

FCC&IC MEASUREMENT AND TEST REPORT

For

ZTE Corporation

ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen,
Guangdong, China 518057

FCC ID: Q78-BS8800C200

IC ID: 5200A-8800C200

May 19, 2009

This Report Concerns: ☒ Original Report	Equipment Type: CDMA indoor base station
Test Engineer: 	
Report No.:	FCC-2009-005
Test Date:	March 9 – May 17, 2009
Reviewed By:	
Prepared By:	ZTE Corporation. ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, China 518057, P.R.China Tel: +86-755-26770000 Fax: +86-755-26771999

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2 GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The ZTE Corporation's product, model number: ZXSDR BS8800 C200 or the "EUT" as referred to in this report is a CDMA Indoor base station.

Technical specification:

Size: 600 mm × 450 mm × 950 mm (W × D × H)

Input voltage: -57 ~ -40Vdc

Frequency range: 2130MHz to 2140MHz,

(Bottom frequency is about 2130MHz, Middle frequency is about 2135MHz, Top frequency is about 2140MHz).

Max RF output power: 48dBm

Gain of the antenna: 13dBi

Modulation type of emission: CDMA

Appearance of EUT:



Objective

This Type approval report is prepared on behalf of ZTE Corporation in accordance with Part 2, Part 15, Part 27 of the Federal Communication Commissions rules and ices-003, Rss-139, Rss 102 of industry Canada.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2 and RSS-Gen of industry Canada, as well as the following parts:

Part 27 Wireless Communication Services

RSS 139 Advanced Wireless services equipment operated in the band of 1710-1755MHz and 2110-2155MHz.

Applicable Standards: TIA EIA 137-A, TIA EIA 97-D, TIA/EIA 603-C, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

All radiated and conducted measurement was performed at ZTE Corporation Reliability Testing Center. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by ZTE Corporation to collect test data is located in the ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China, Tel: +86-755-26770000, Fax: +86-755-26771999. Test site at ZTE Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 0007895832. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

3 SYSTEM TEST CONFIGURATION

Description of Test Configuration

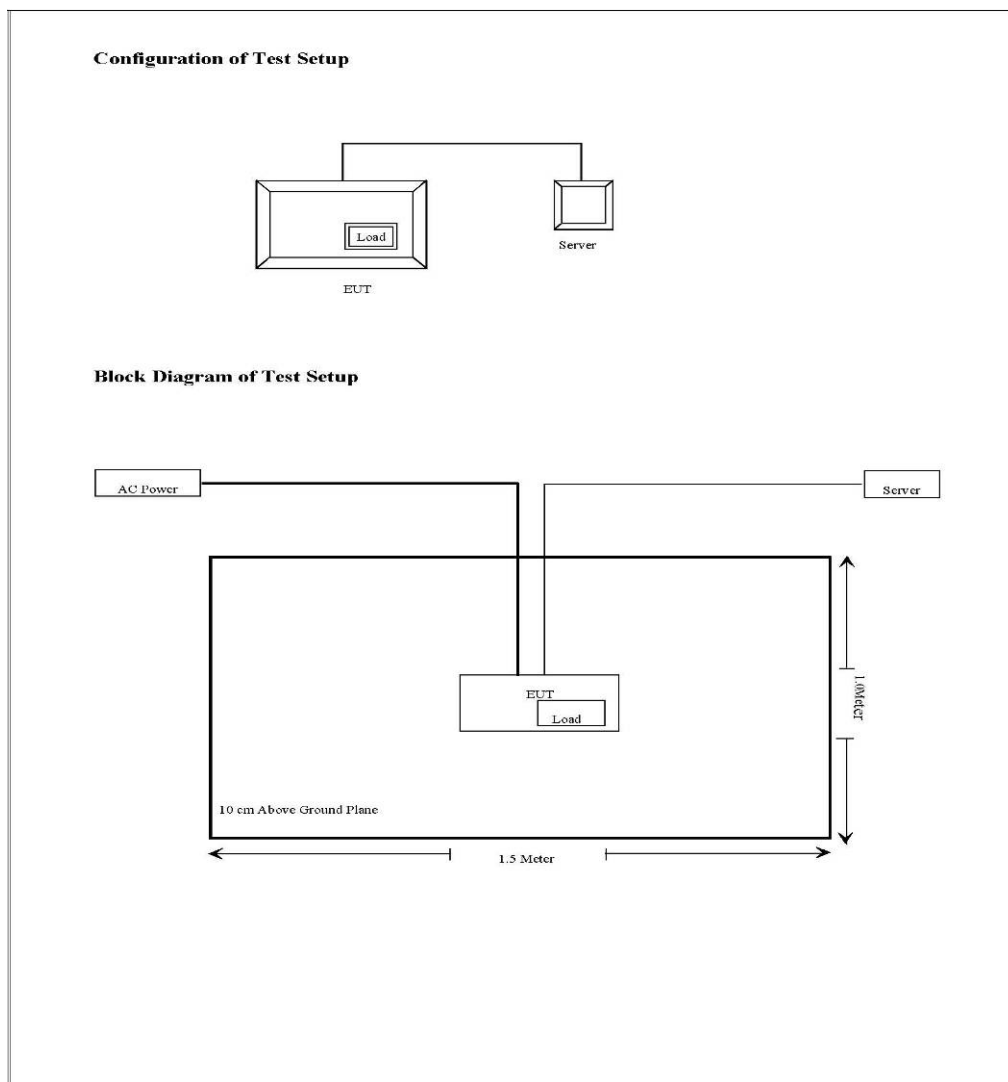
Justification

The EUT was configured for testing according to TIA/ELA-603C.

The final qualification test was performed with EUT operating at normal mode.

Equipment Modifications

ZTE Corporation has not done any modification on the EUT.



4 SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1046 §27.50 § RSS 139 6.4 §SRSP 513 5.1	Transmitter output Power	Compliant
§2.1091 §27.52 §RSS 102 2.5.2	RF Exposure	Compliant
§2.1047 §RSS 139 6.2	Modulation characteristic	Compliant
§2.1053 §RSS 139 6.5	Spurious Radiated Emissions	Compliant
§2.1051, §27.53 §RSS 139 6.5	Spurious Emissions AT Antenna Terminals	Compliant
§2.1049 § RSS Gen 4.6.1	Occupied Bandwidth	Compliant
§27.53 §RSS 139 6.5	Band Edge	Compliant
§ 2.1055 § 27.54 §RSS 139 6.3 §RSS Gen 4.7	Frequency stability	Compliant
§RSS Gen 6 §RSS 139 6. 6	Receiver Spurious emission	Compliant

5 TRANSMITTER OUTPUT POWER

Applicable Standard: FCC §2.1046 &27.50 and SRSP-513

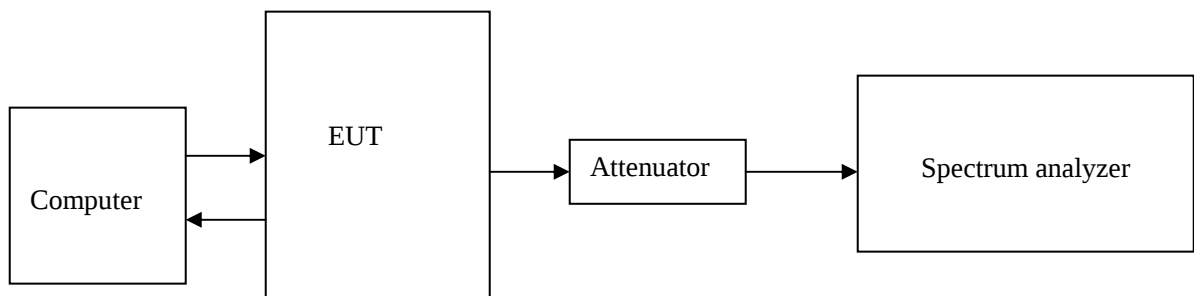
According to FCC §2.1046 &27.50, the conducted power must not exceed 1640 Watts.
According to SRSP-513 , the EIRP must not exceed 1640Watts/MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Series Spectrum Analyzer	E4445A	MY44300451	2008-3-24	209-3-23
DTS	DTS100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure



The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. External attenuation Loss is 40dB, Cable Loss is about 3dB

