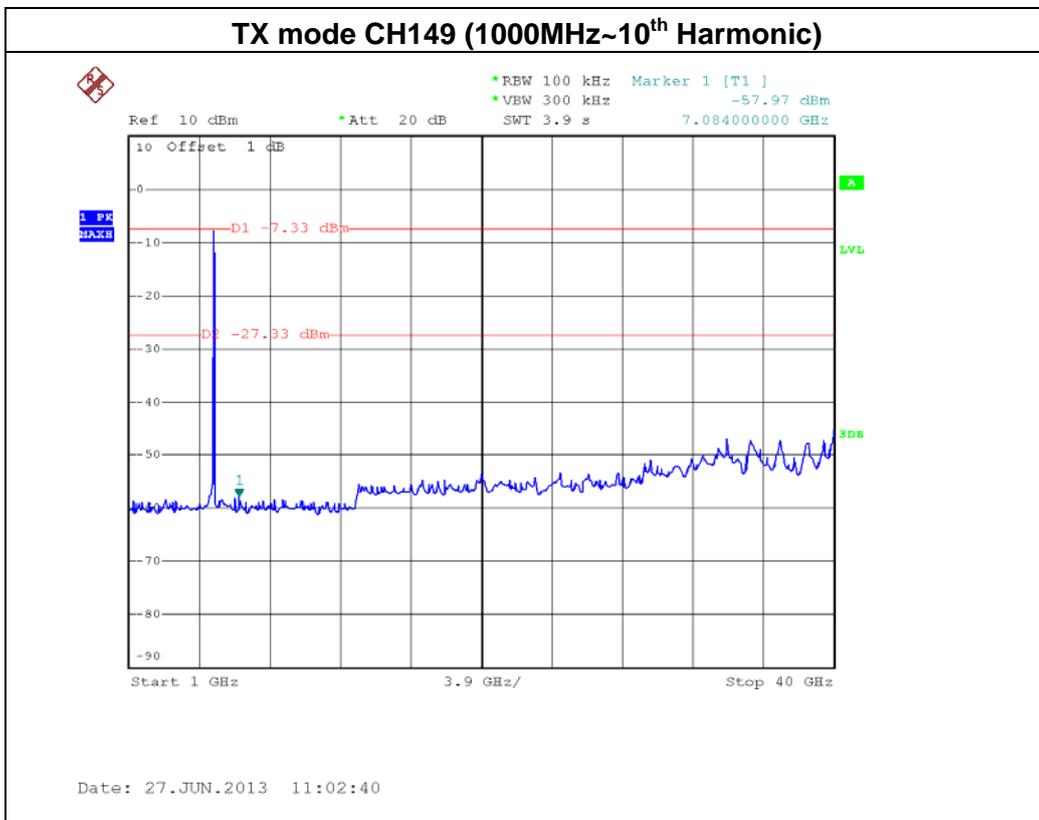
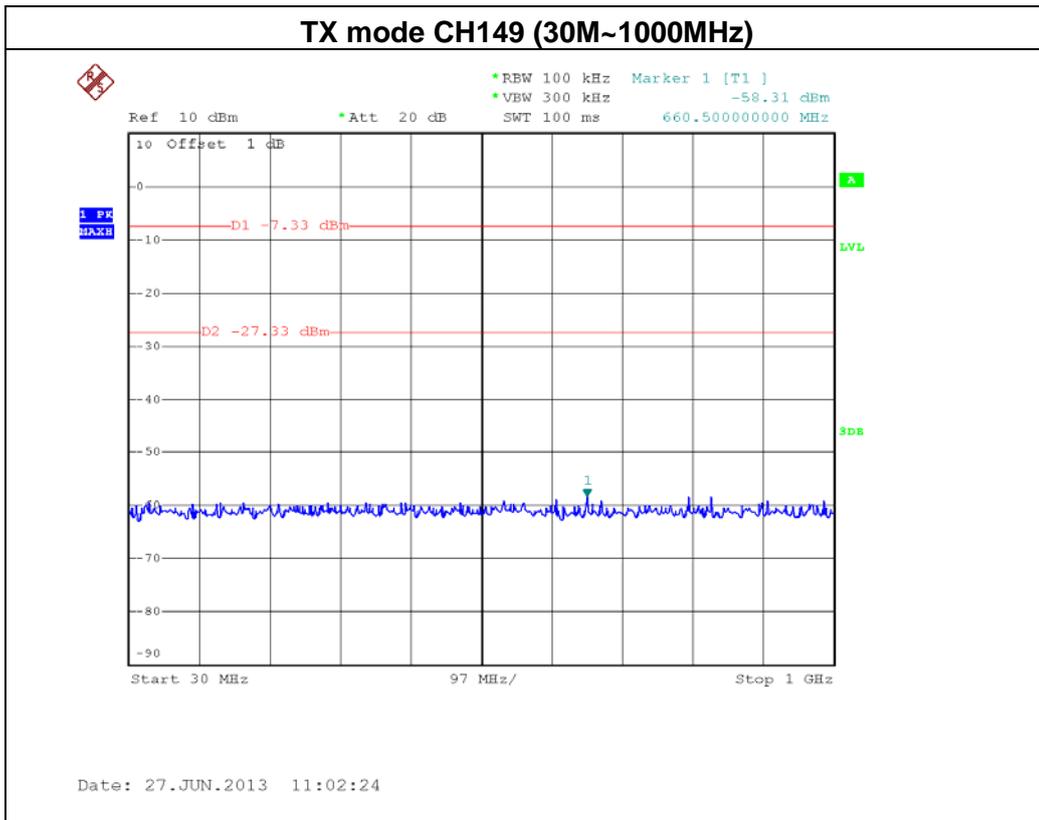


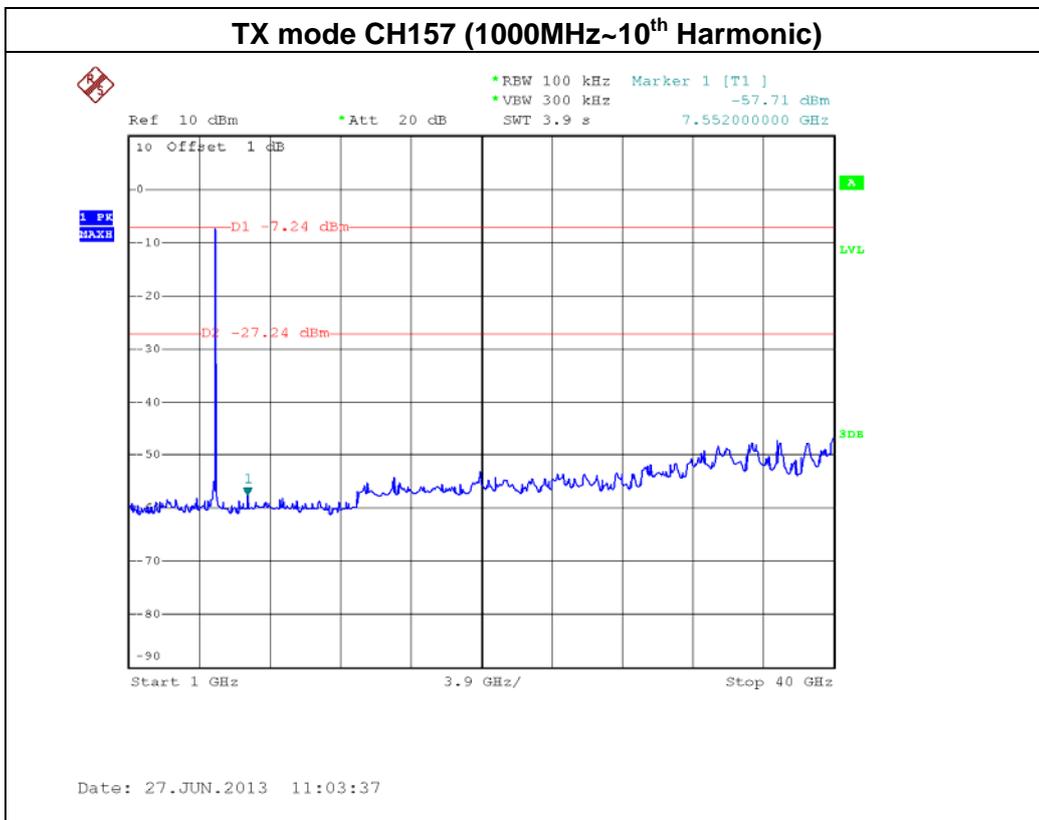
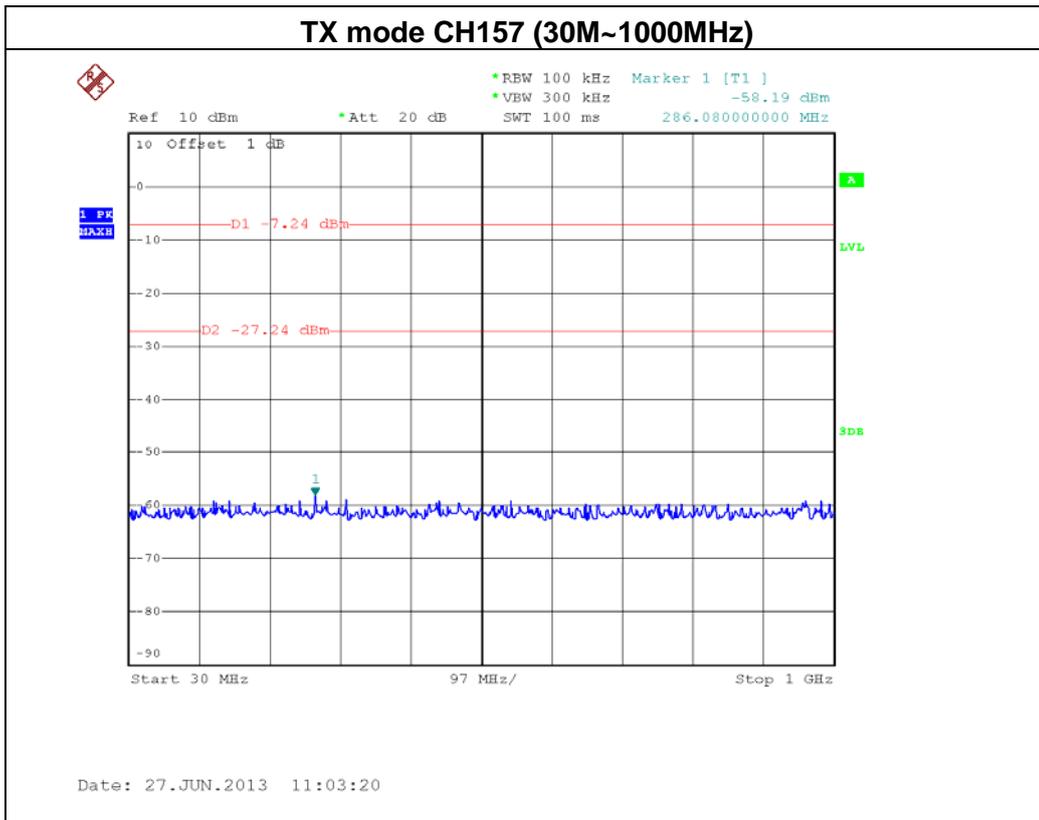


