2.6. Band Edge

2.6.1. Requirement

According to FCC section 27.53(g) (h), (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(h) For operations in the 1710–1755 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

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

The emissions be operated in the 2496-2690 MHz band, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge and 55 + 10 log (P) dB at 5.5 megahertz from the channel edges.

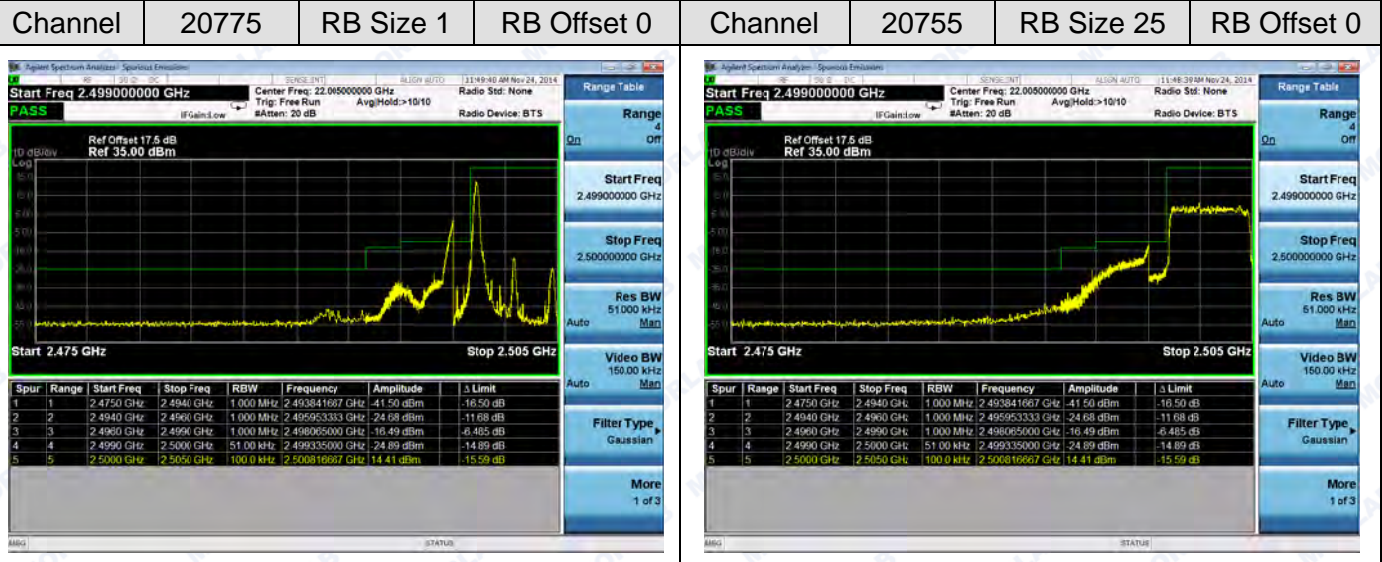### 2.6.2. Test Description

See section 2.1.2 of this report.