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

The testing was performed by Wei bin on Mar 9-10, 2009

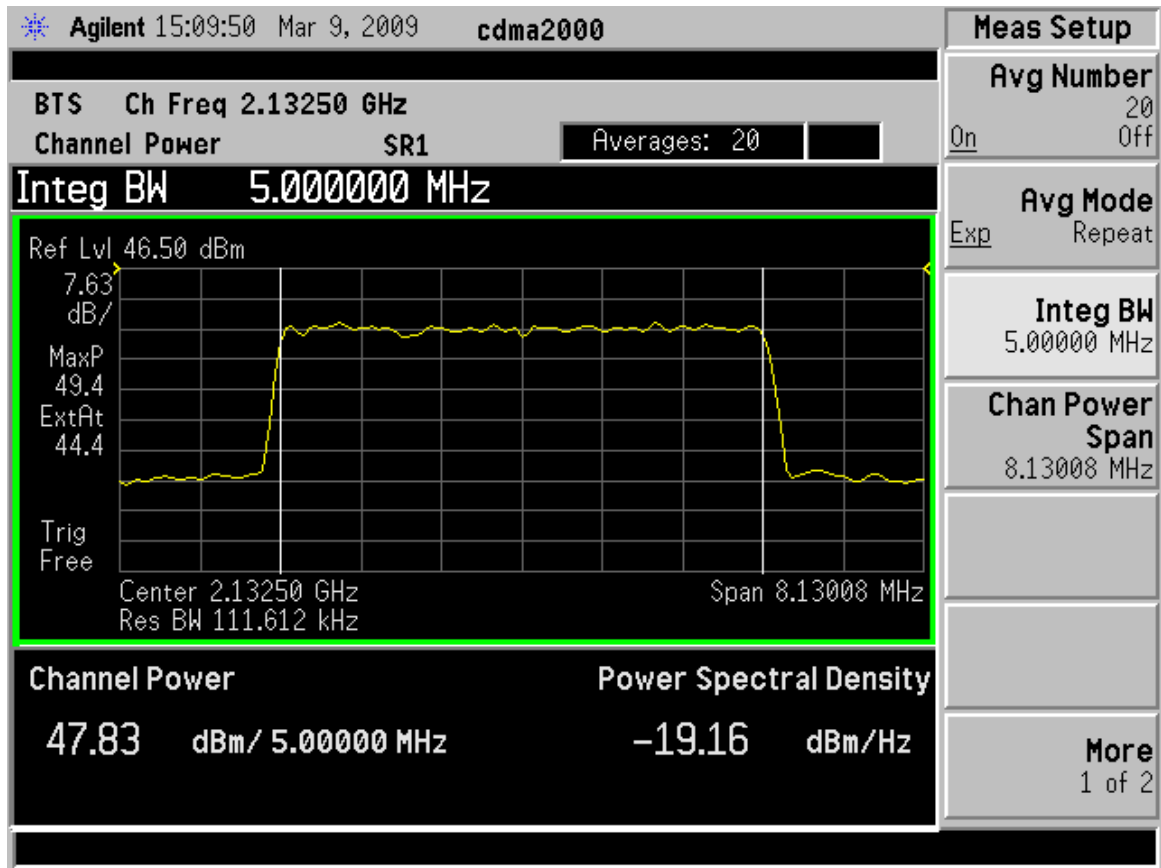
Test Result: Pass

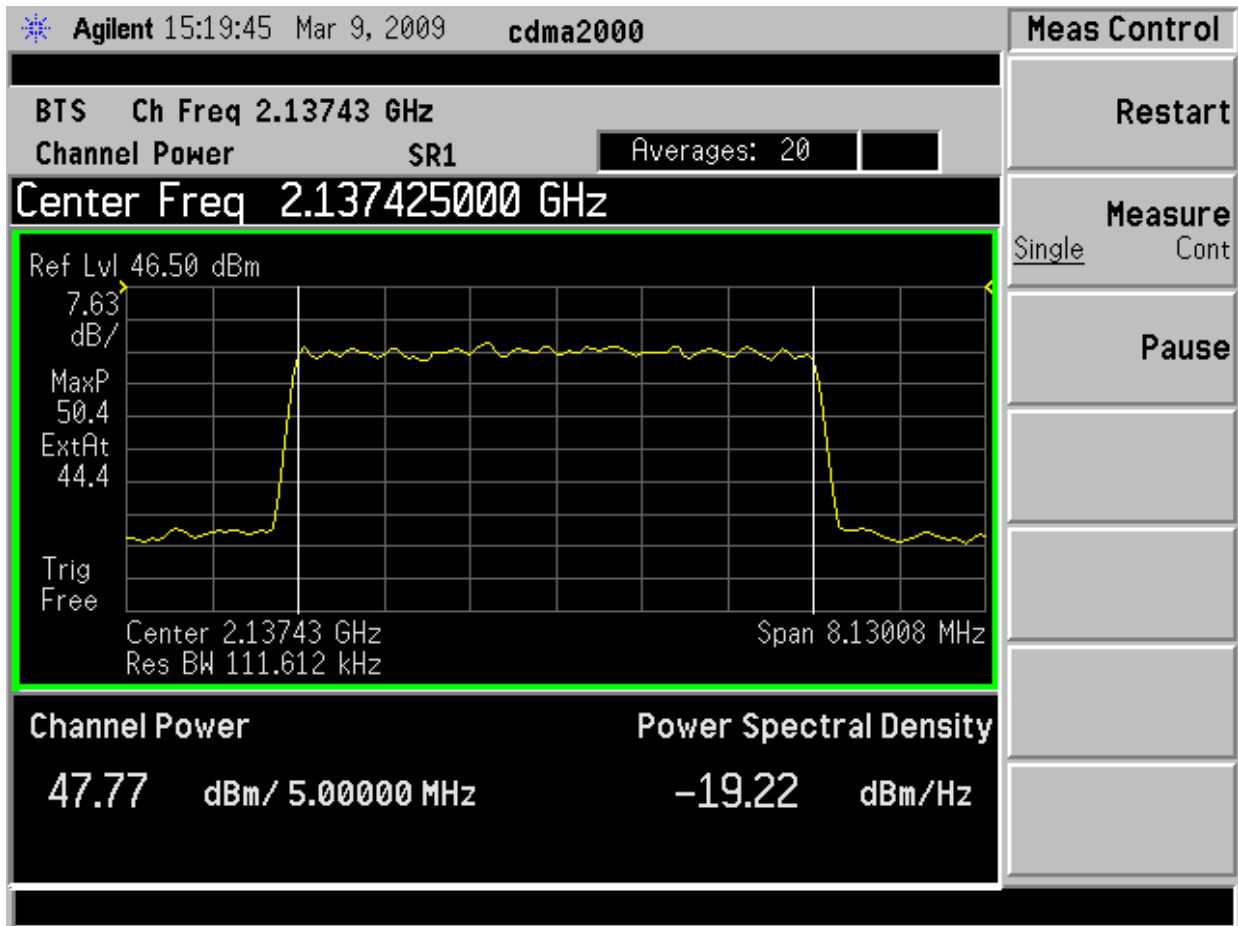
Test Mode: Transmitting CDMA

Test Data:

Four Carriers (near top frequency and bottom frequency)

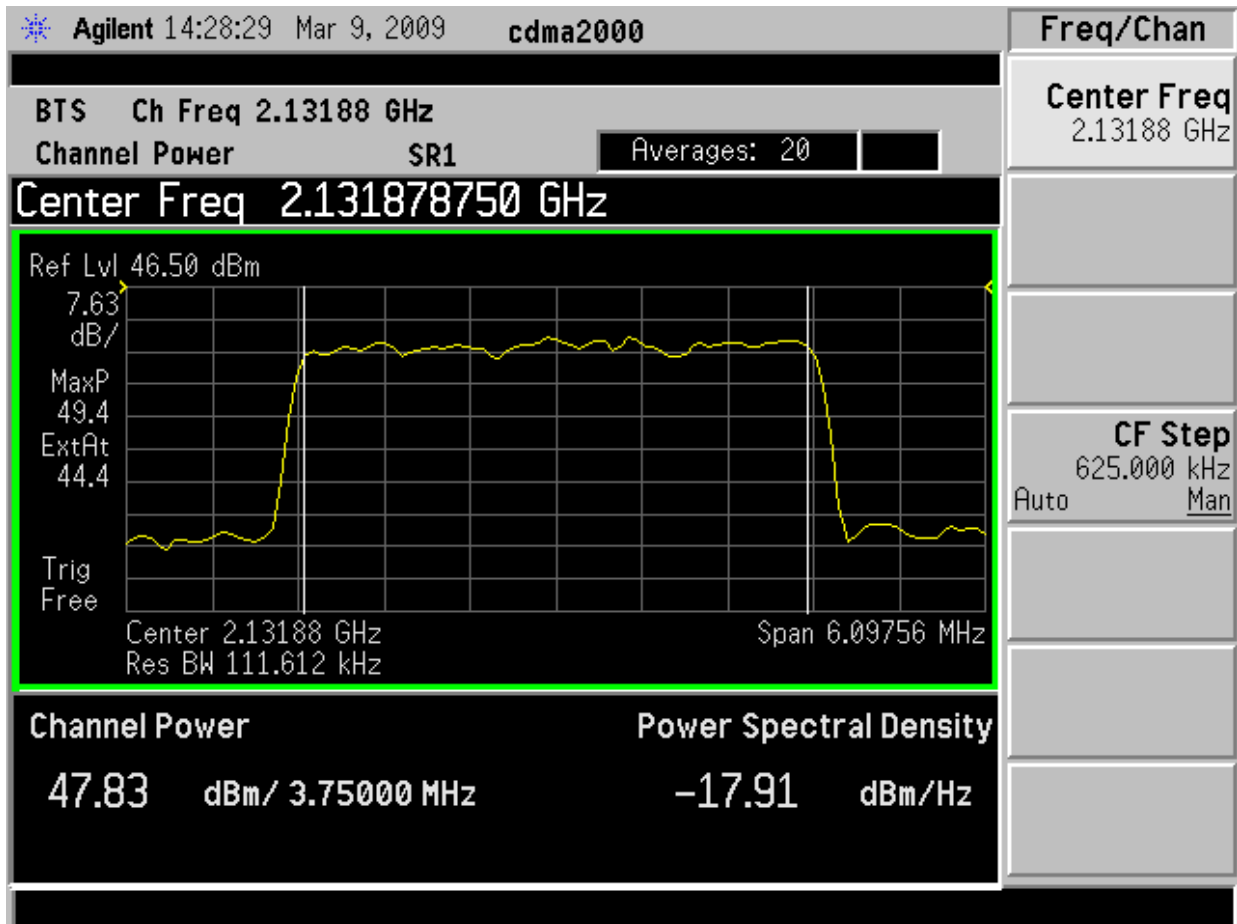
Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm	Antenna gain dBi	Total Power in W
2132.525	2130.65/2131.9/2133.15/2134.4	47.83	13	1210.60
2137.425	2135.55/2136.8/2138.05/2139.3	47.77	13	1193.99