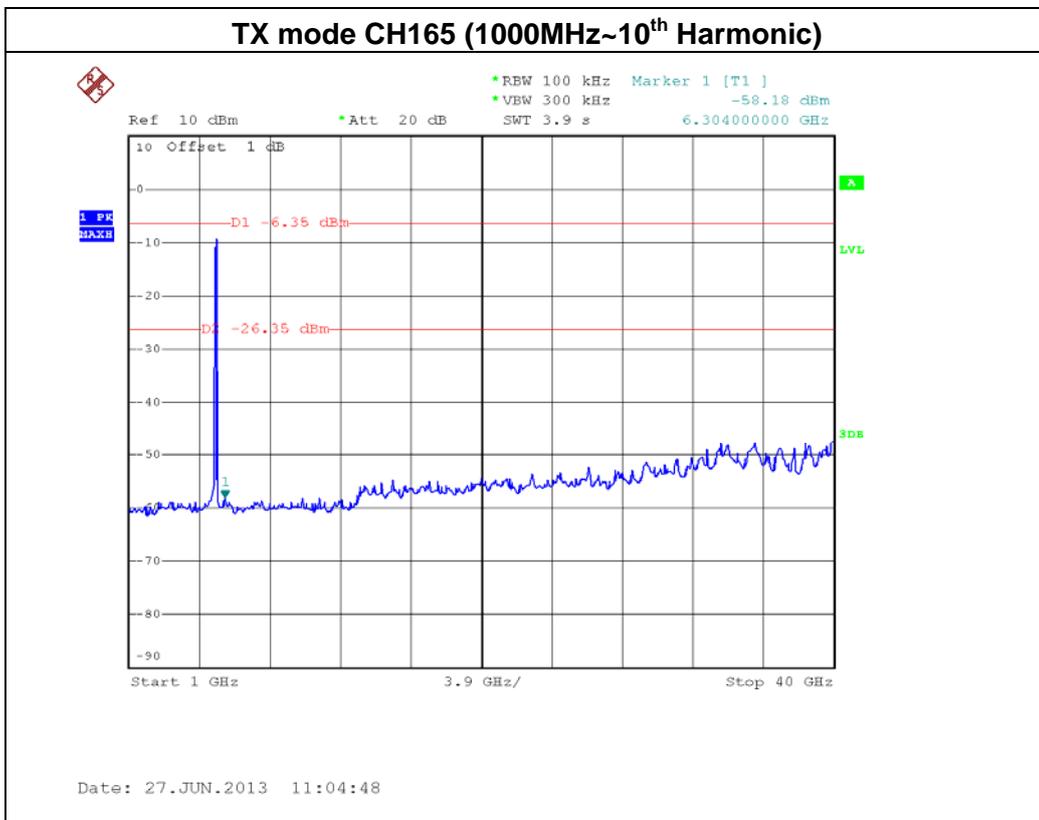
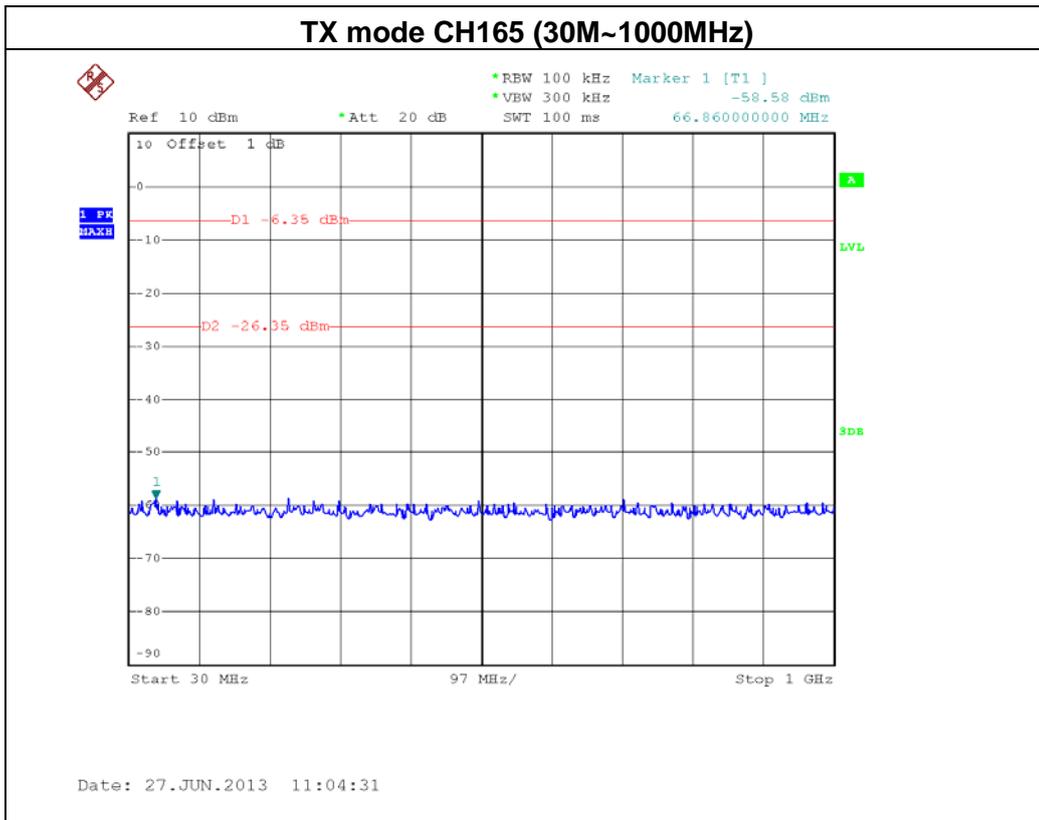
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20Mode /CH149, CH157, CH165-ANT 1		

Channel of Worst Data: CH149			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5716.00	-52.96	5852.00	-54.80
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.			











EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20Mode /CH149, CH157, CH165-ANT 2		

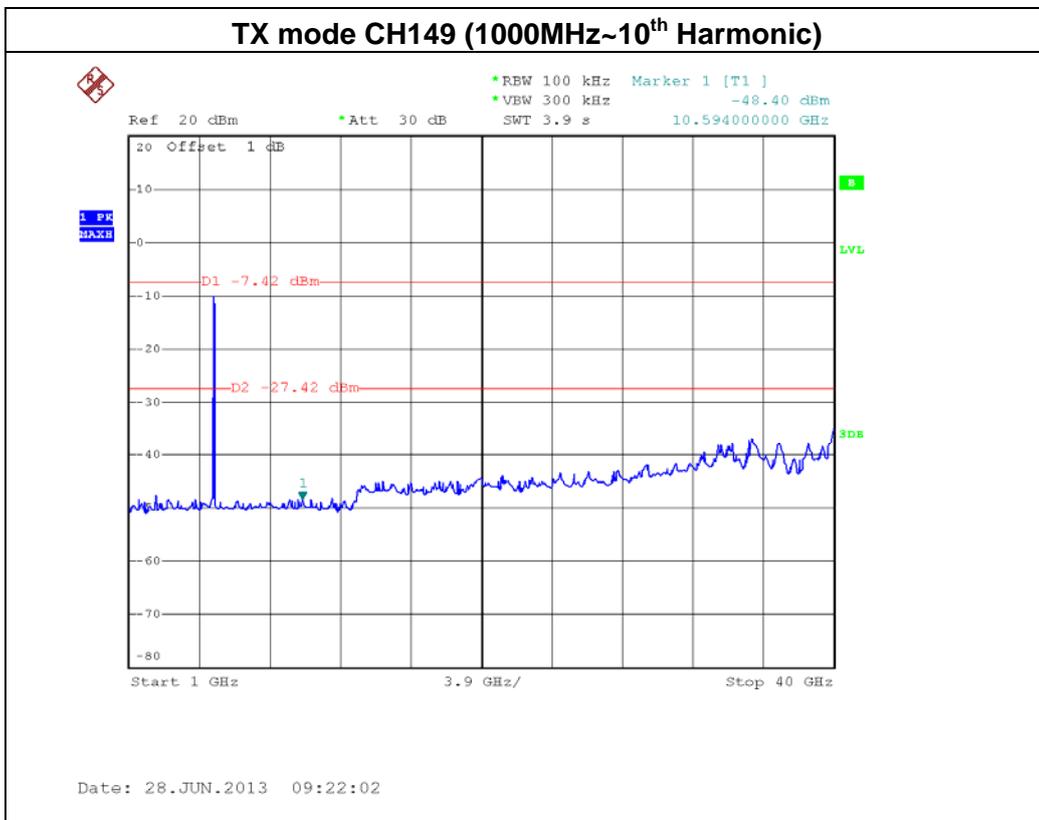
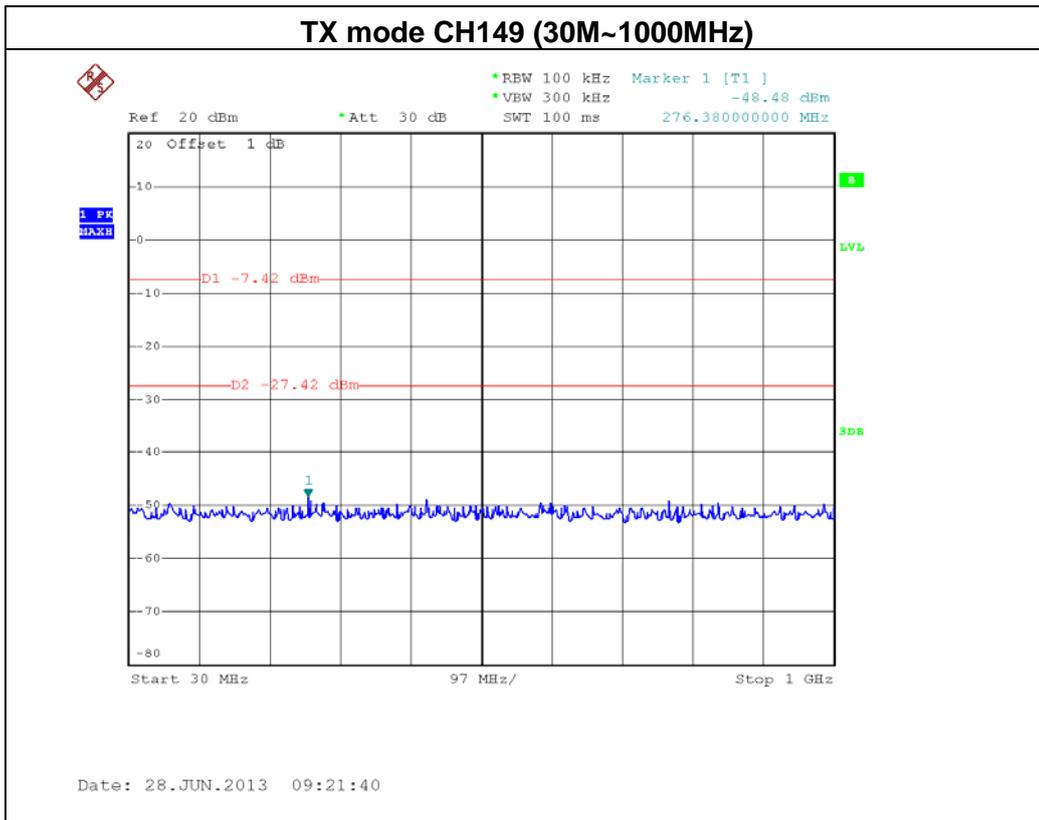
Channel of Worst Data: CH149