2.6.3. Test Result

The center frequency of spectrum is the band edge frequency and span is 2MHz, Record the max trace into the test report.
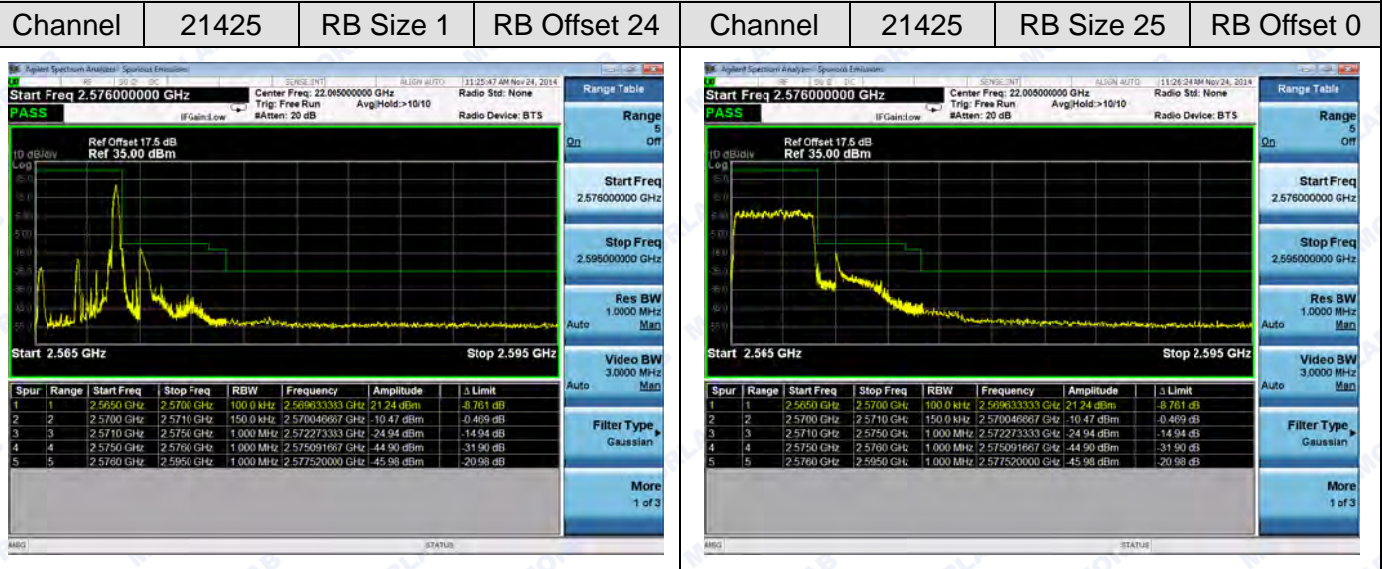
PASS. See the attached plots.
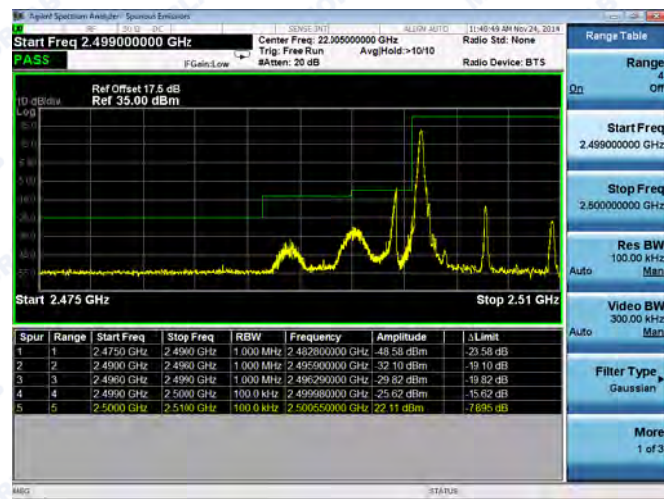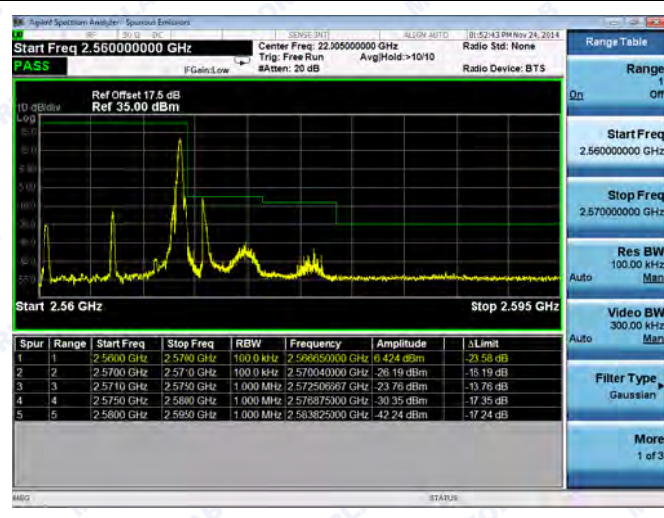
LTE Band 7:

Channel Bandwidth: 5MHz							
Channel	20775	RB Size 1	RB Offset 0	Channel	20755	RB Size 25	RB Offset 0

Channel Bandwidth: 5MHz							
Channel	21425	RB Size 1	RB Offset 24	Channel	21425	RB Size 25	RB Offset 0

Channel Bandwidth: 10MHz							
Channel	20800	RB Size 1	RB Offset 0	Channel	20800	RB Size 50	RB Offset 0

Channel Bandwidth: 10MHz							
Channel	21400	RB Size 1	RB Offset 49	Channel	21400	RB Size 50	RB Offset 0