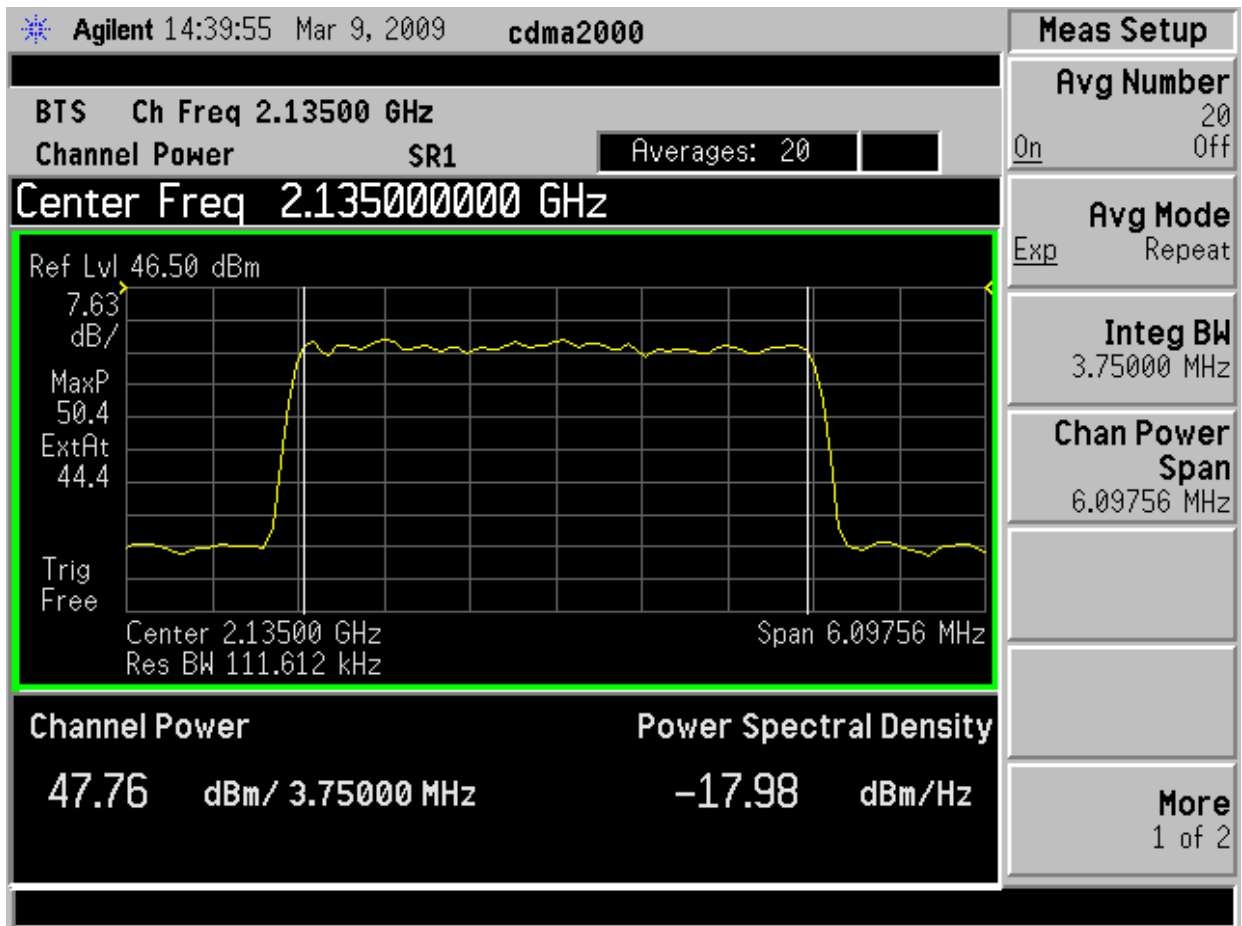




Three carriers (between top frequency and bottom frequency)

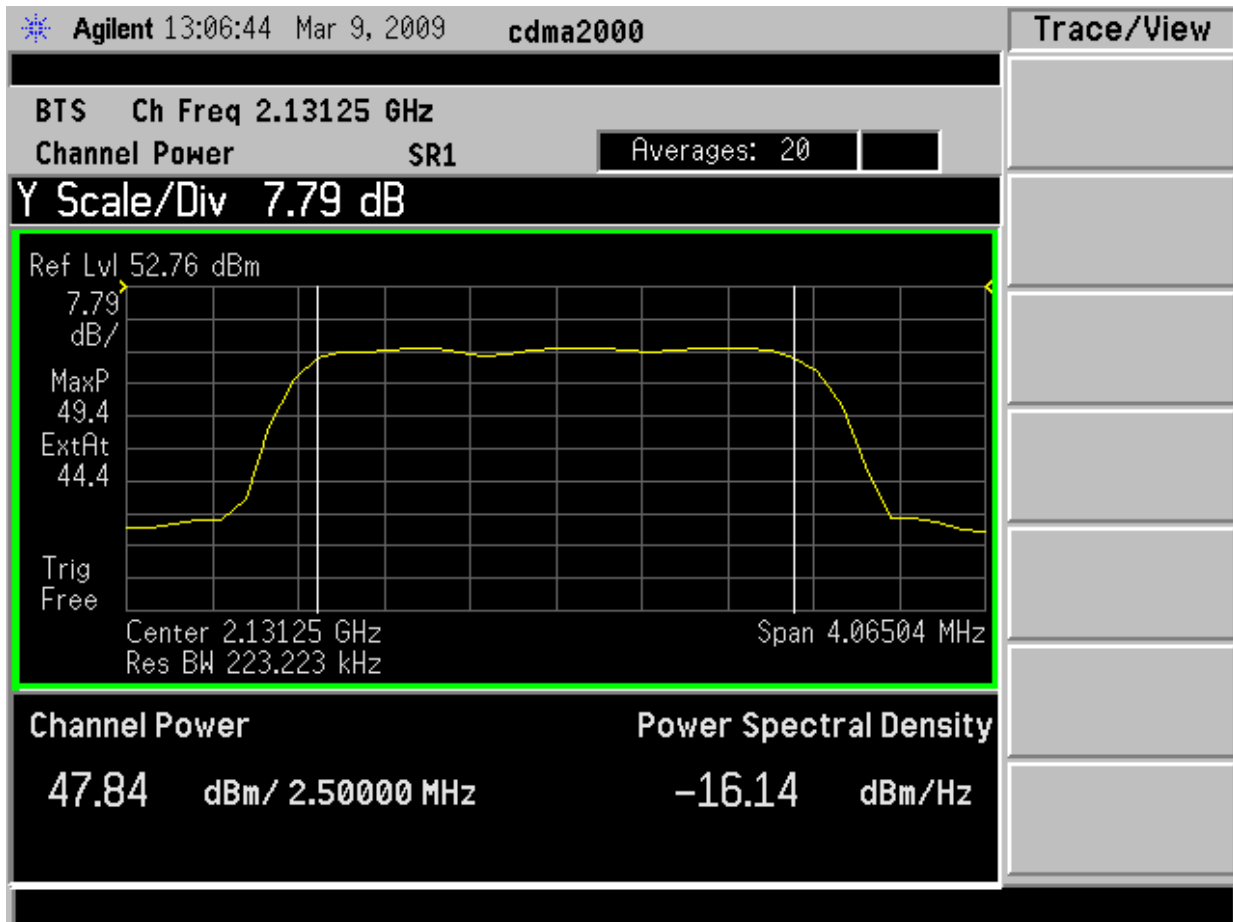
Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm	Antenna gain dBi	Total Power in W
2131.9	2130.65/2131.9/2133.15	47.83	13	1210.60
2135.00	2133.75/2135.0/2136.25	47.76	13	1191.24