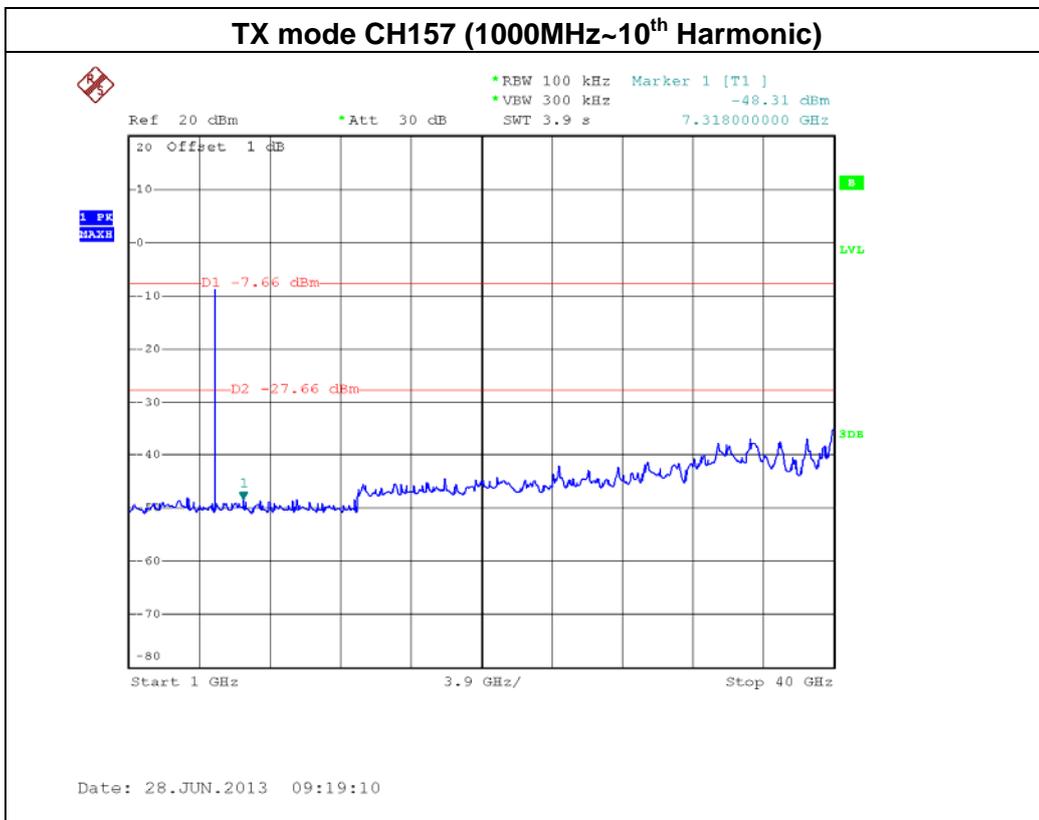
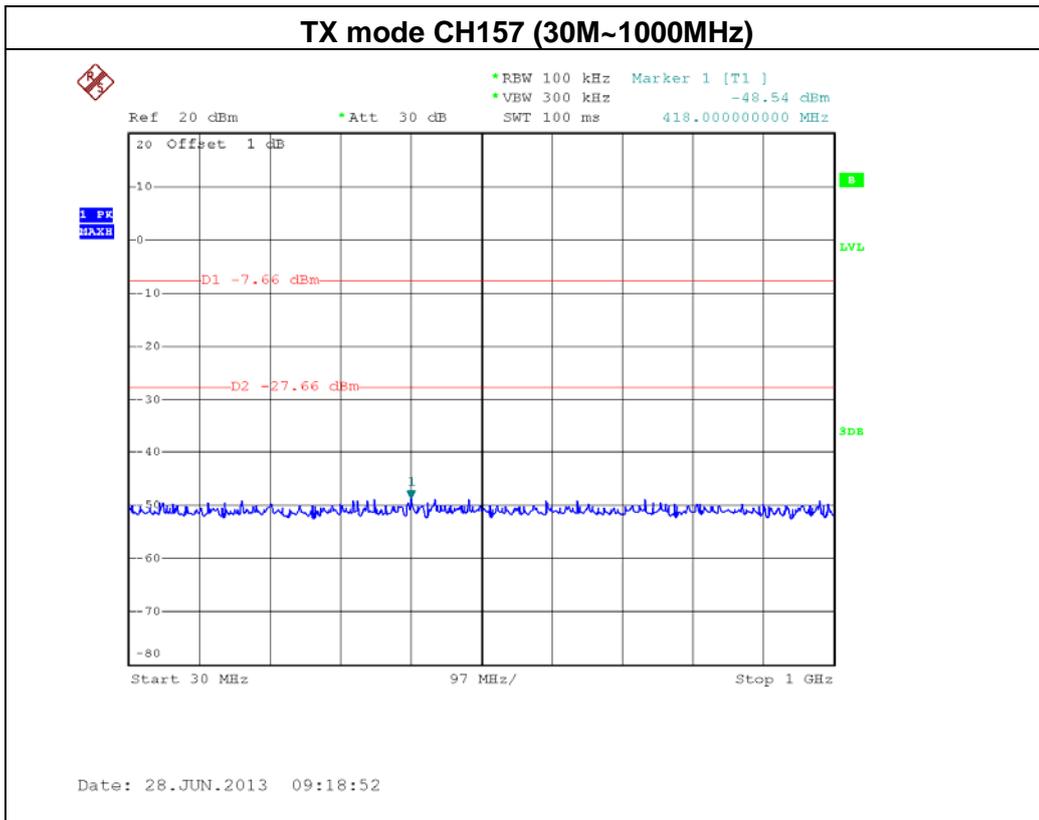
The max. radio frequency power in any 100kHz bandwidth outside the frequency band	The max. radio frequency power in any 100 kHz bandwidth within the frequency band.
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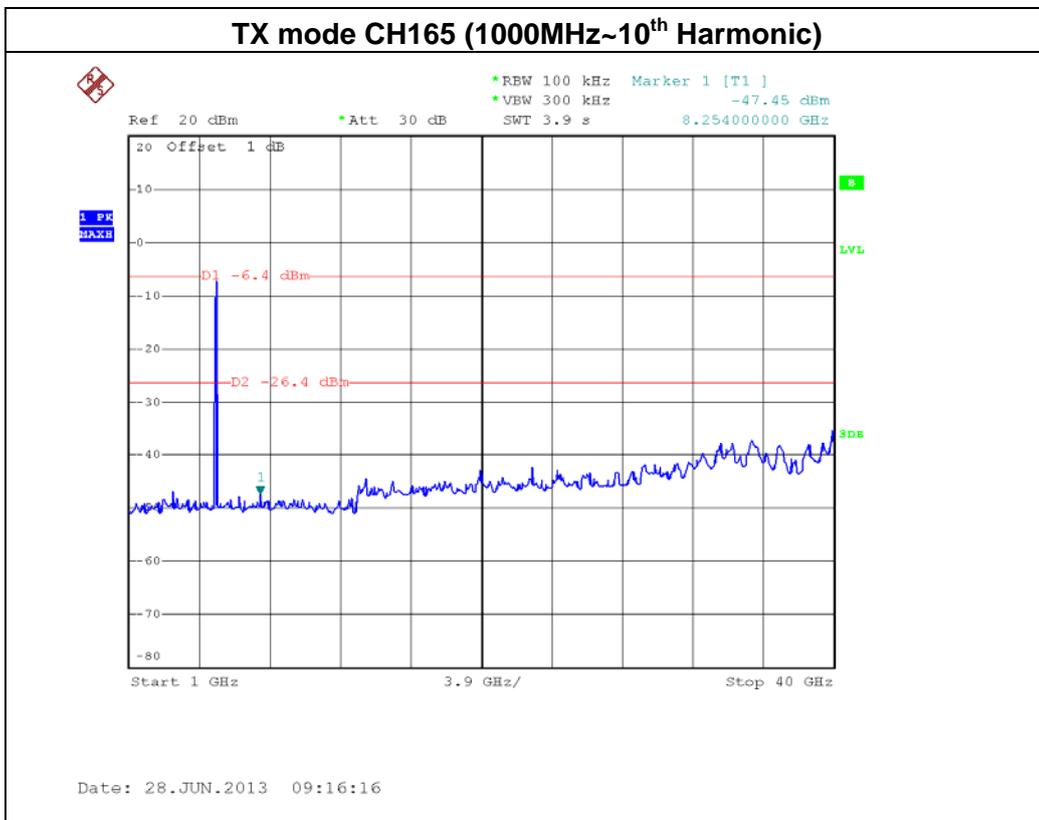
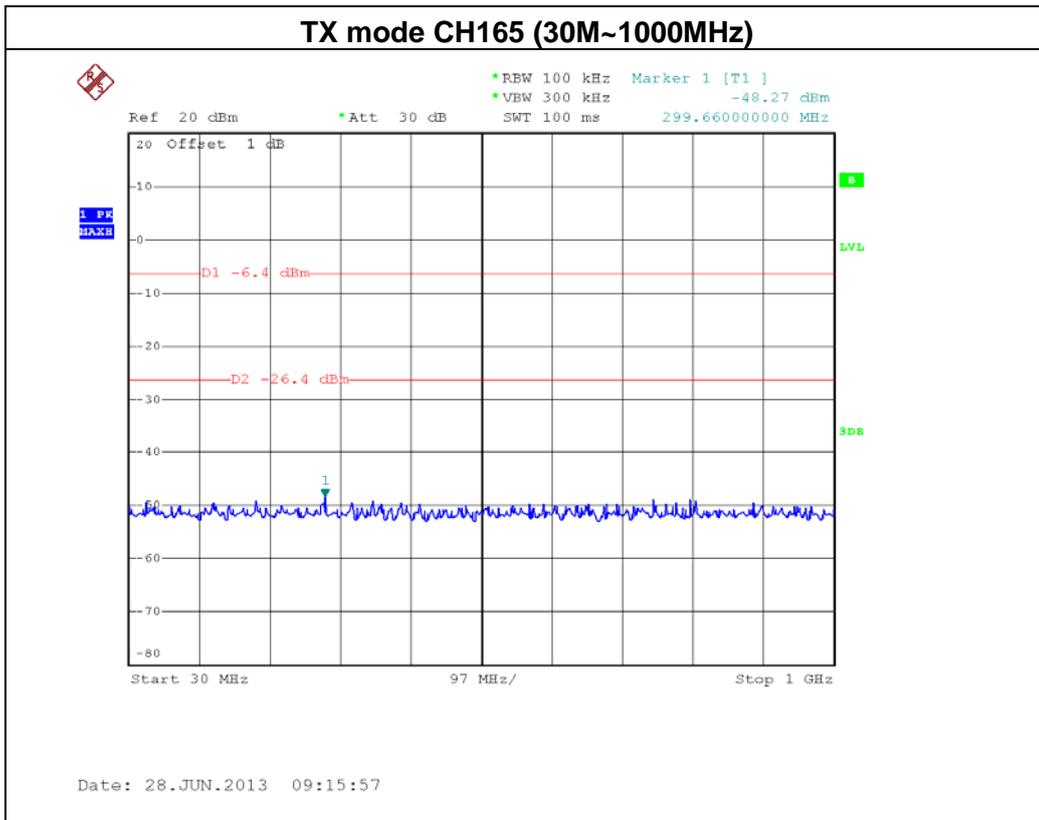
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5707.00	-47.68	5858.00	-47.88

Result

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.



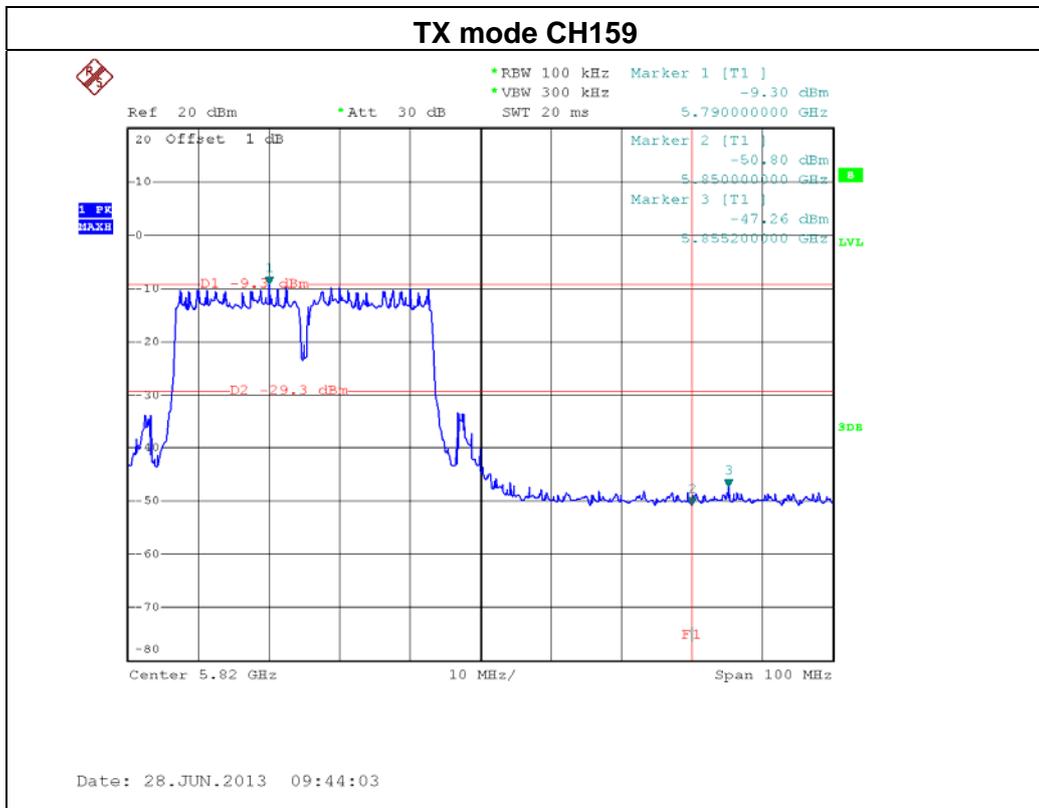
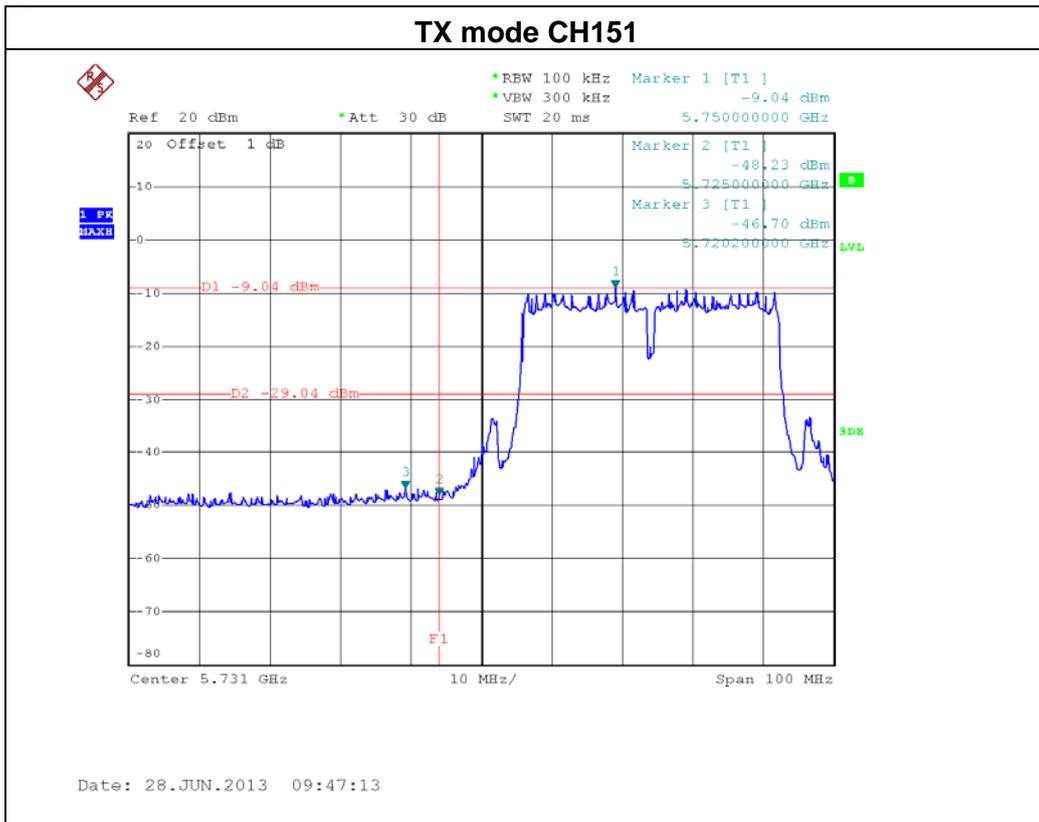