Channel Bandwidth: 15MHz							
Channel	20825	RB Size 1	RB Offset 0	Channel	20825	RB Size 75	RB Offset 0
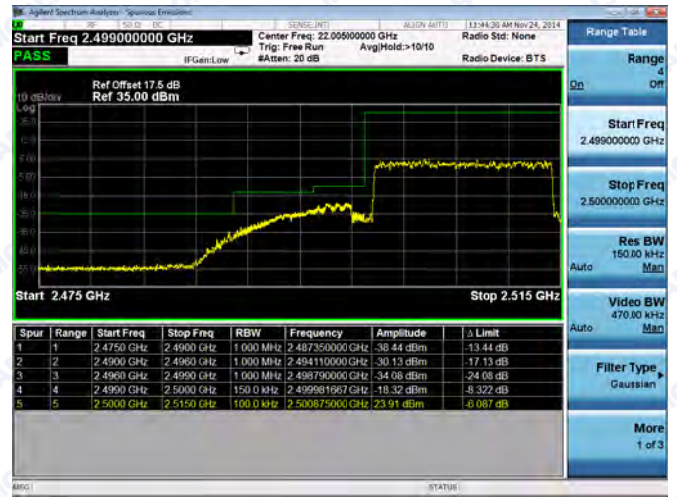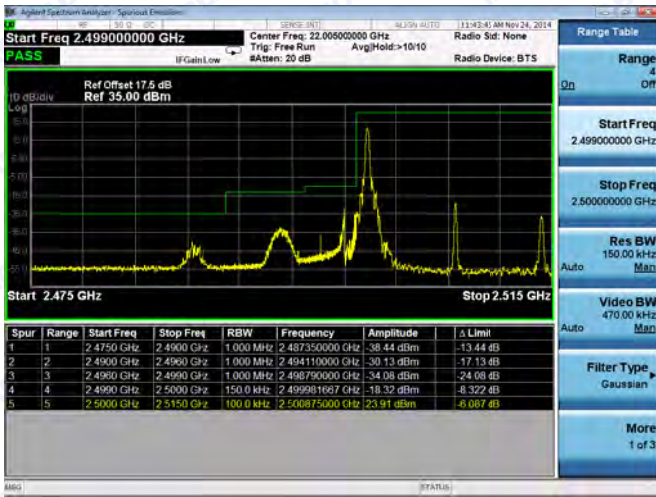
Channel Bandwidth: 15MHz							
Channel	21375	RB Size 1	RB Offset 74	Channel	21375	RB Size 75	RB Offset 0

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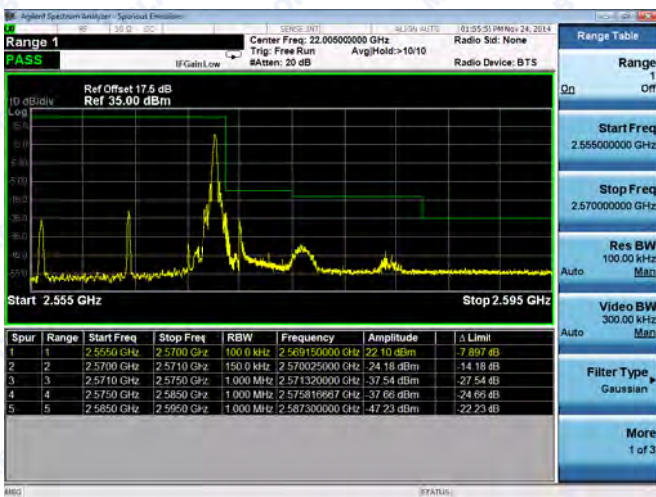
Channel Bandwidth: 20MHz							
Channel	20850	RB Size 1	RB Offset 0	Channel	20850	RB Size 100	RB Offset 0
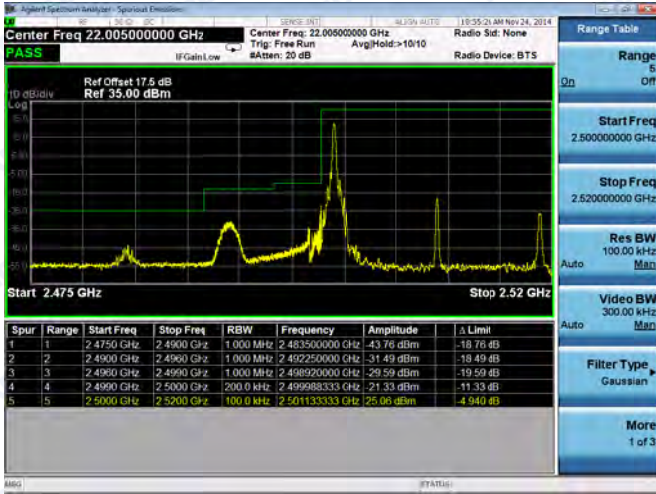
Channel Bandwidth: 20MHz							
Channel	21350	RB Size 1	RB Offset 99	Channel	21350	RB Size 100	RB Offset 0

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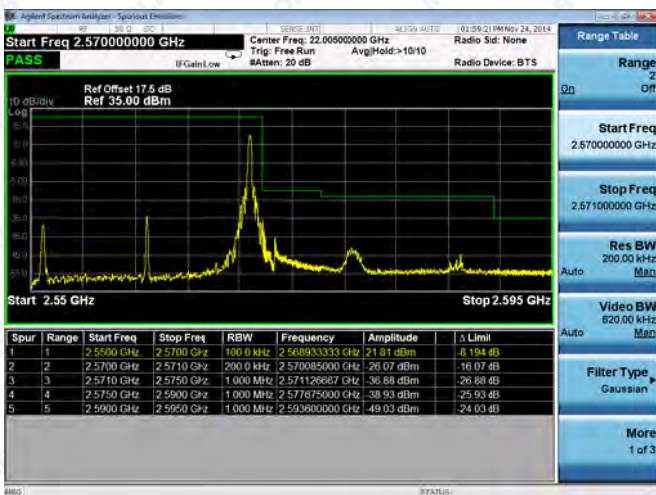
LTE Band 4:

Channel Bandwidth: 1.4MHz						
Channel	19957	RB Size 1	RB Offset 0	Channel	20393	RB Size 6	RB Offset 0
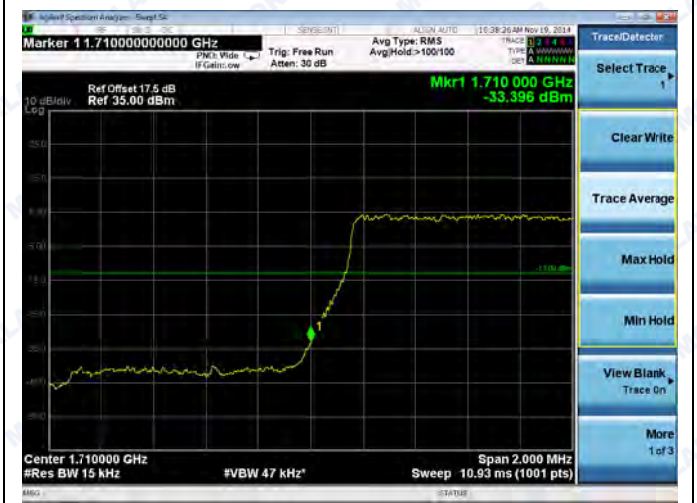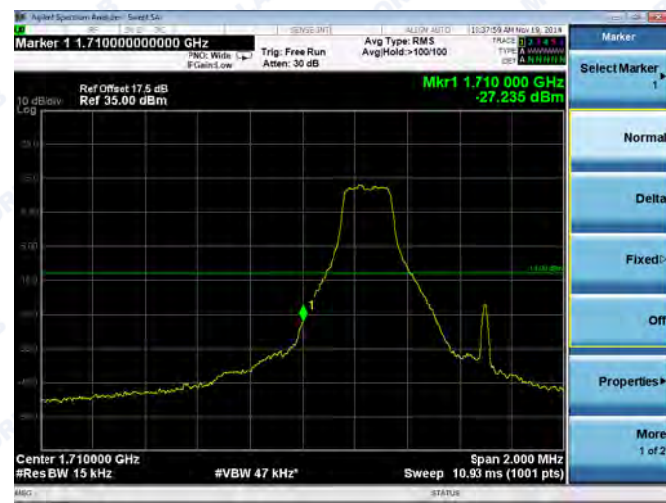
Channel Bandwidth: 1.4MHz						
Channel	19957	RB Size 1	RB Offset 5	Channel	20393	RB Size 6	RB Offset 0

Channel Bandwidth: 3MHz						
Channel	19965	RB Size 1	RB Offset 0	Channel	20385	RB Size 15	RB Offset 0

Channel Bandwidth: 3MHz						
Channel	19965	RB Size 1	RB Offset 14	Channel	20385	RB Size 15	RB Offset 0

Channel Bandwidth: 5MHz						
Channel	19975	RB Size 1	RB Offset 0	Channel	20375	RB Size 25	RB Offset 0

Channel Bandwidth: 5MHz						
Channel	19975	RB Size 1	RB Offset 24	Channel	20375	RB Size 25	RB Offset 0