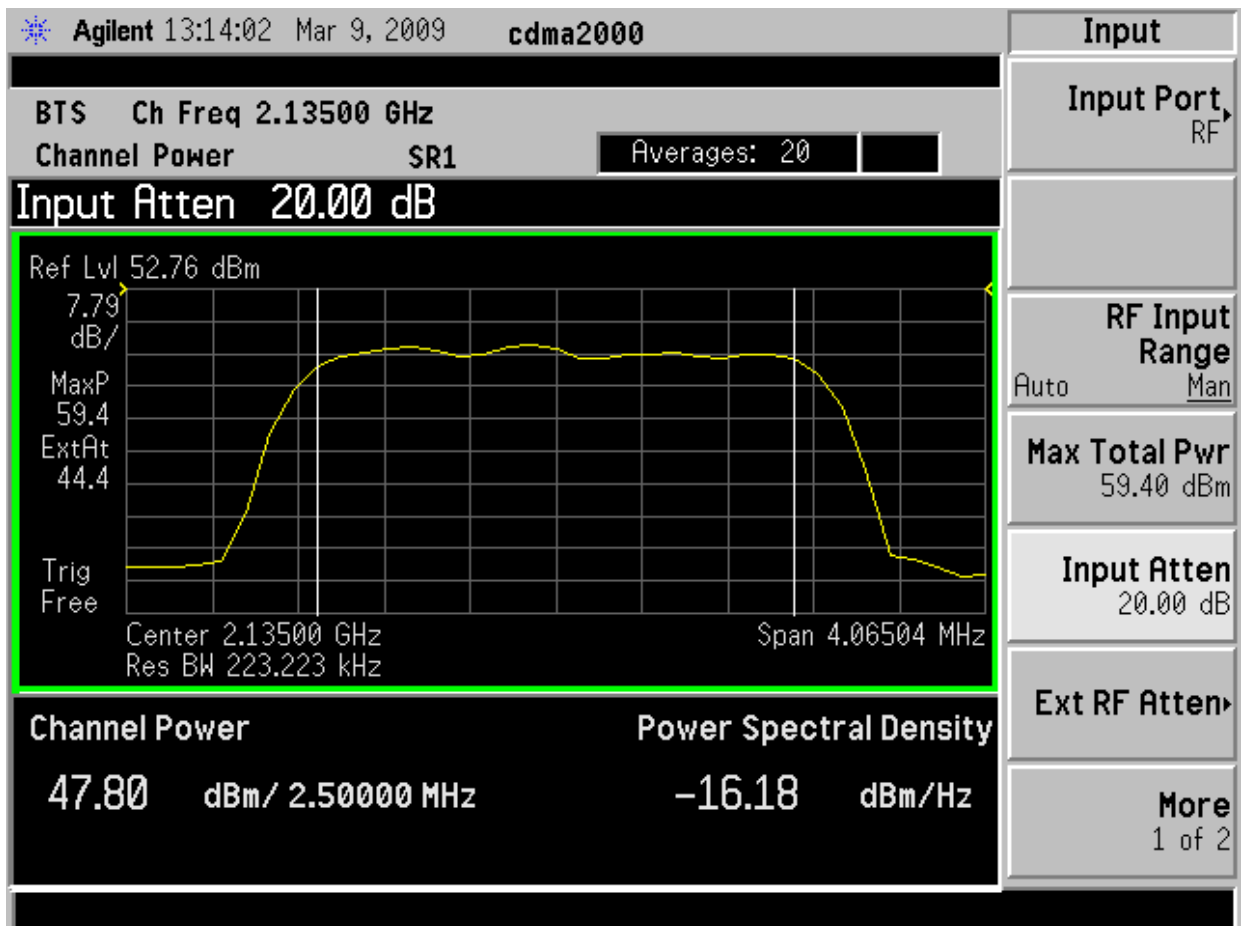


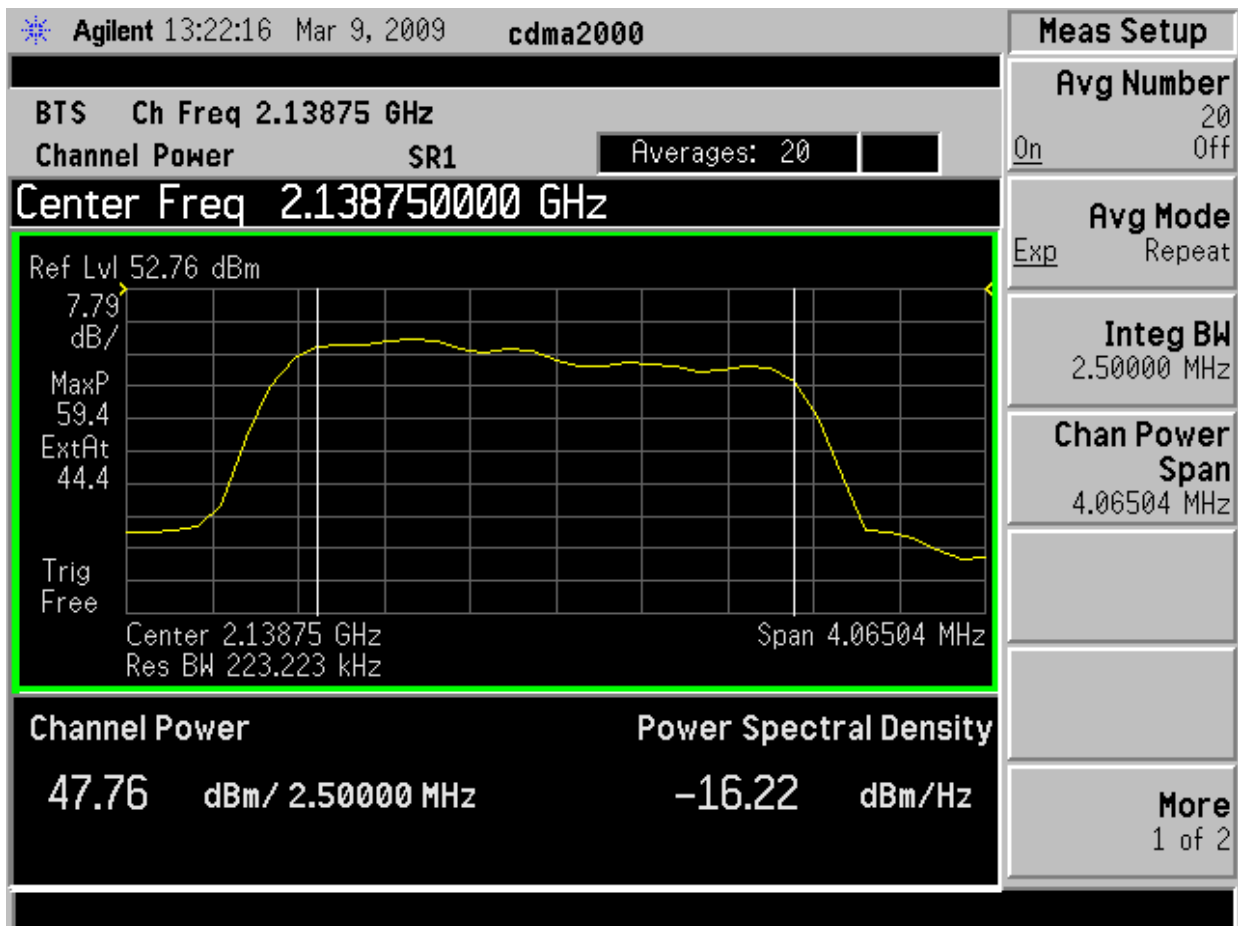


Two carriers

Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm	Antenna gain dBi	Total Power in W
2131.125	2131.125/2132.375	47.84	13	1213.39
2135.00	2133.750/2135.000	47.80	13	1202.26
2138.75	2137.500/2138.750	47.76	13	1191.24