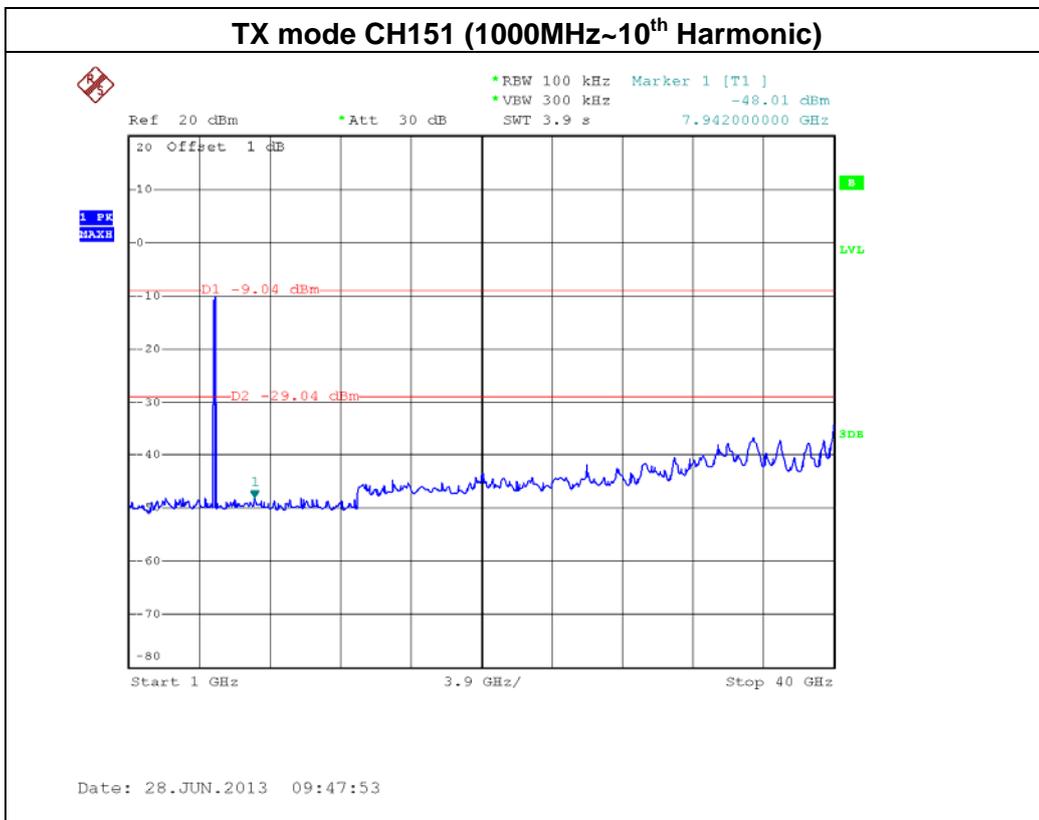
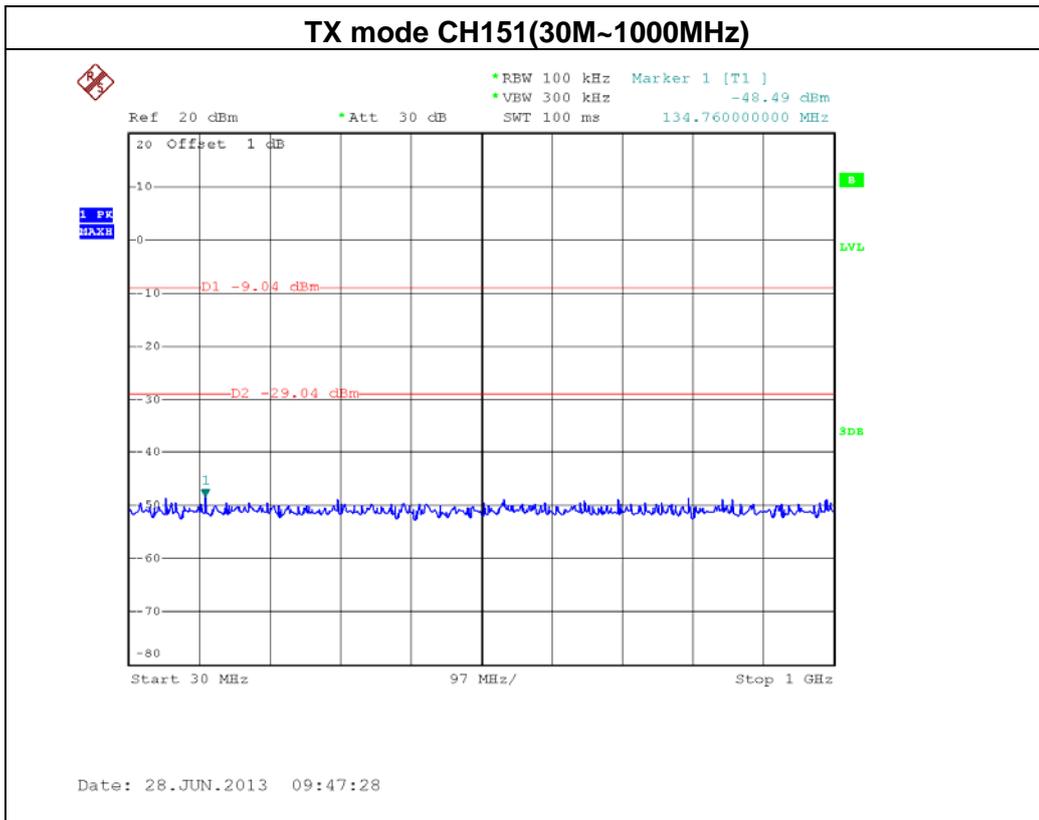


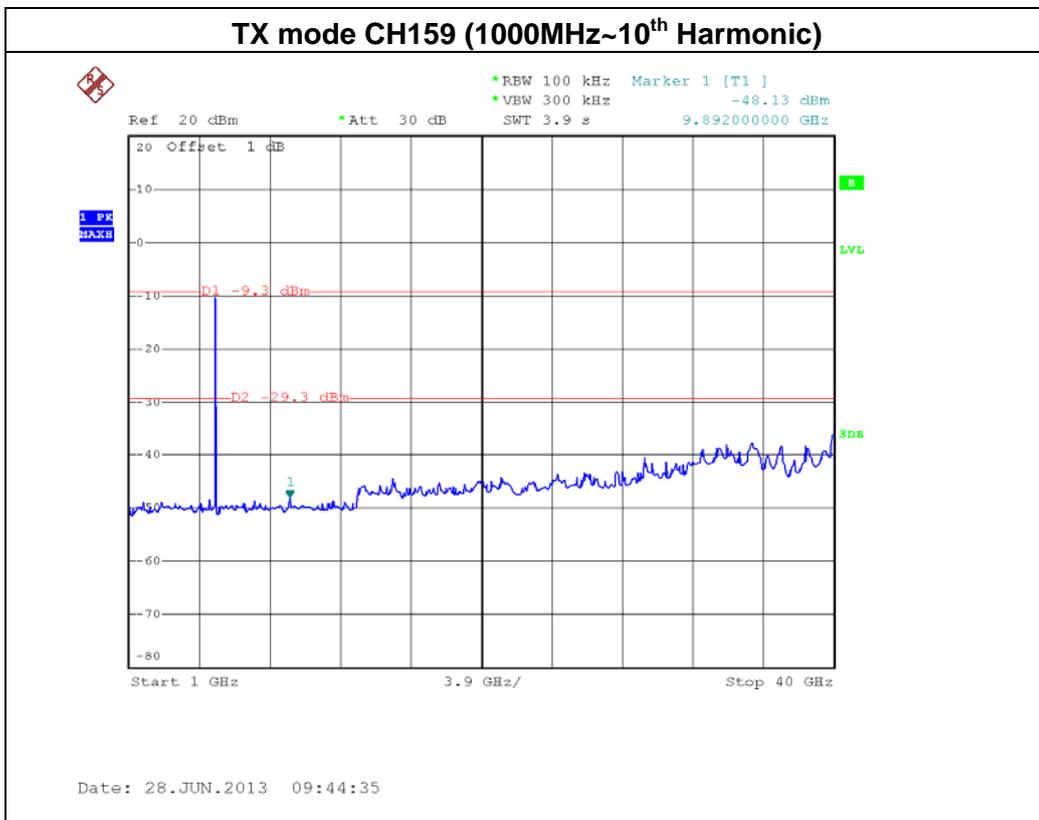
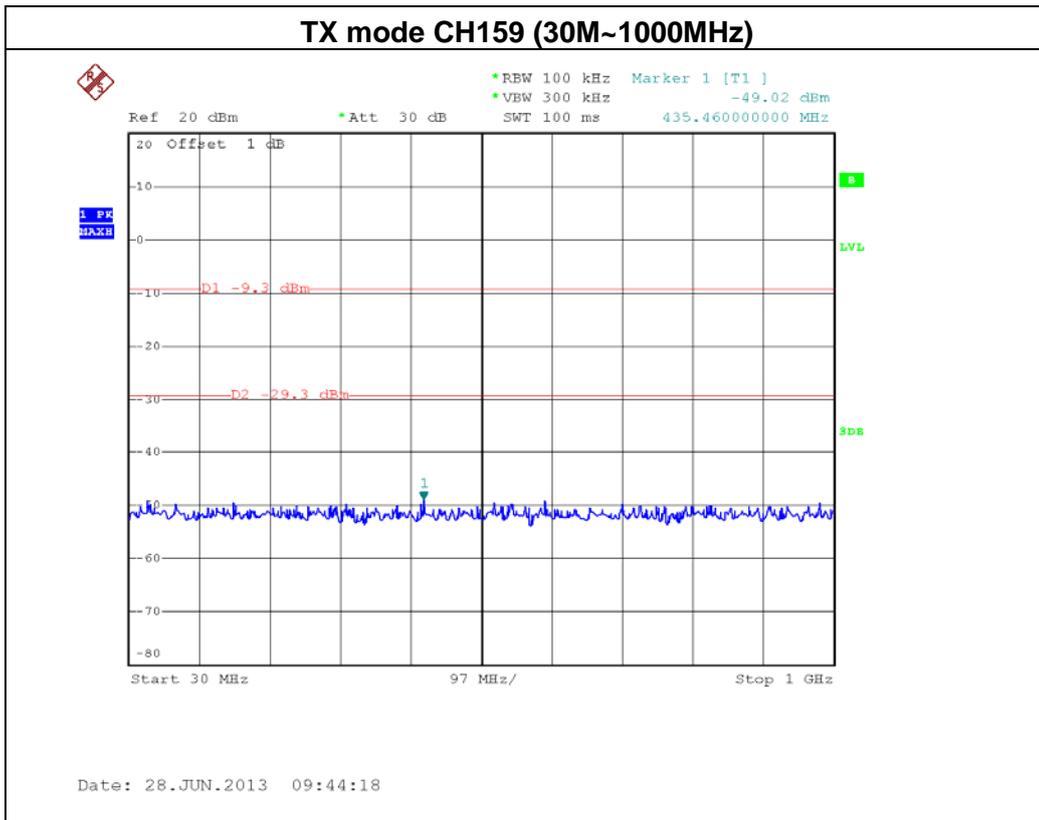


EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40Mode /CH151, CH159-ANT 1		

Channel of Worst Data: CH151			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5720.20	-46.70	5855.20	-47.26
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.			