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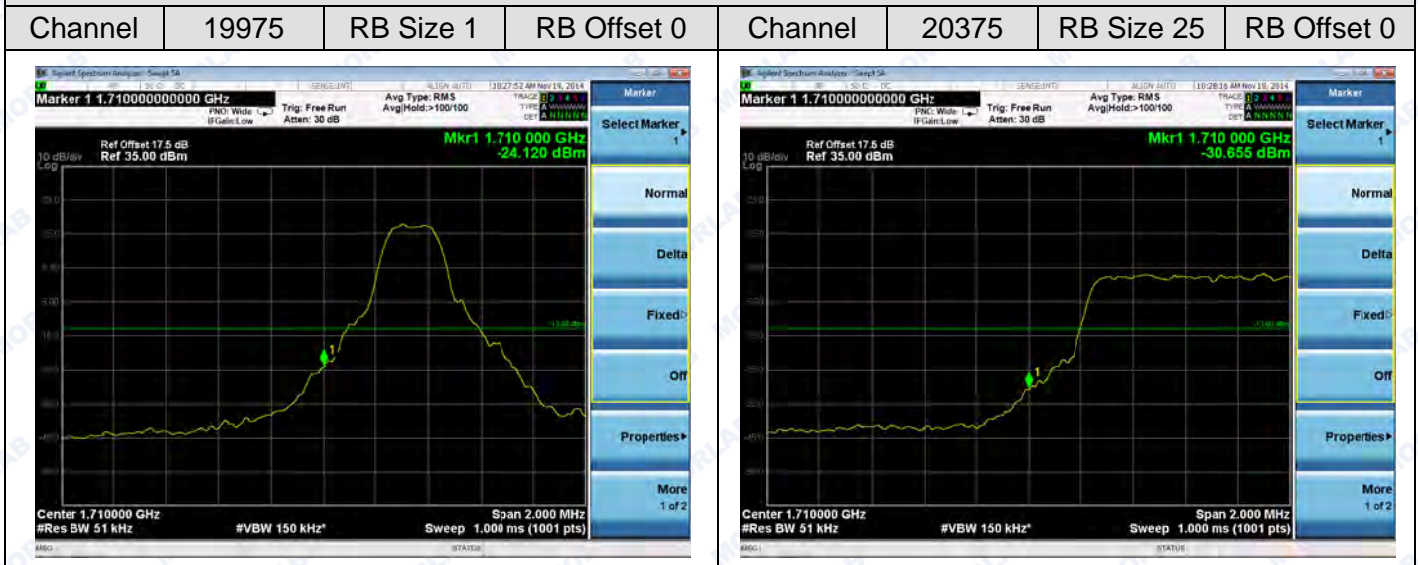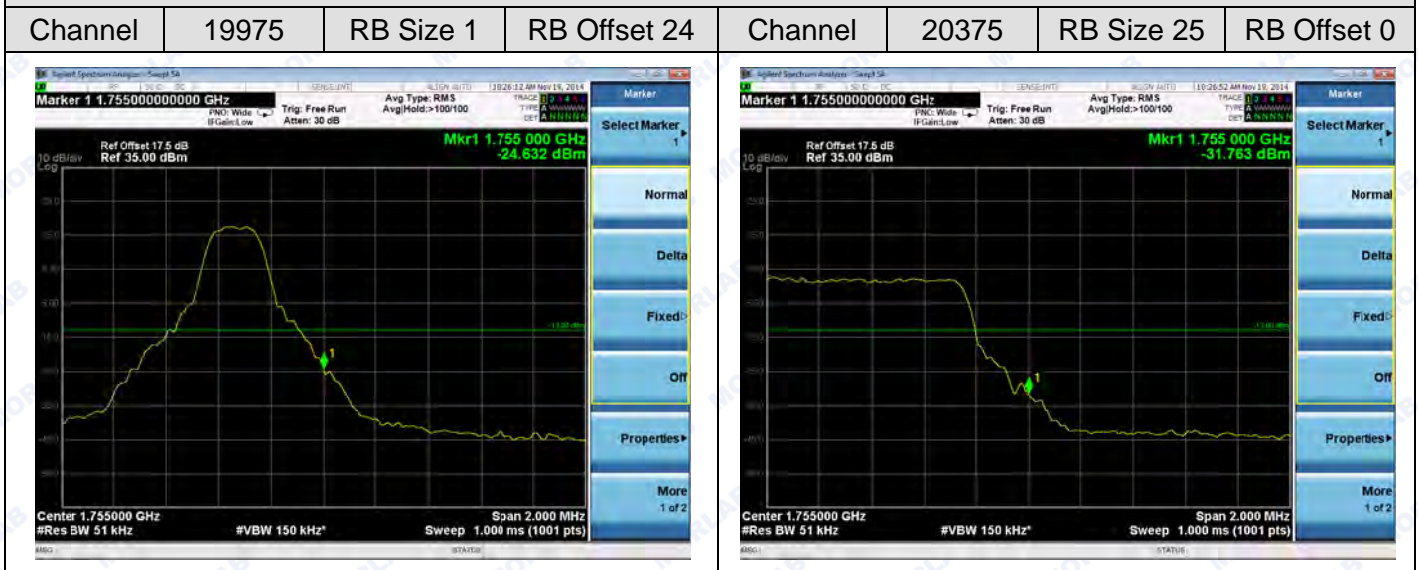
Channel Bandwidth: 10MHz							
Channel	20000	RB Size 1	RB Offset 0	Channel	20350	RB Size 50	RB Offset 0
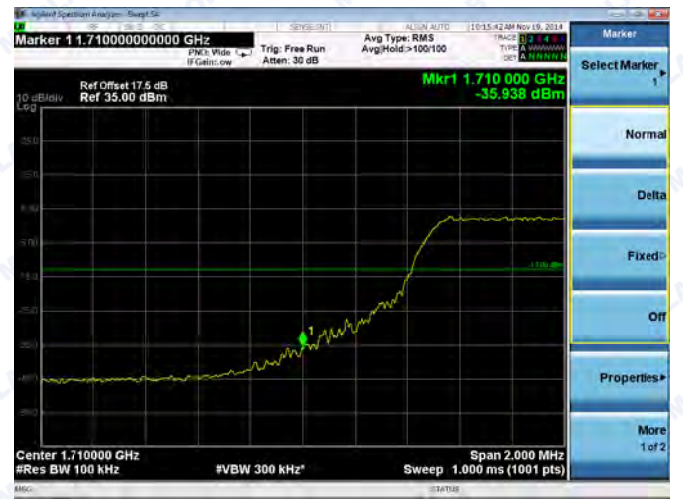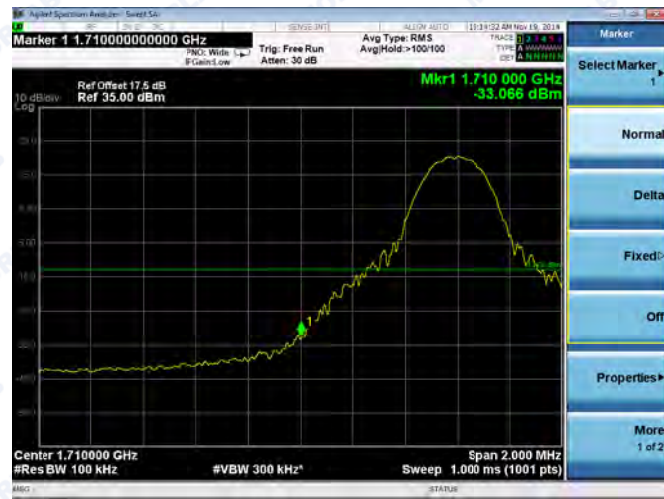
Channel Bandwidth: 10MHz							