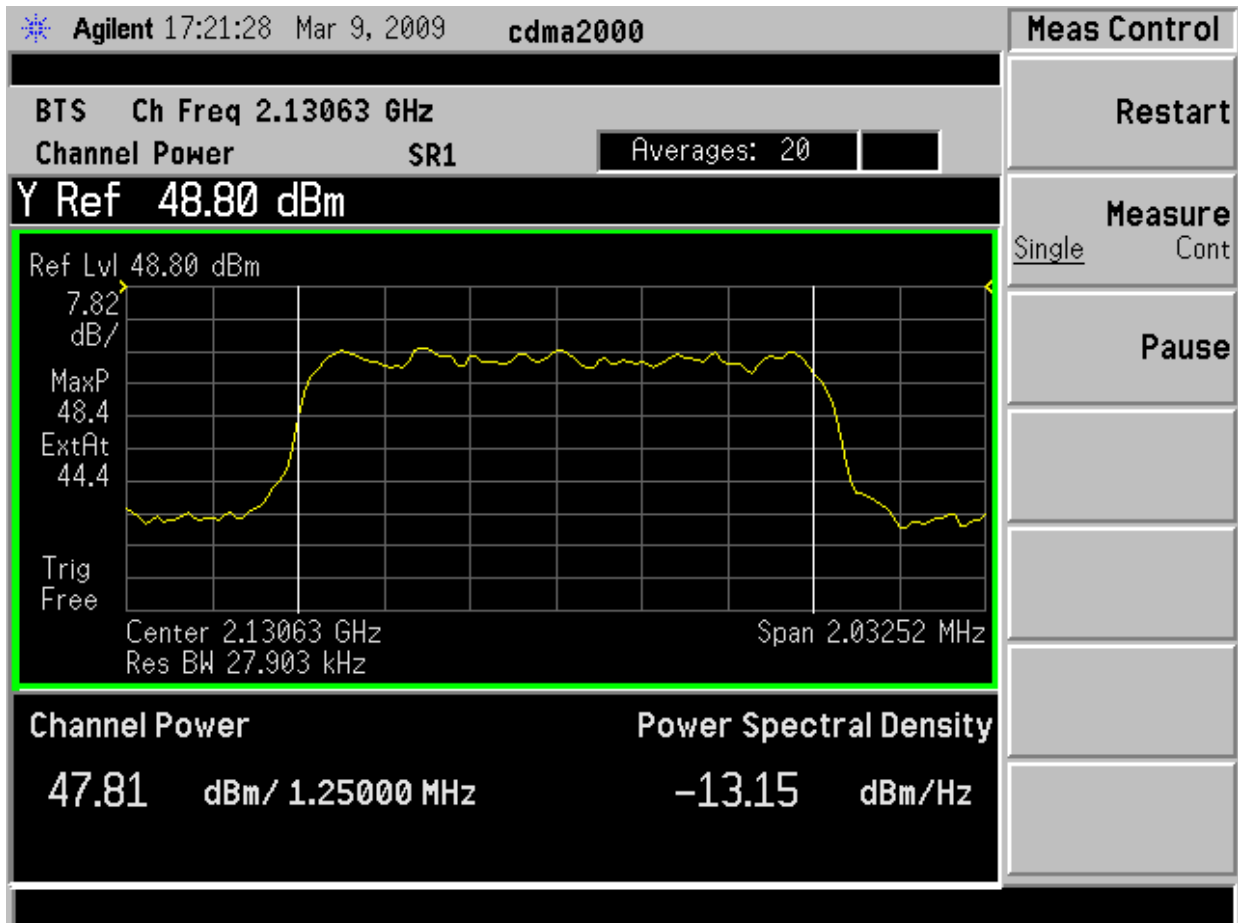


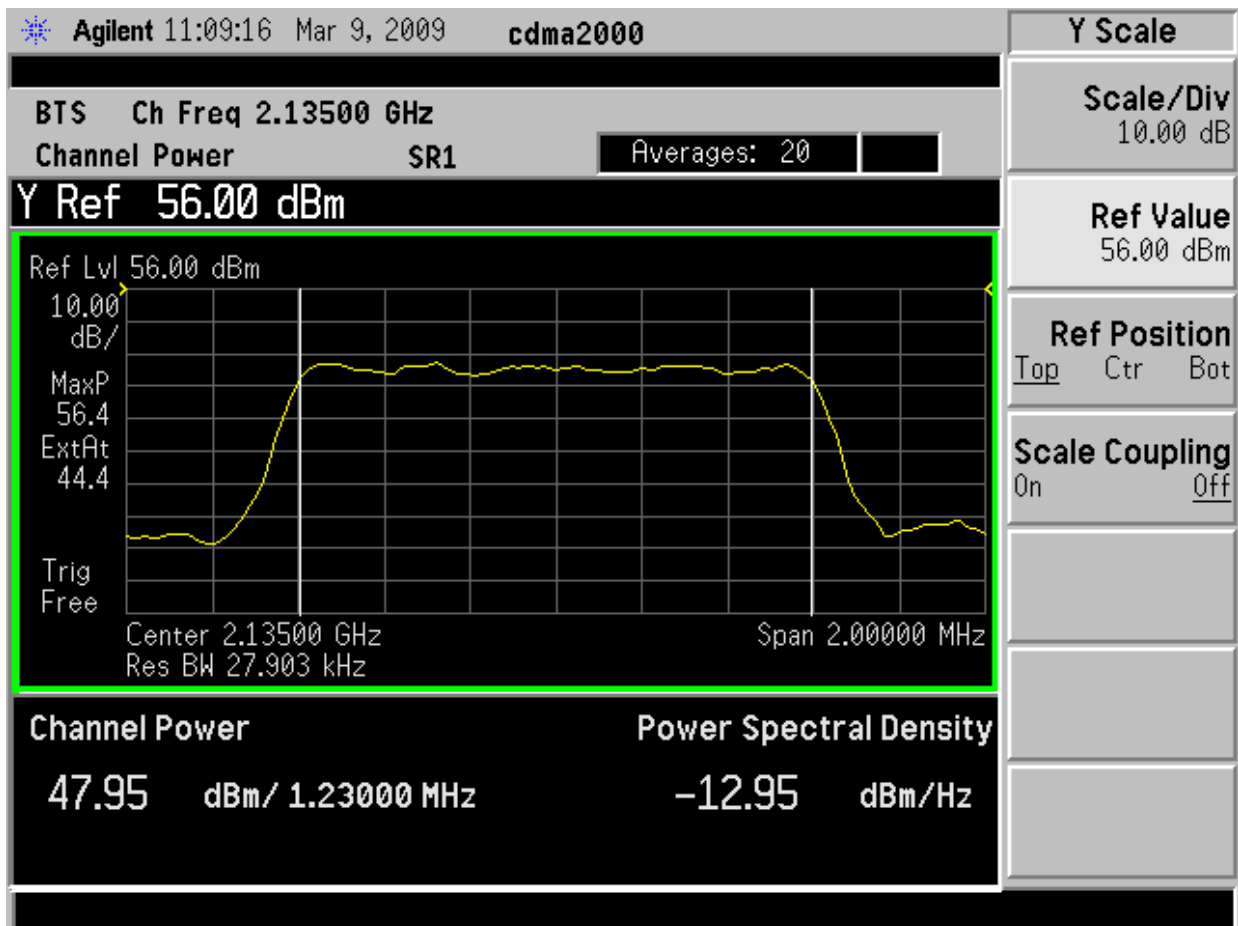


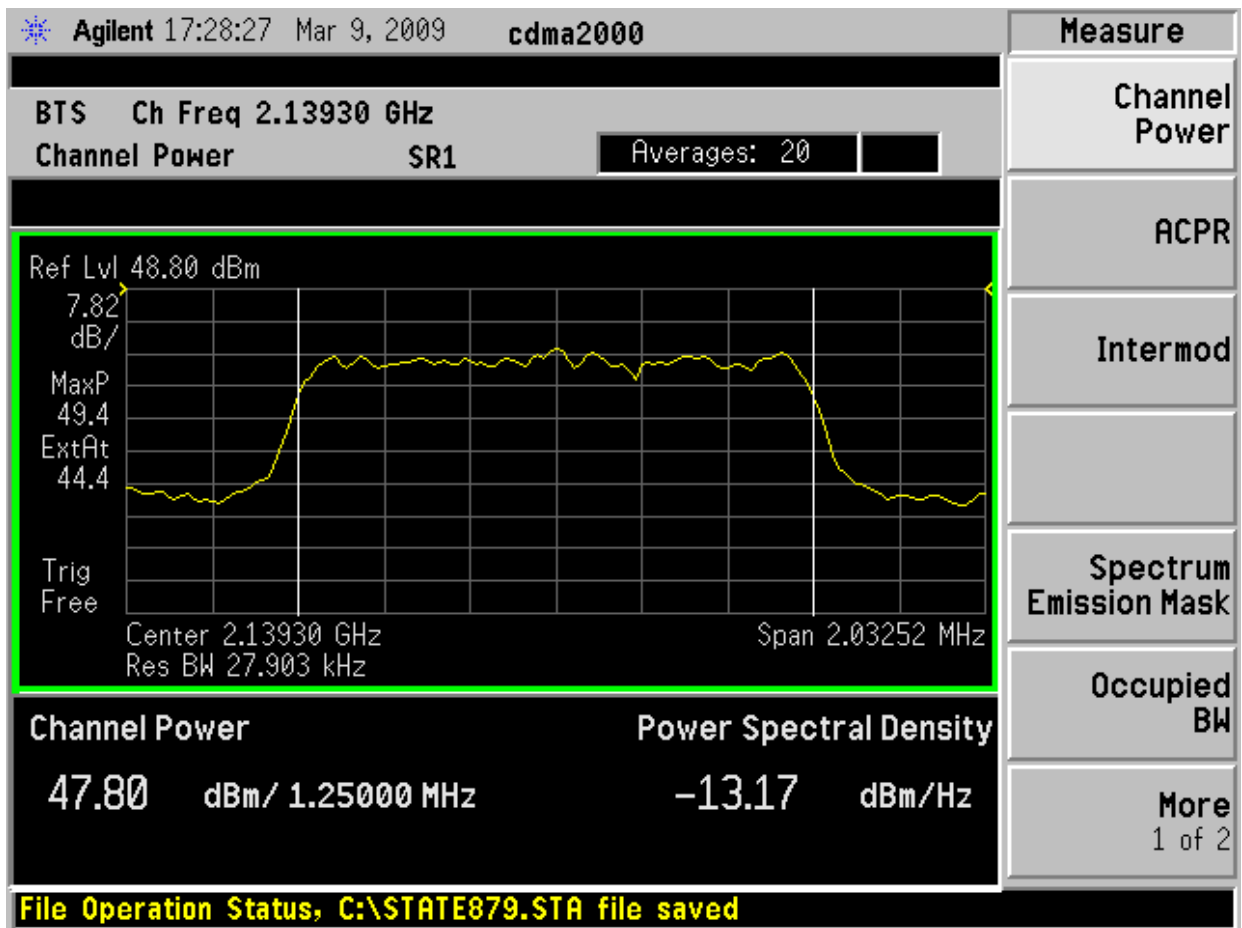


One carrier

Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm	Antenna gain dBi	Total Power in W
2130.65	2130.65	47.81	13	1205.04
2135.00	2135.00	47.95	13	1244.51
2139.50	2139.50	47.80	13	1202.26







6 RF EXPOSURE

Applicable standard: FCC §1.1310 , §2.1091 §27.52 and IC RSS-102 4.2

Limit

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated. Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

Test Data

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal: 47.95 (dBm) Maximum peak output power at antenna input terminals: 62.37(W)

Prediction distance: 400 (cm)

Predication frequency: 2135.0 (MHz)

Antenna Gain (typical): 13 (dBi)

Power density at predication frequency at 400 cm: 0.620 (mW/cm²)

MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm²)

Test Result: pass

Limit

According to RSS-102 4.2 RF exposure limit for general uncontrolled use device

Frequency Range (MHz)	Electric Field (V/M rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Time Averaging (min)
0.003-1	280	2.19	-	6
1-10	$280 / f$	$2.19 / f$	-	6
10-30	28	$2.19 / f$	-	6
30-300	28	0.073	2^*	6
300-1 500	$1.585 f^{0.5}$	$0.0042 f^{0.5}$	$f / 150$	6
1 500-15 000	61.4	0.163	10	6
15 000-150 000	61.4	0.163	10	$616000 / f^{1.2}$
150 000-300 000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000 / f^{1.2}$

Note: f is frequency in MHz

* Power density limit is applicable at frequencies greater than 100 MHz

Test Data

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal: 47.95 (dBm) Maximum peak output power at antenna input terminals: 62.37(W)

Prediction distance: 4 (m)

Predication frequency: 2135.0 (MHz)

Antenna Gain (typical): 13 (dBi)

Power density at predication frequency at 4 m: 6.195 (W/m²)

MPE limit for uncontrolled exposure at prediction frequency: 10 (W/m²)

Test Result: pass

7 MODULATION CHARACTERISTIC

Applicable Standard: FCC §2.1047 and IC RSS139 §6.2.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Series Spectrum Analyzer	E4445A	MY44300451	2008-3-24	2009-3-23
DTS	DTS100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

CDMA digital mode is used by EUT.

Test Data Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

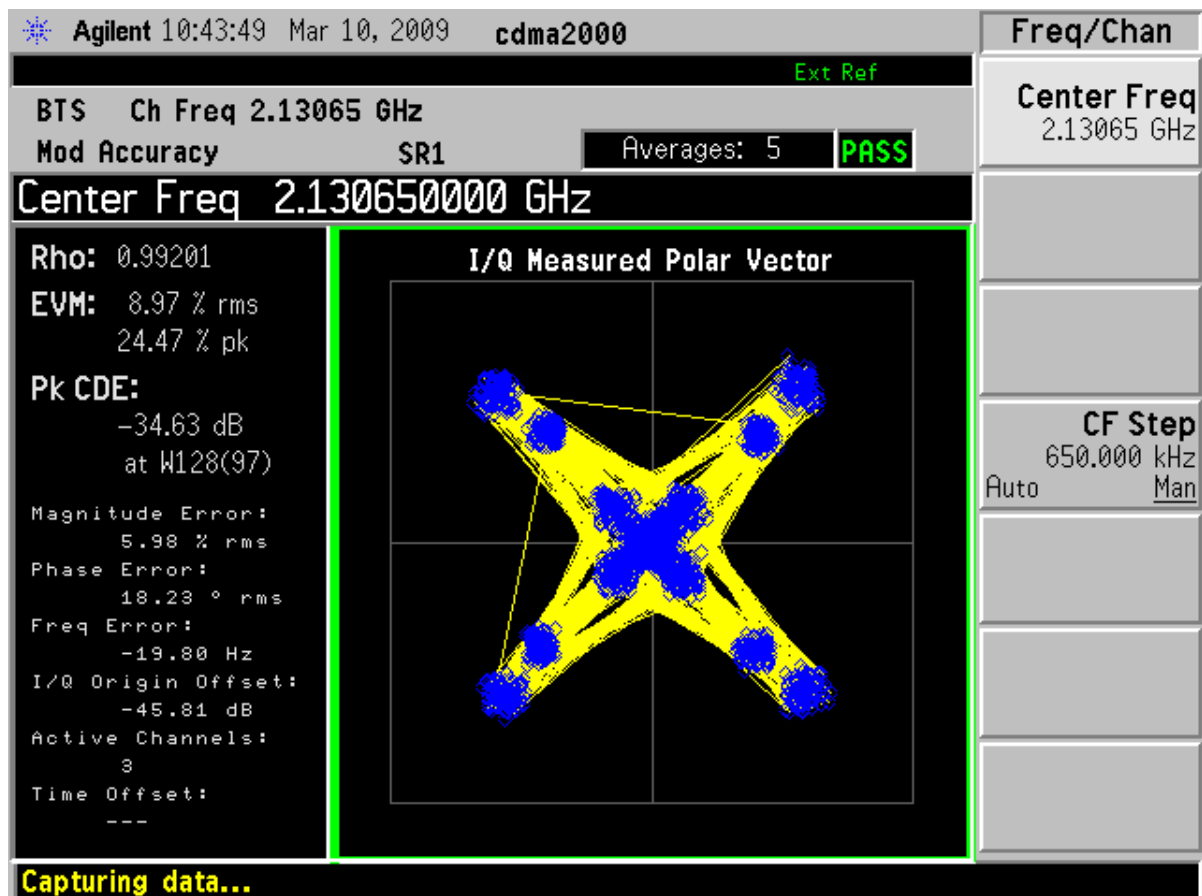
The testing was performed by Wei bin on Mar 10-13, 2009