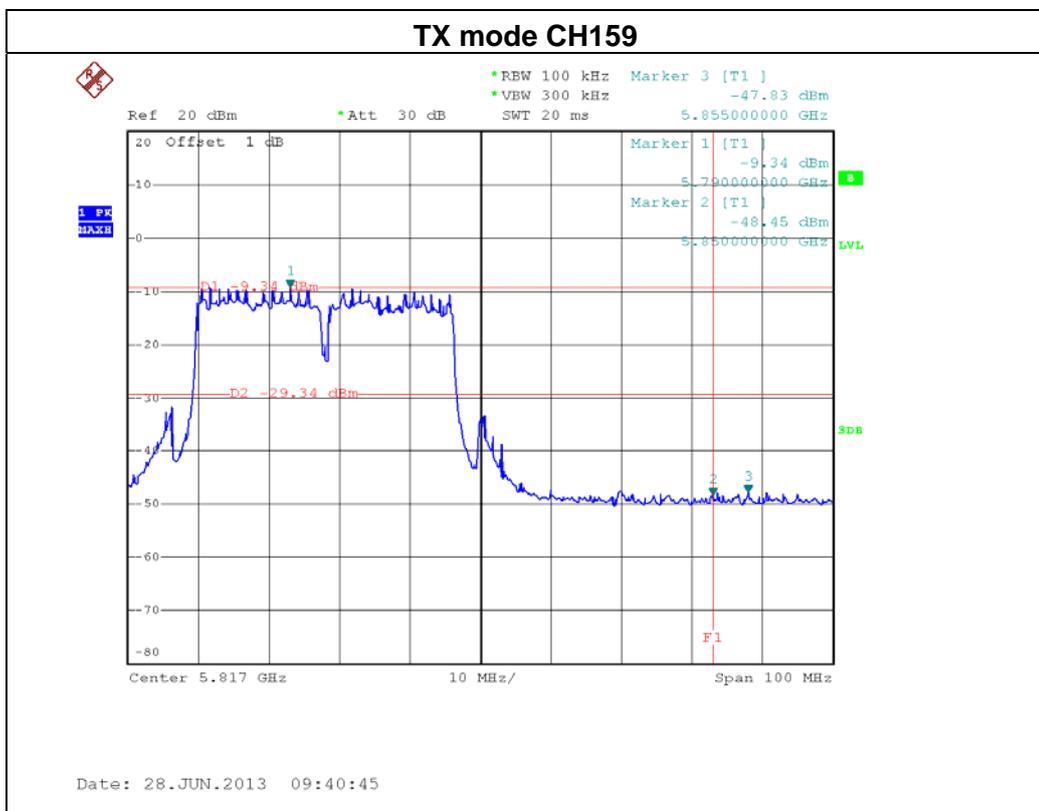
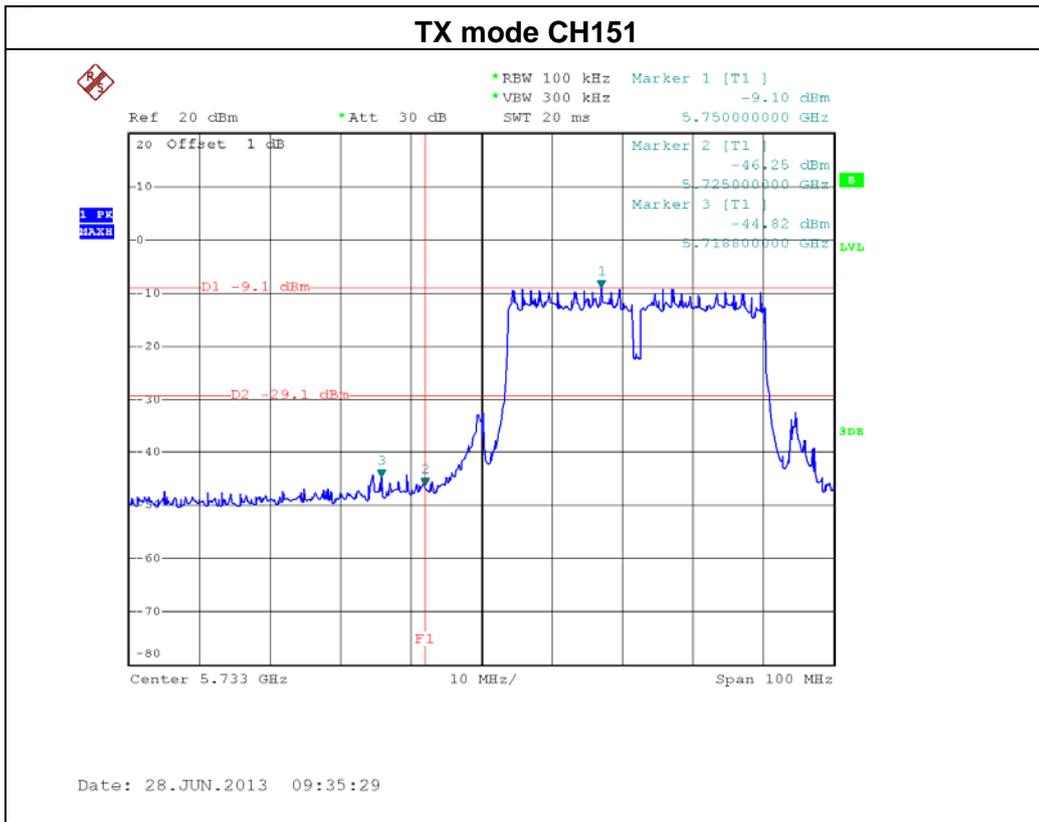


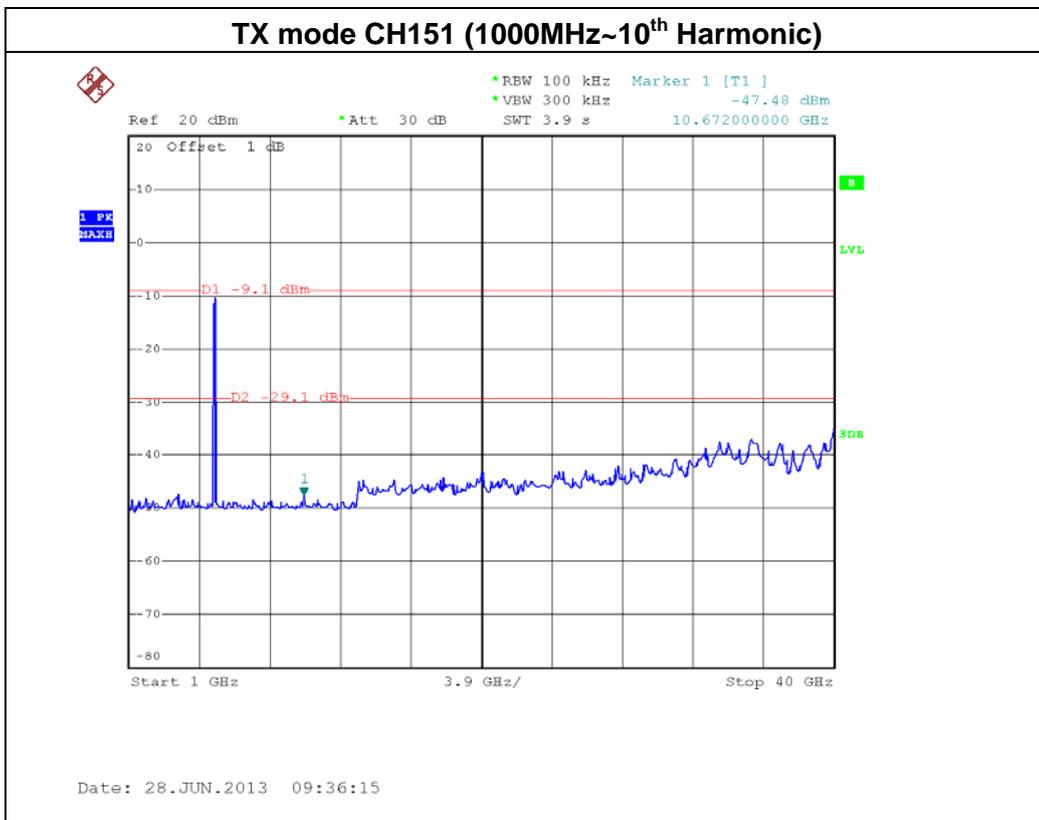
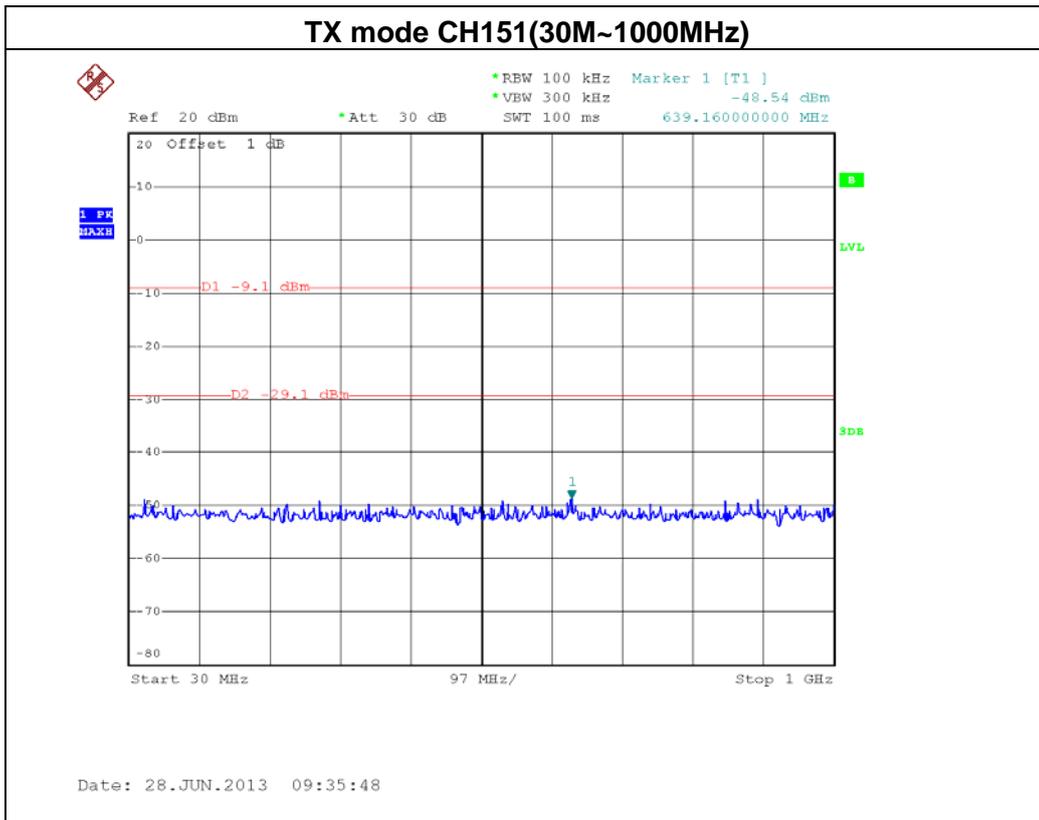