Channel	20000	RB Size 1	RB Offset 49	Channel	20350	RB Size 50	RB Offset 0
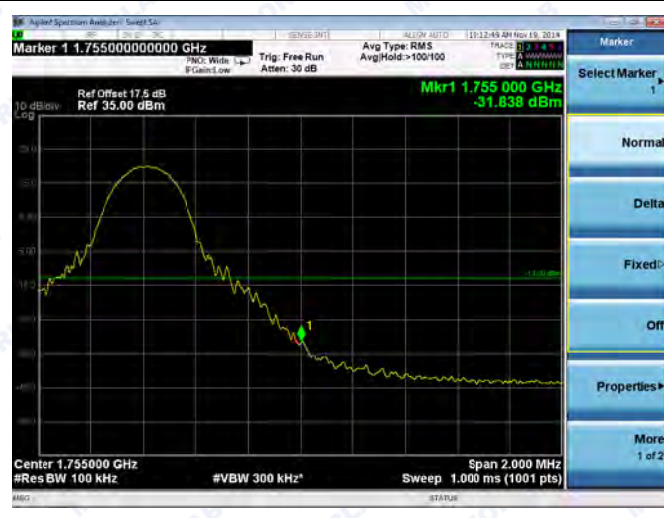
Channel Bandwidth: 15MHz							
Channel	20025	RB Size 1	RB Offset 0	Channel	20325	RB Size 75	RB Offset 0
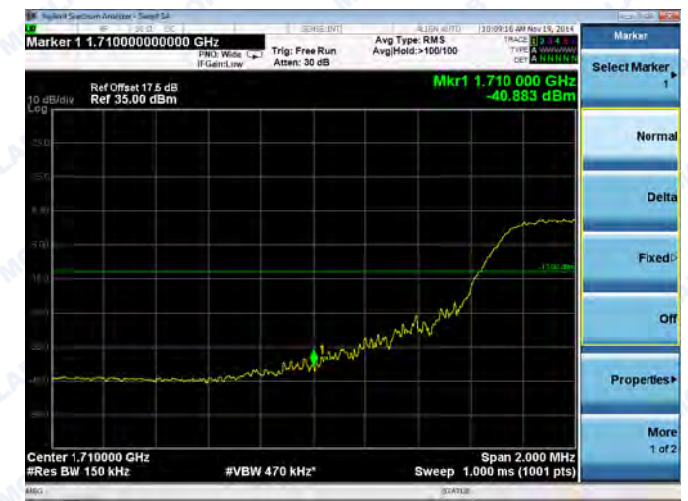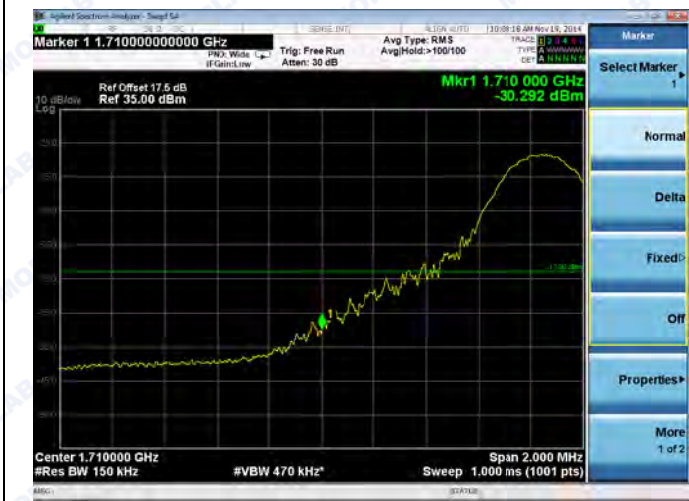
Channel Bandwidth: 15MHz							
Channel	20025	RB Size 1	RB Offset 74	Channel	20325	RB Size 75	RB Offset 0