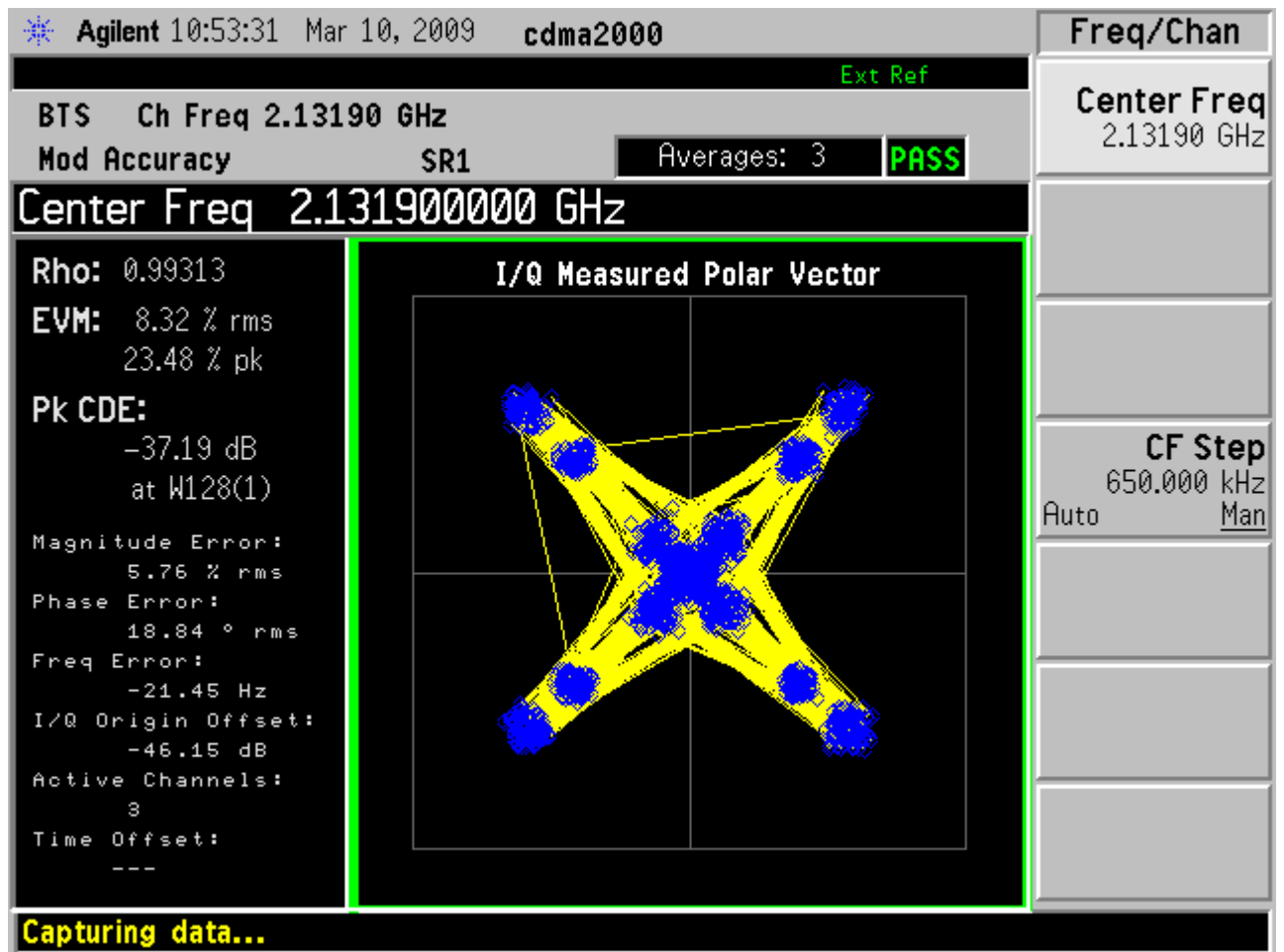
Test Result: Pass

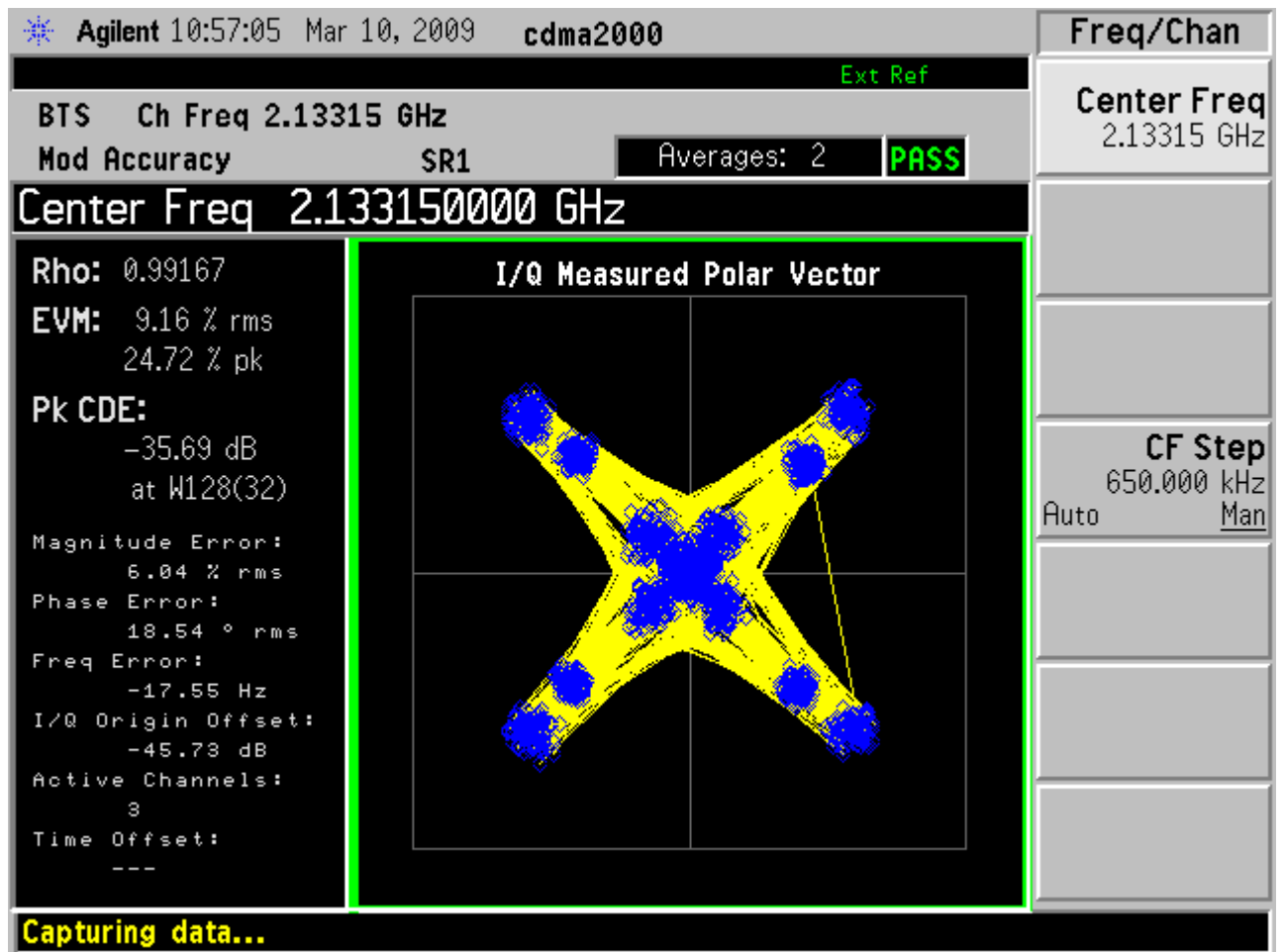
Test Mode: Transmitting CDMA

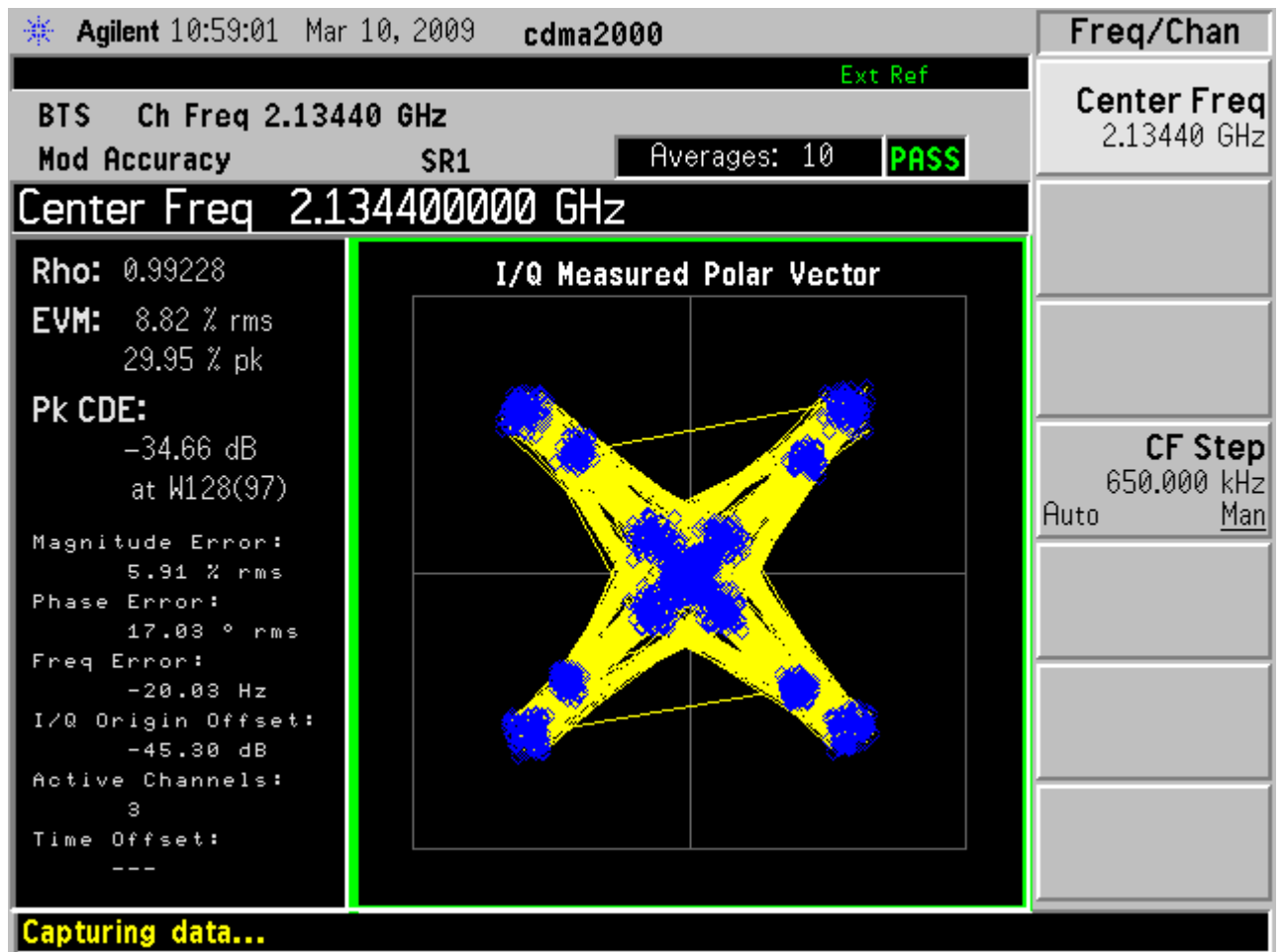
Test Data:

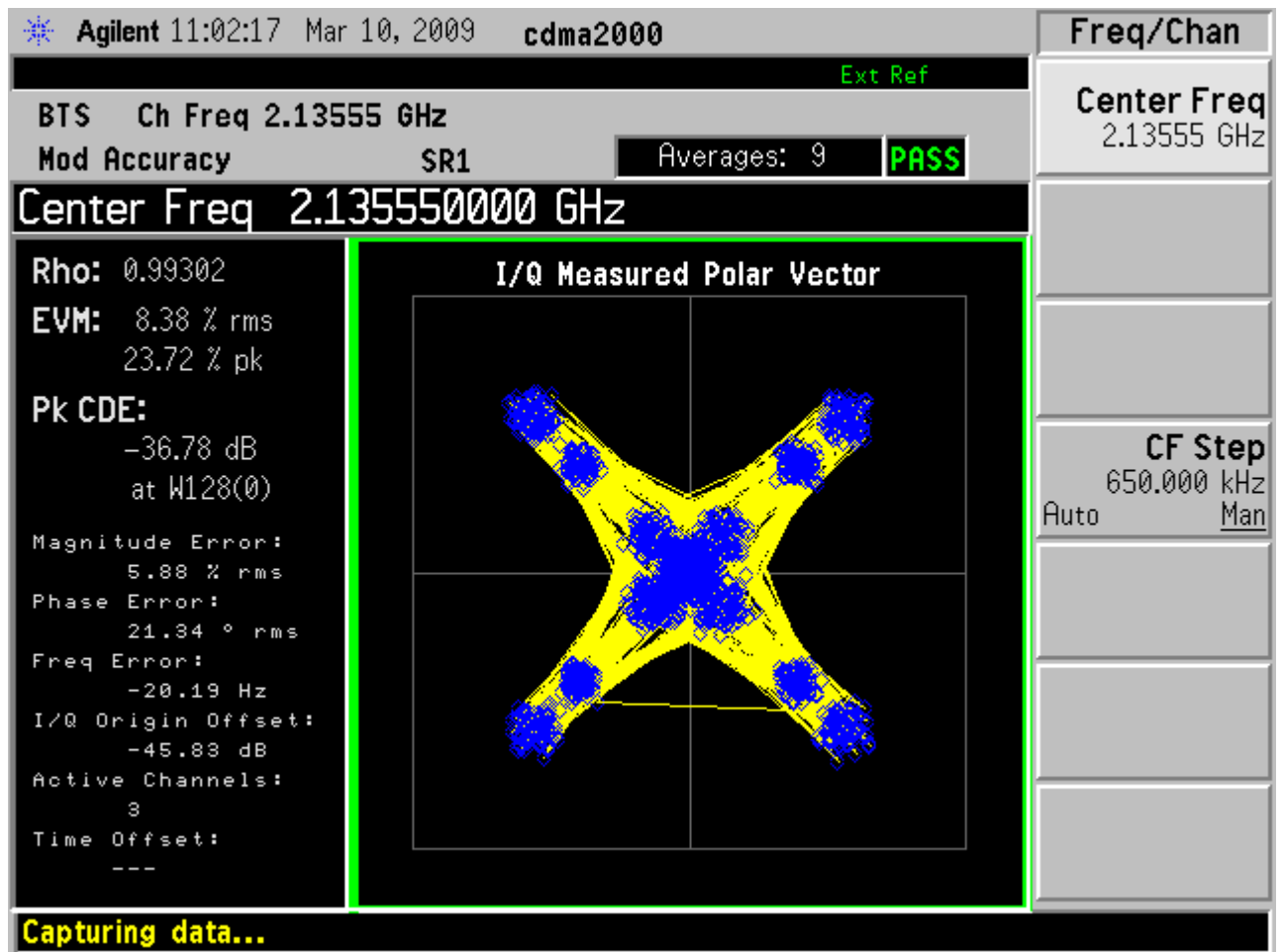
Frequency (MHz)	Rho
2130.65	0.99201
2131.90	0.99313
2133.15	0.99167
2134.40	0.99228
2135.55	0.99302
2136.80	0.99054
2138.05	0.99085
2139.30	0.99331