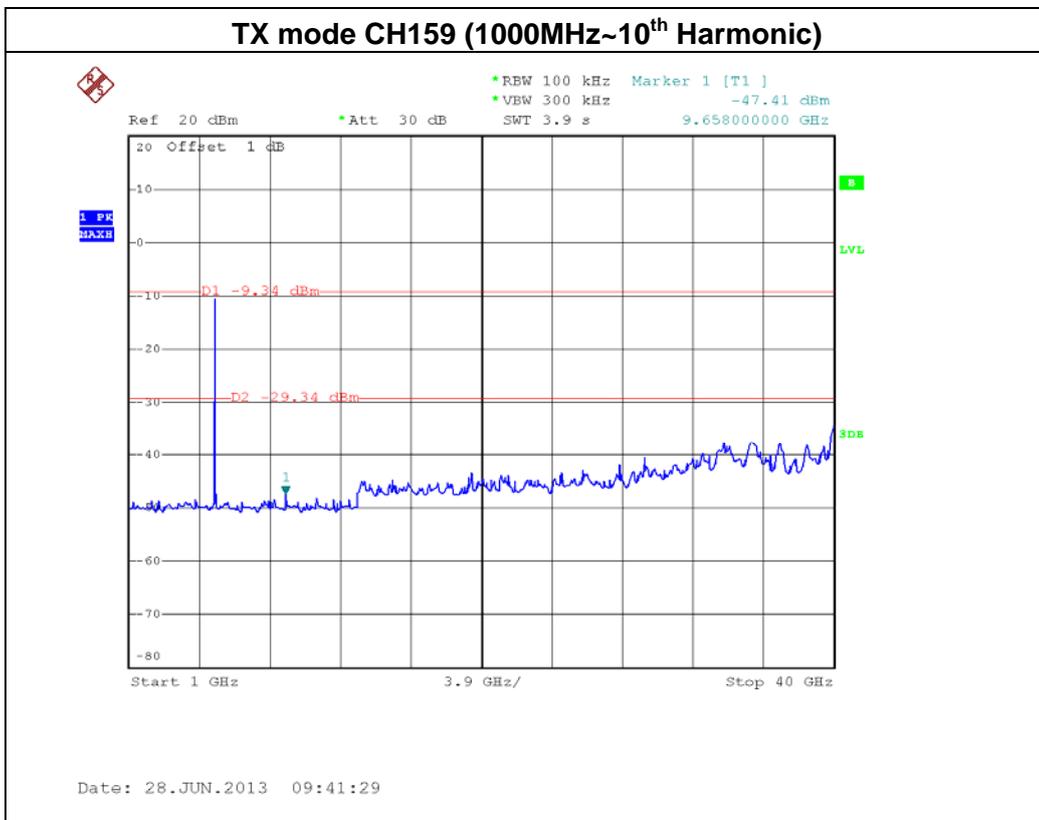
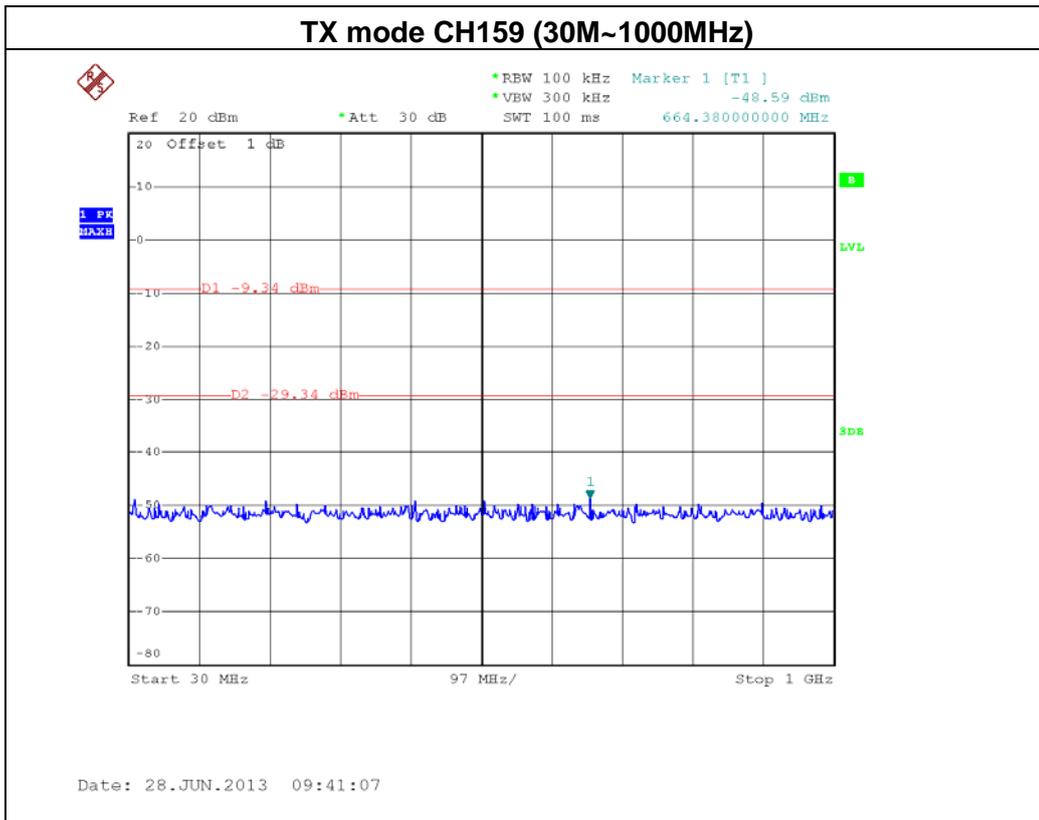


EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	25 °C	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40Mode /CH151, CH159-ANT 2		

Channel of Worst Data: CH151			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5718.80	-44.82	5855.00	-47.83
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.			









8. POWER SPECTRAL DENSITY TEST

8.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	5745 - 5825	PASS

8.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Next Calibration
1	Spectrum Analyzer	R&S	FSP_40	100185	Nov.25.2012	Nov.16.2013

Remark: "N/A" denotes no model name, serial no. or calibration specified.
 All calibration period of Equipment List is One Year.

8.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW=3KHz, VBW=10KHz, Sweep time = auto.
- c. The power spectral density was performed in accordance with method 10.2 of FCC KDB 558074 D01 DTS Meas Guidance v03r01 (A, N20, N40 mode) and 662911 D01 Multiple Transmitter Output v01r02. (N20,N40 mode)

8.1.3 DEVIATION FROM STANDARD

No deviation.

8.1.4 TEST SETUP



8.1.5 EUT OPERATION CONDITIONS

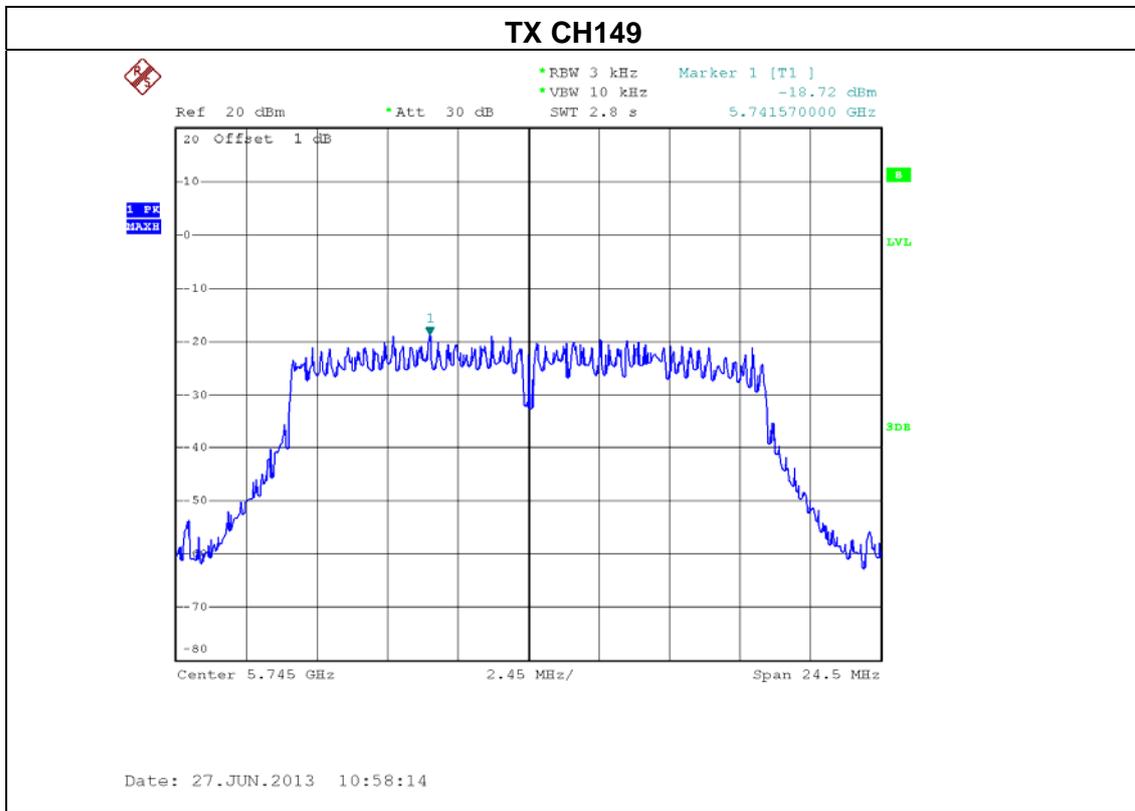
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

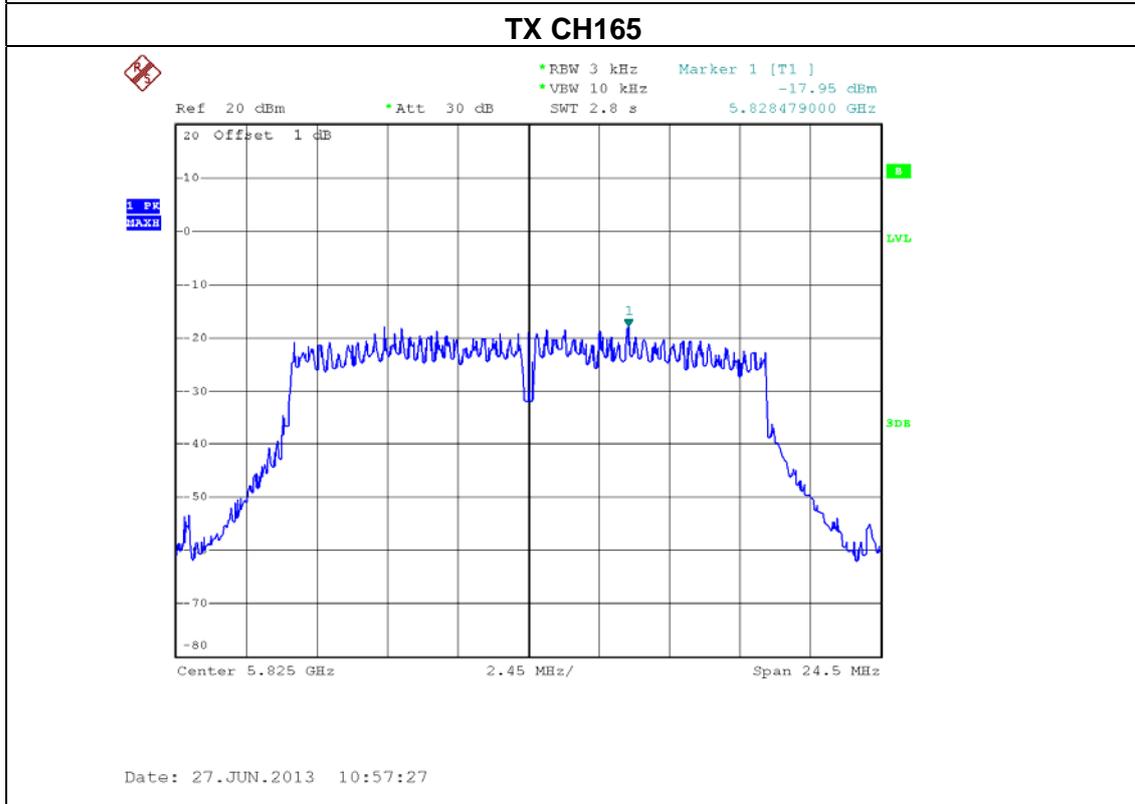
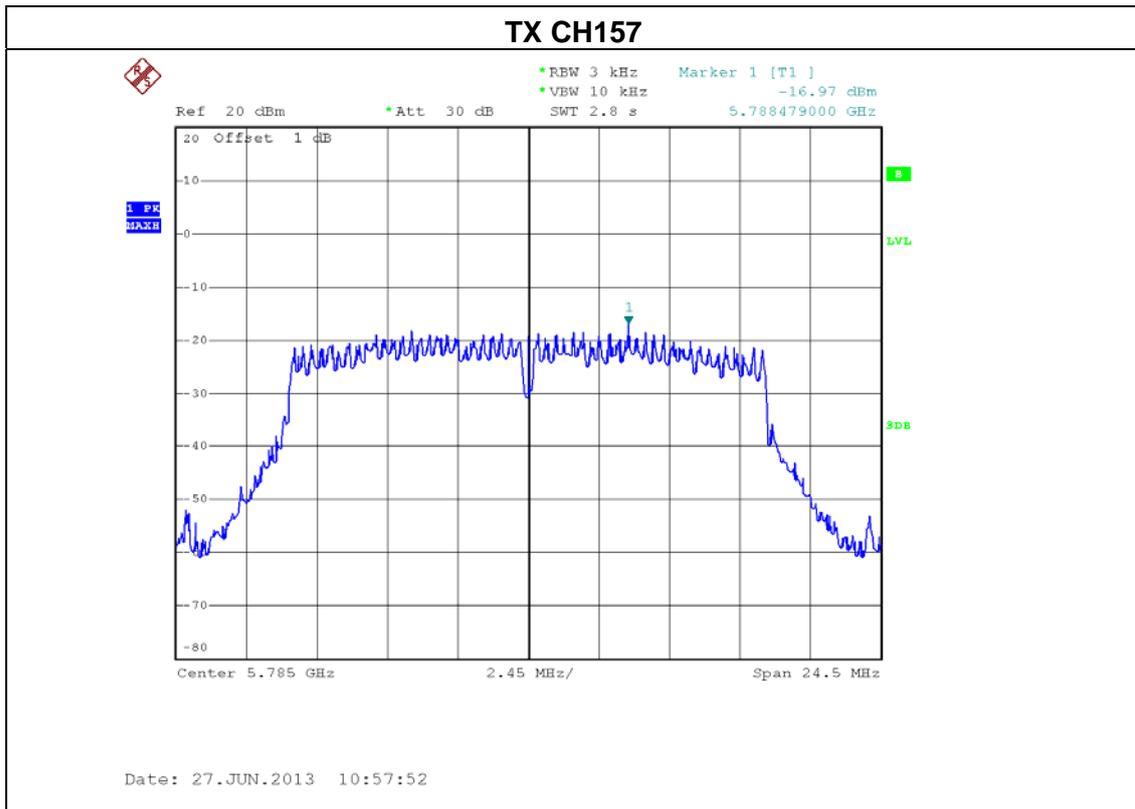


8.1.6 TEST RESULTS

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	23 °C	Relative Humidity :	51 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX A Mode /CH149, CH157, CH165		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH149	5745 MHz	-18.72	8
CH157	5785 MHz	-16.97	8
CH165	5825 MHz	-17.95	8