Channel Bandwidth: 20MHz							
Channel	20050	RB Size 1	RB Offset 0	Channel	20300	RB Size 100	RB Offset 0

Channel Bandwidth: 20MHz							
Channel	20050	RB Size 1	RB Offset 99	Channel	20300	RB Size 100	RB Offset 0
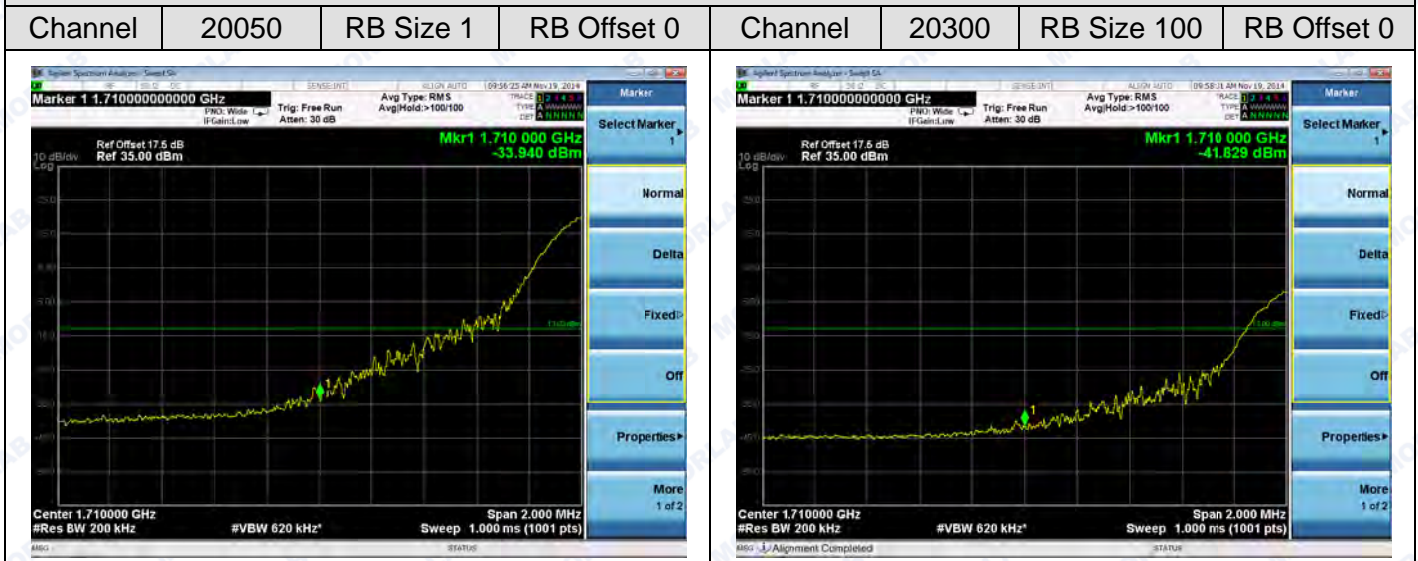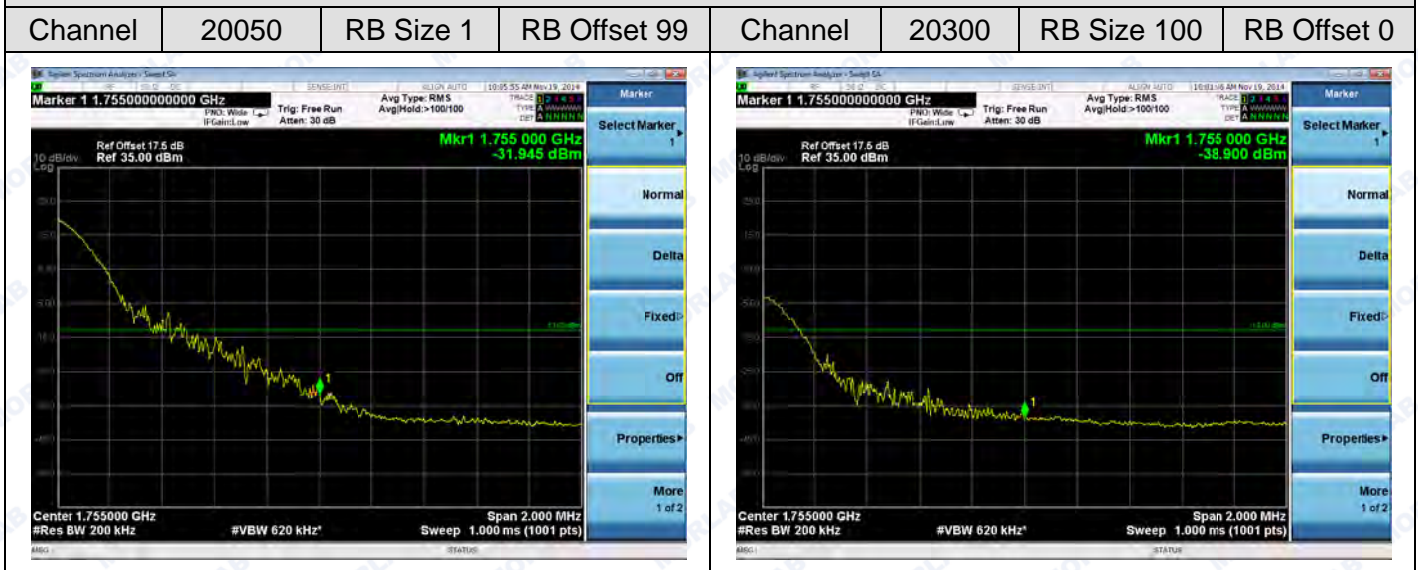
2.7. Transmitter Radiated Power (EIRP/ERP)