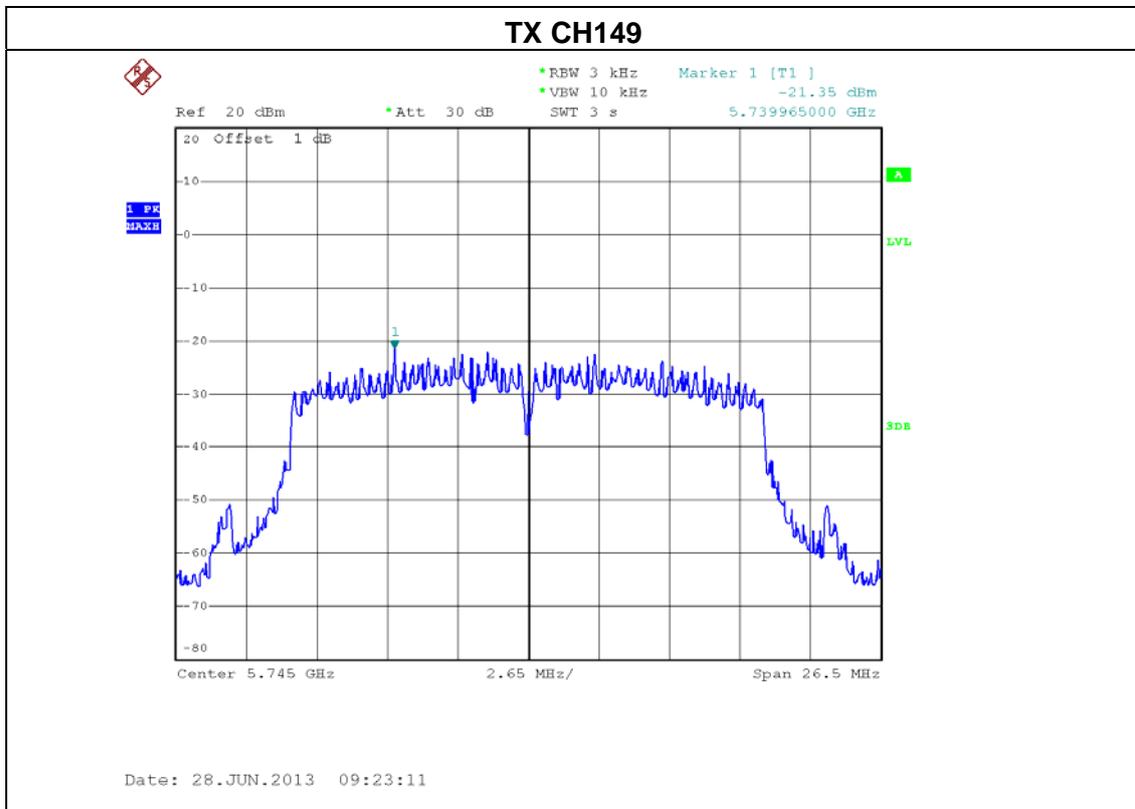






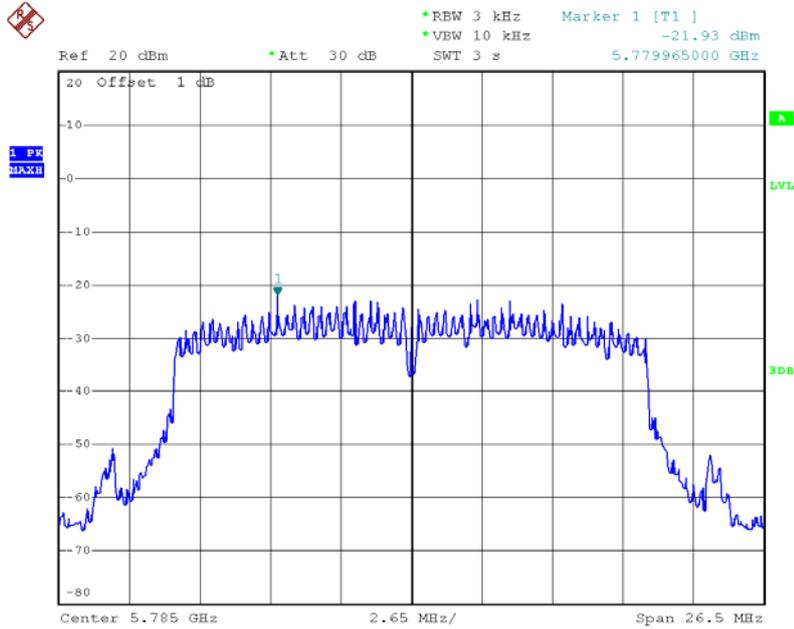
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	23 °C	Relative Humidity :	51 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 1		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH149	5745 MHz	-21.35	8
CH157	5785 MHz	-21.93	8
CH165	5825 MHz	-22.38	8



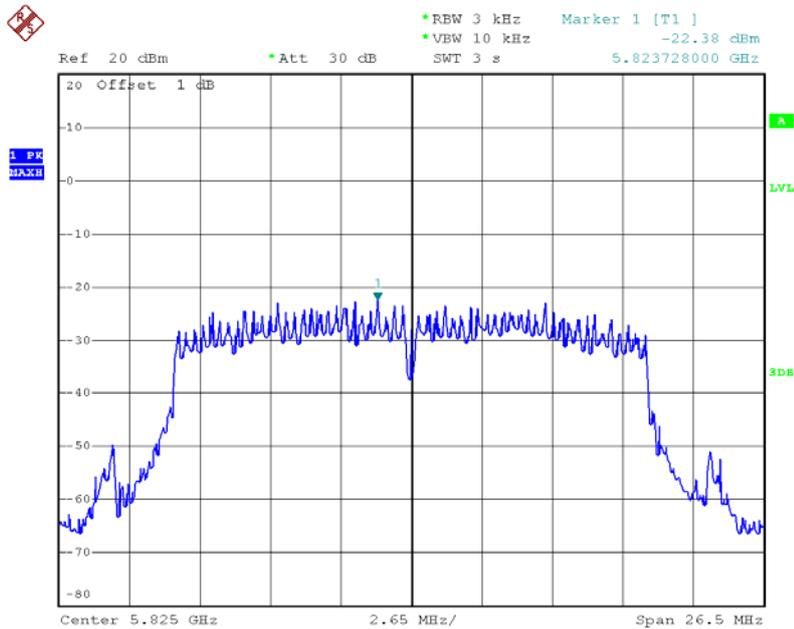


TX CH157



Date: 28.JUN.2013 09:25:07

TX CH165-

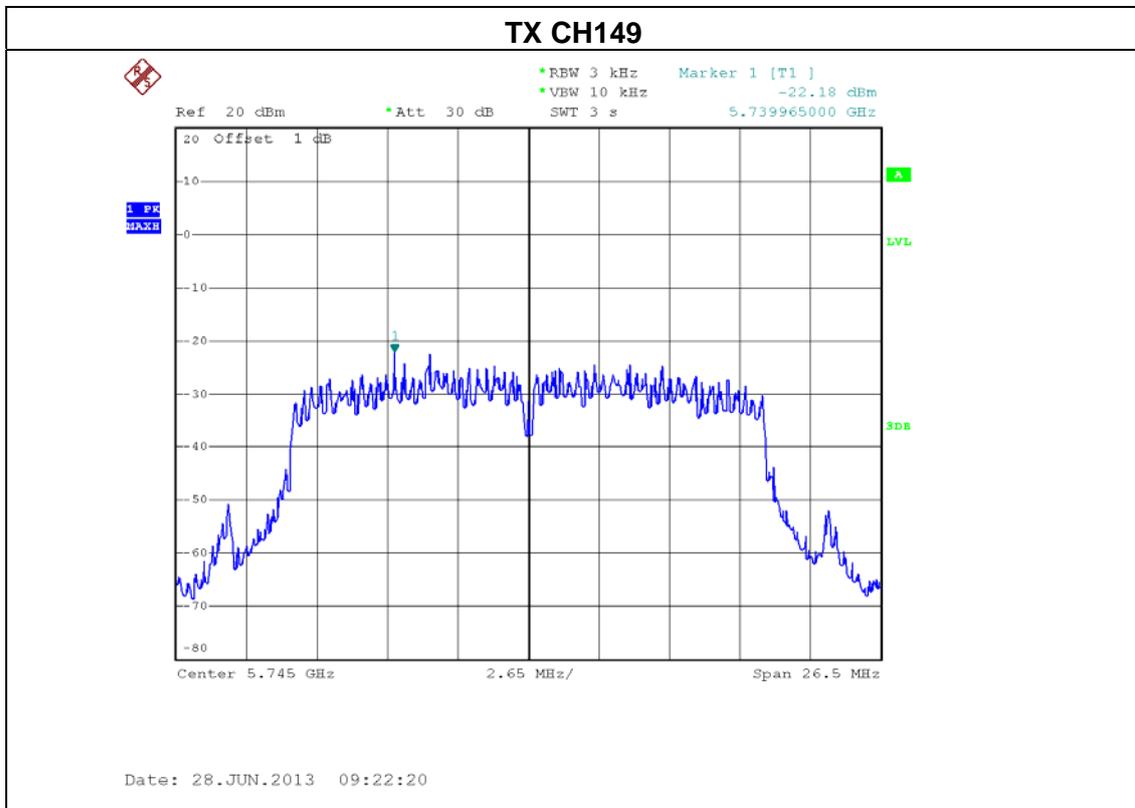


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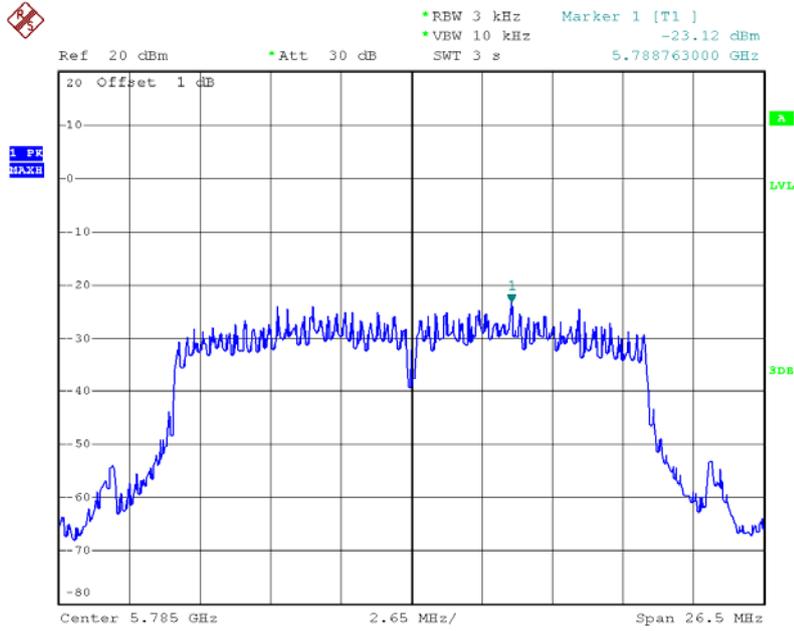
EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	23 °C	Relative Humidity :	51 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 2		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH149	5745 MHz	-22.18	8
CH157	5785 MHz	-23.12	8
CH165	5825 MHz	-22.21	8



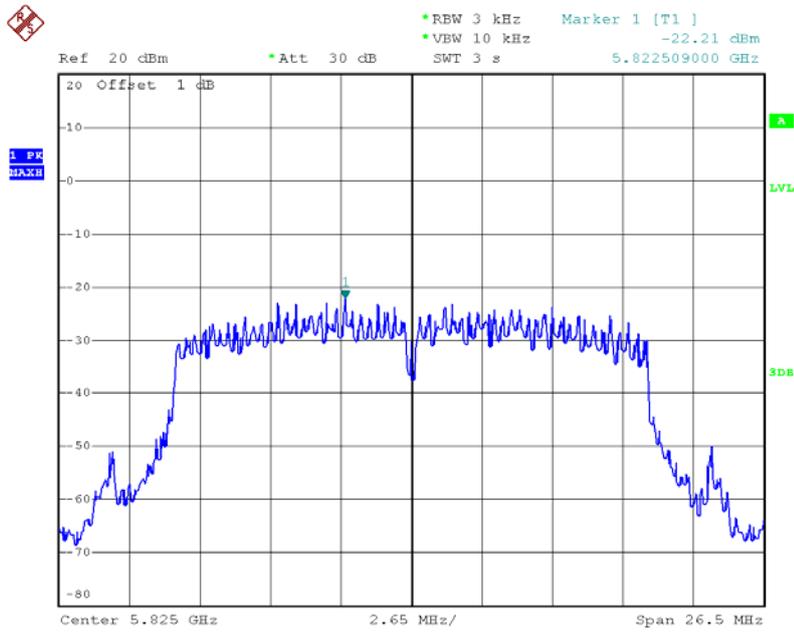


TX CH157



Date: 28.JUN.2013 09:17:31

TX CH165-



Date: 28.JUN.2013 09:16:53



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	23 °C	Relative Humidity :	51 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N20 Mode /CH149, CH157, CH165-ANT 1+ANT 2		

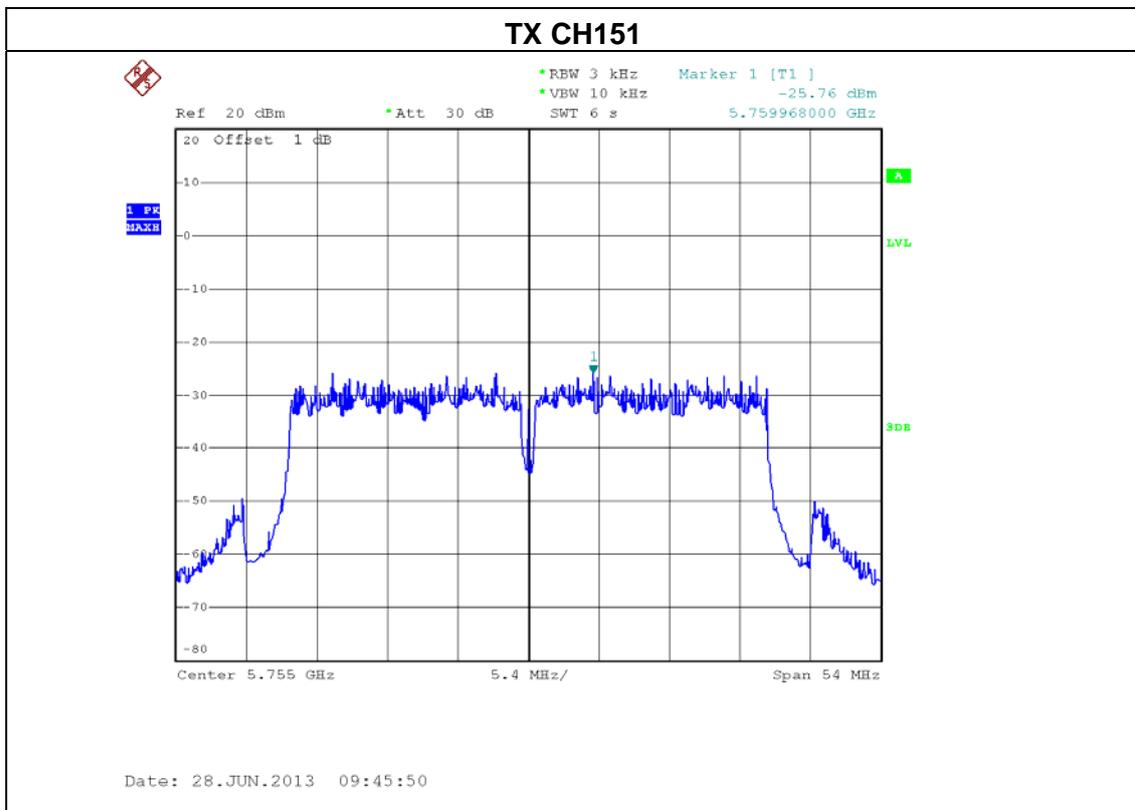
Total ANT 1+ANT 2			
Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH149	5745 MHz	-18.73	8
CH157	5785 MHz	-19.47	8
CH165	5825 MHz	-19.28	8

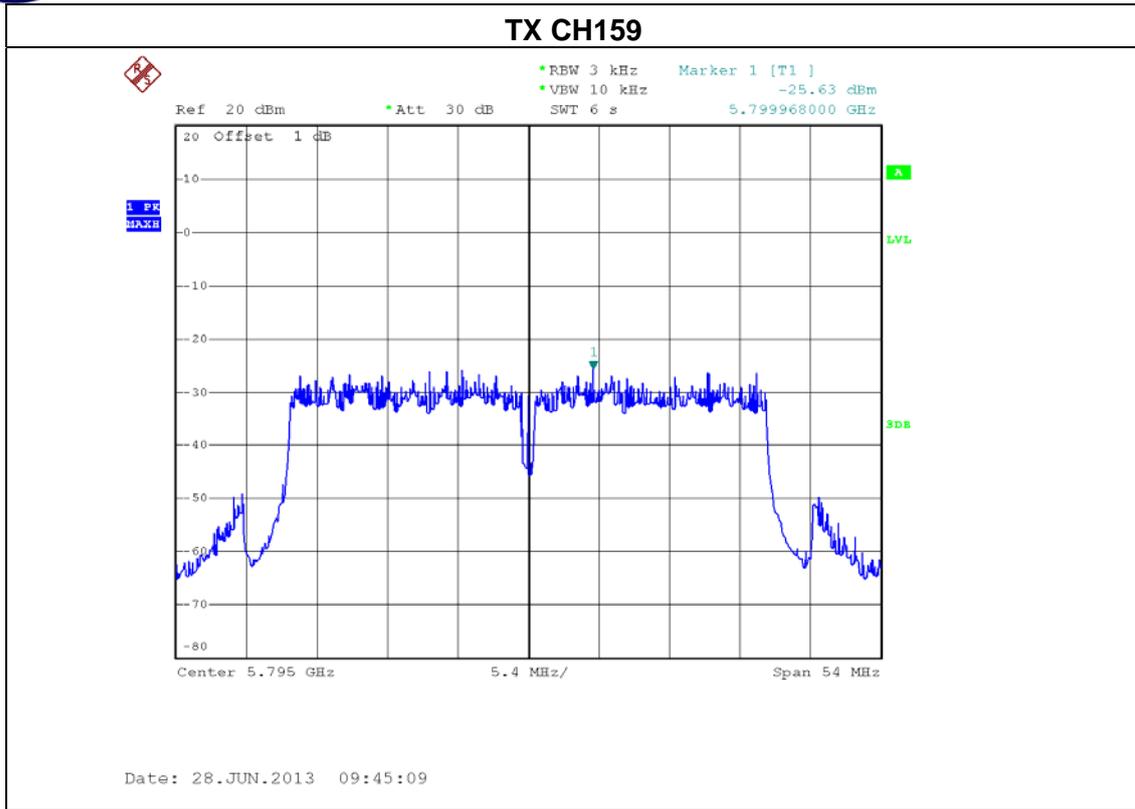
Note: This total power density in dBm is transformed from a plus of mW transformed from the power density of ANT1 and ANT2 in dBm.



EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	23 °C	Relative Humidity :	51 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 1		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH151	5755 MHz	-25.76	8
CH159	5795 MHz	-25.63	8

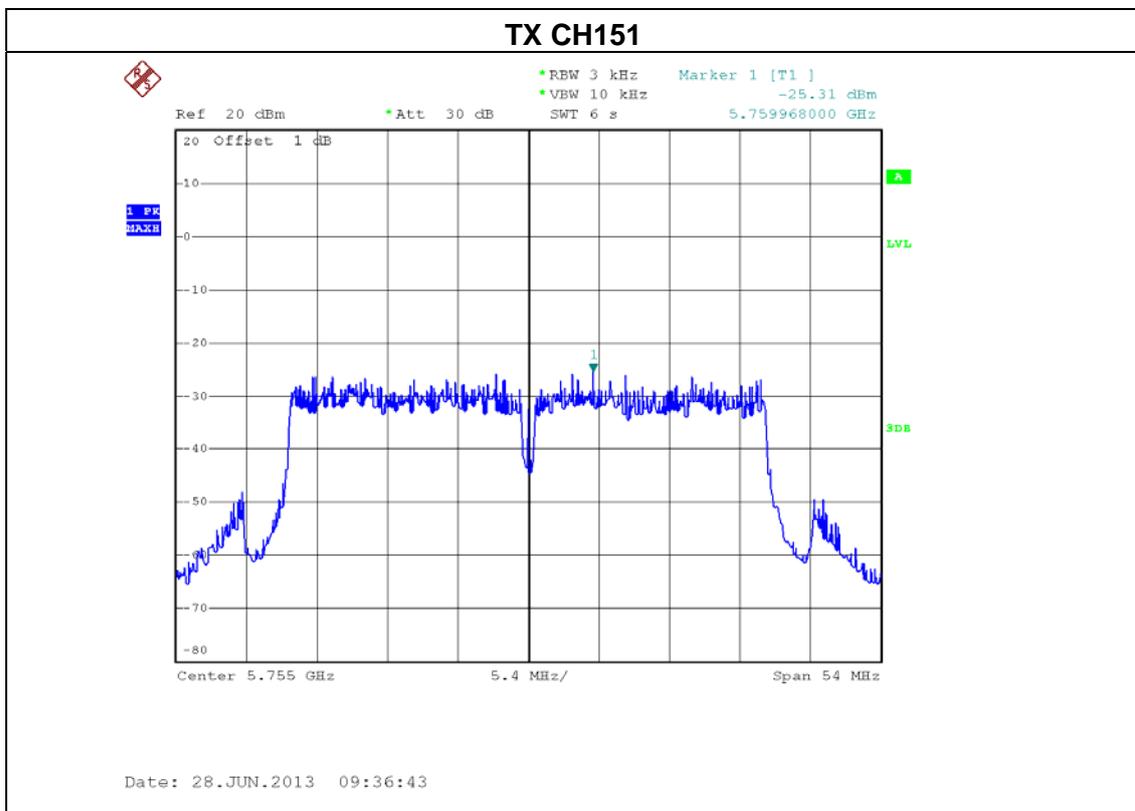


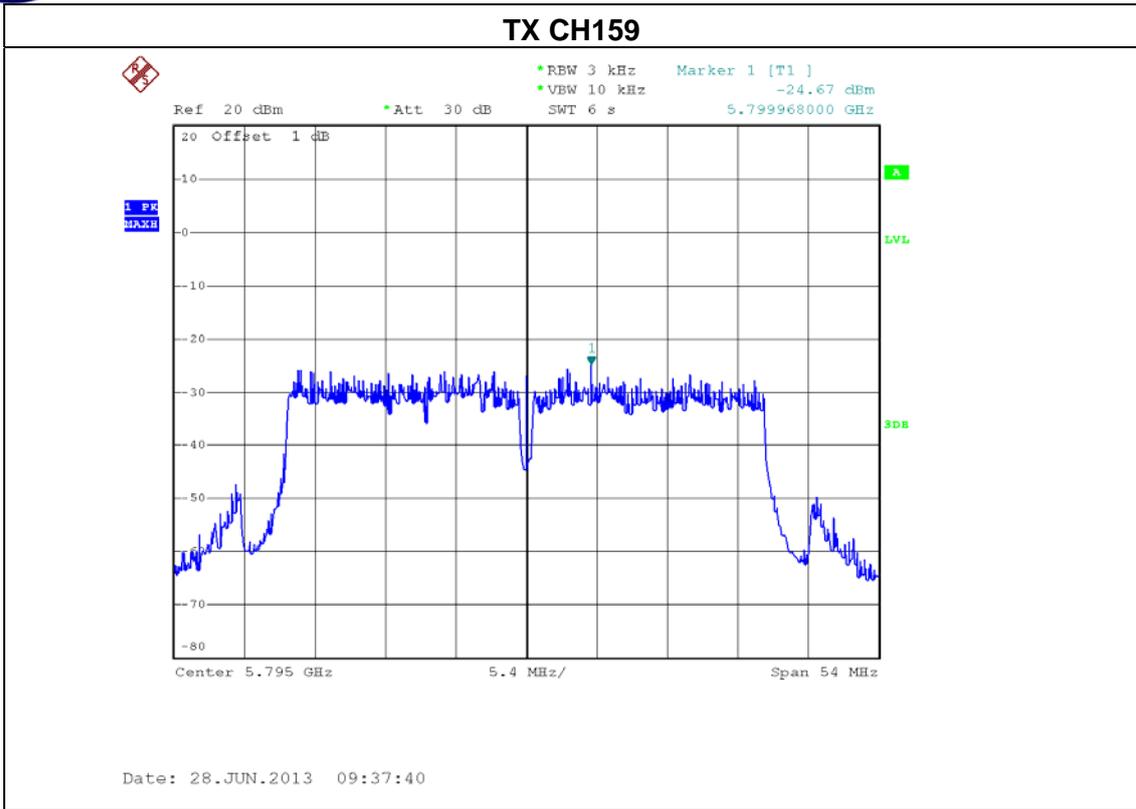




EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	23 °C	Relative Humidity :	51 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 2		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH151	5755 MHz	-25.31	8
CH159	5795 MHz	-24.67	8







Neutron Engineering Inc.

EUT :	Vodafone Mobile Wi-Fi	Model Name :	R215
Temperature :	23 °C	Relative Humidity :	51 %
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX N40 Mode /CH151, CH159-ANT 1+ANT 2		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH151	5755 MHz	-22.52	8
CH159	5795 MHz	-22.11	8

Note: This total power density in dBm is transformed from a plus of mW transformed from the power density of ANT1 and ANT2 in dBm.