2.7.1. Requirement

According to FCC section 27.50 (d), fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat EIRP.
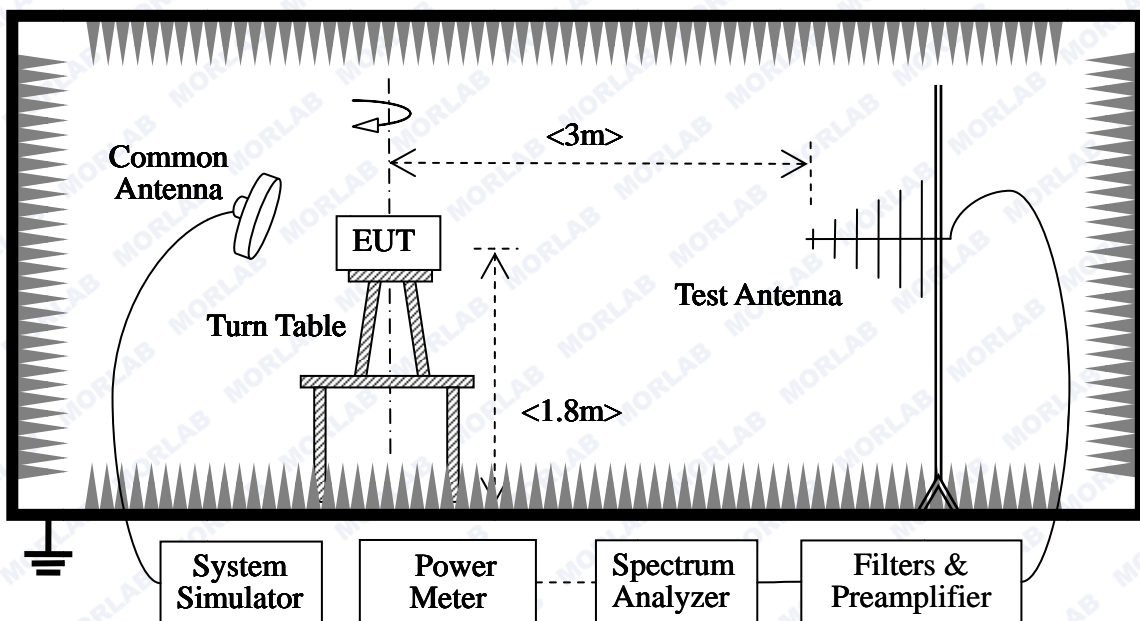
Portable stations (hand-held devices) operating in the 704-716MHz band are limited to 3watts ERP.

2.7.2. Test Description

1. Test Setup:

The EUT, which is powered by the PC, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), and it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/124534/wk	2014.02.26	2015.02.25
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2014.02.26	2015.02.25
Spectrum Analyzer	Agilent	E4445A	MY44200685	2014.02.26	2015.02.25
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2014.02.26	2015.02.25
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2014.02.26	2015.02.25
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2014.02.26	2015.02.25
Test Antenna - Horn	Schwarzbeck	UG -596A/U	A0902607	2014.02.26	2015.02.25

2.7.3. Test Result

The EUT was verified under all configurations (RB size and offset) and the worst case radiated power reported for each modulation/channel bandwidth.

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

$A_{SUBST} = P_{SUBST\_TX} - P_{SUBST\_RX} - L_{SUBST\_CABLES} + G_{SUBST\_TX\_ANT}$

$A_{TOT} = L_{CABLES} + A_{SUBST}$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

$G_{SUBST\_TX\_ANT}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT}.