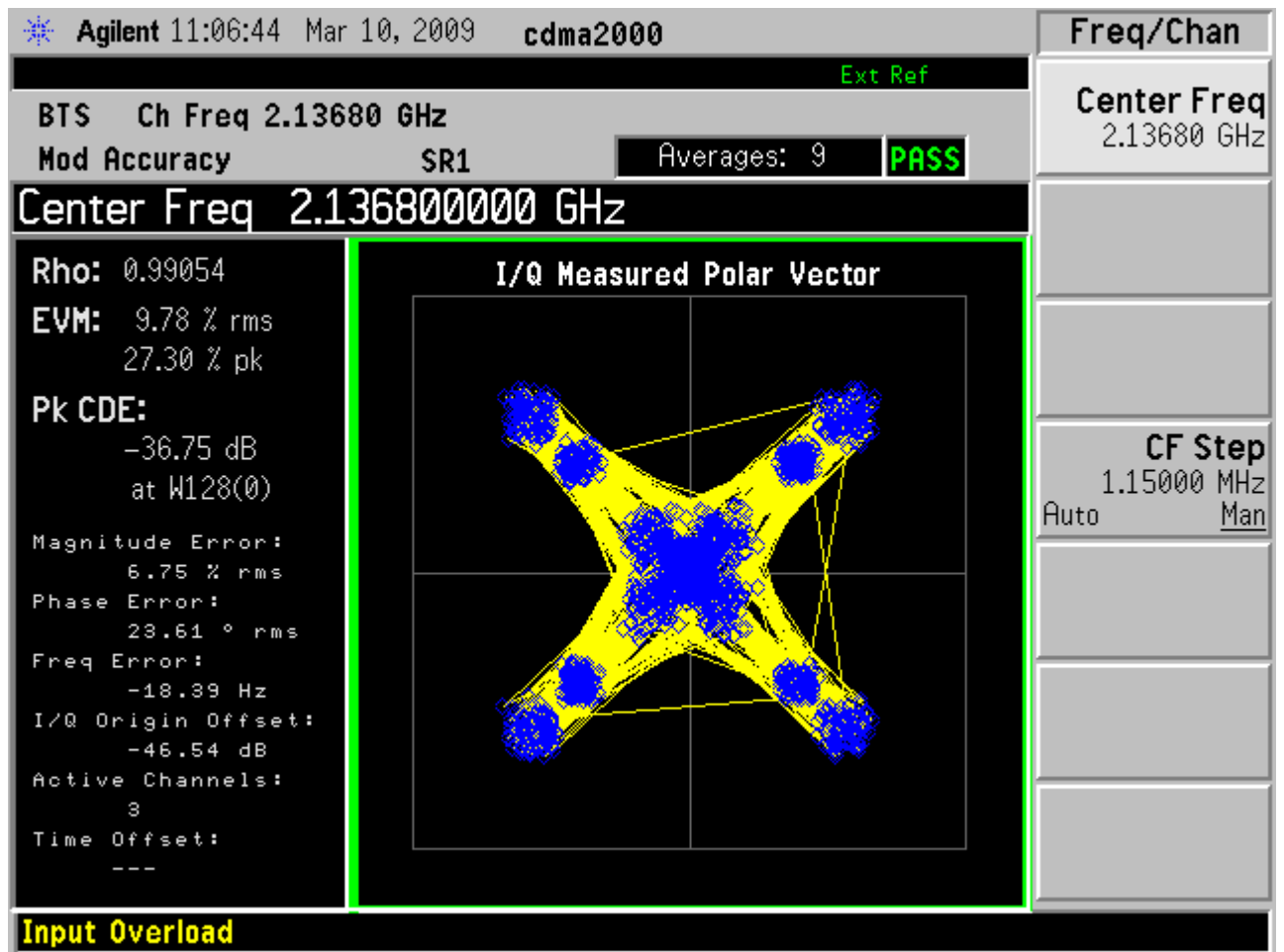


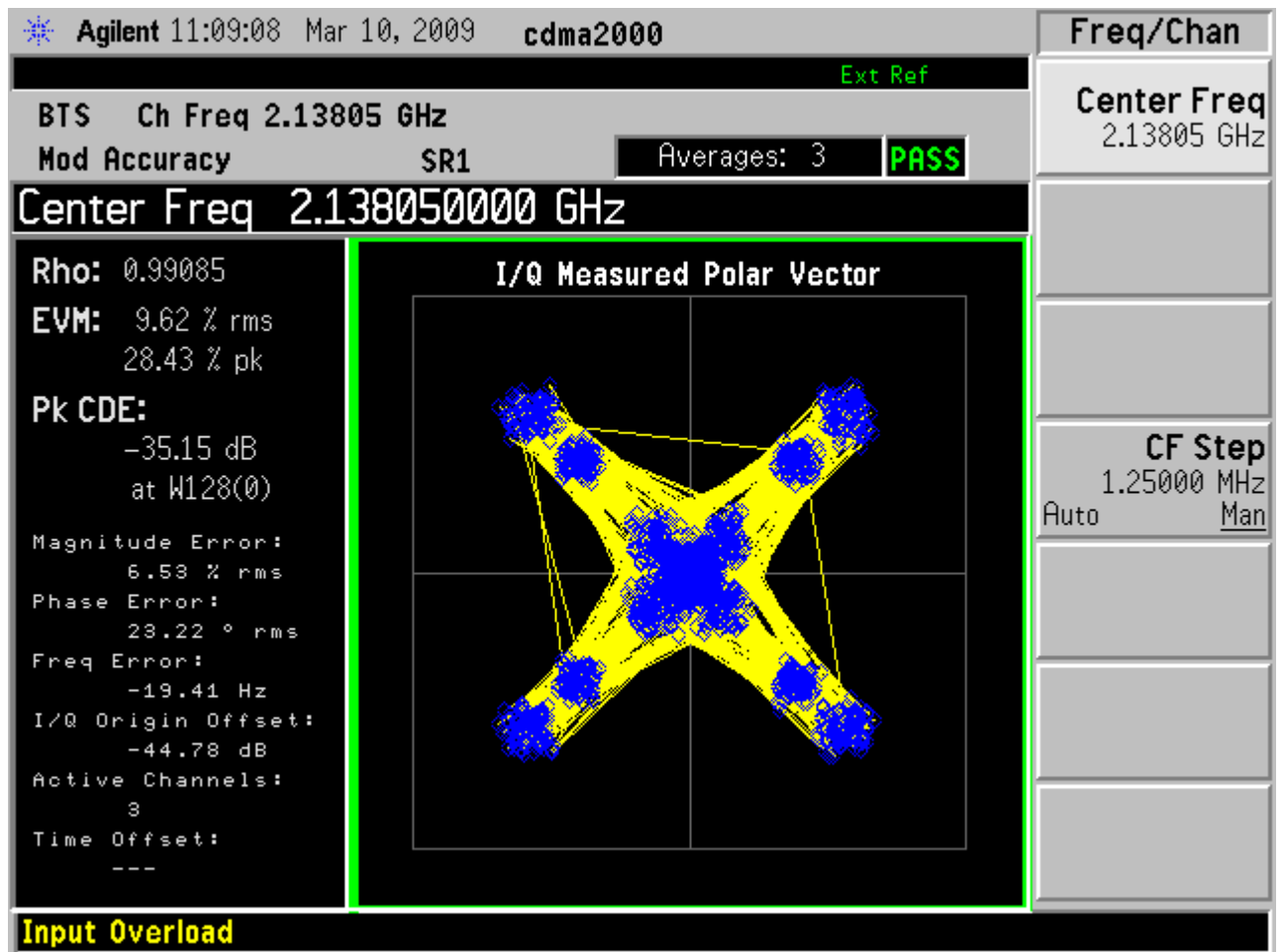


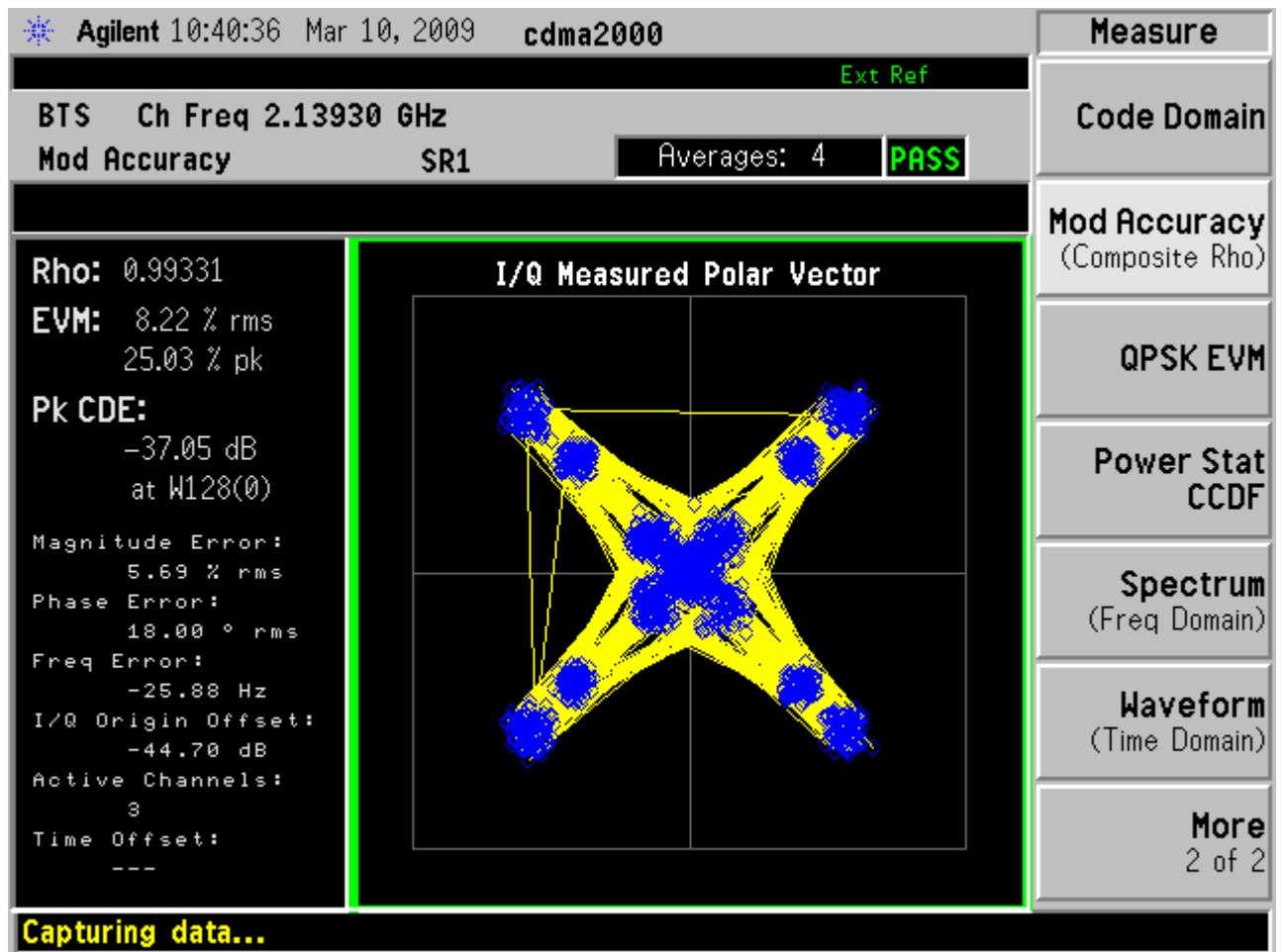












8 SPURIOUS RADIATED EMISSIONS

Applicable Standard: CFR 47, §2.1053 and IC RSS139 §6.5, Rss Gen §4.9

Test Equipment List and Details

Item	Equipment	Manufacturer	Mode	Serial	Last Cal.	Cal. Interval
1	EMI Test Receiver	R&S	ESI26	100058	2008-10-29	1 Year
2	Ultra Broadband Antenna	R&S	HL562	100022	2008-8-11	3 Years
3	Double-Ridged Waveguide Horn Antenna	R&S	HF906	100032	2008-8-11	3 Years
4	Anechoic Chamber	Albatross	3m Site	N/A	2008-7-1	3 Year
5	Cable Set	R&S	RE Cable	N/A	N/A	N/A
6	Cable set II	R&S	Substitution Tx Cable	N/A	N/A	N/A
7	Cable set III	R&S	Hi-freq RX Antenna Cable	N/A	N/A	N/A
8	Software	R&S	ES-K1	N/A	N/A	N/A
9	Double-Ridged Waveguide Horn Antenna	R&S	HF906	100013	2008-8-11	3 Years
10	VHF-UHF Broad band Antenna	SCHWARZBEC K	VUBA 9117	SB3174	2008-8-11	3 Years
11	Signal Generator	R&S	SMR20	100098	2008-11-13	1Year

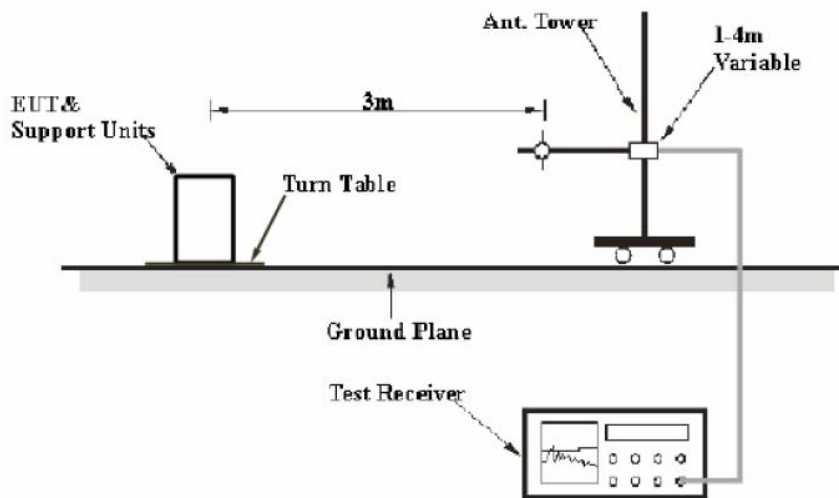
***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiated emissions measurement at the EMC lab of ZTE Corp. is 3.6dB.

EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the TIA/EIA 603-B. The specification used were the FCC 15.109 limits and RSS 139 clause 6.5 limits.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg(\text{TX pwr in Watts}/0.001)$ - the absolute level

Spurious attenuation limit in dB = $43 + 10 \lg P$ (power out in Watts)

The resolution bandwidth of the spectrum analyzer was set at 100KHz for 30MHz to 1GHz scanning, set at 1MHz or 3MHz for 1GHz to 20GHz scanning.

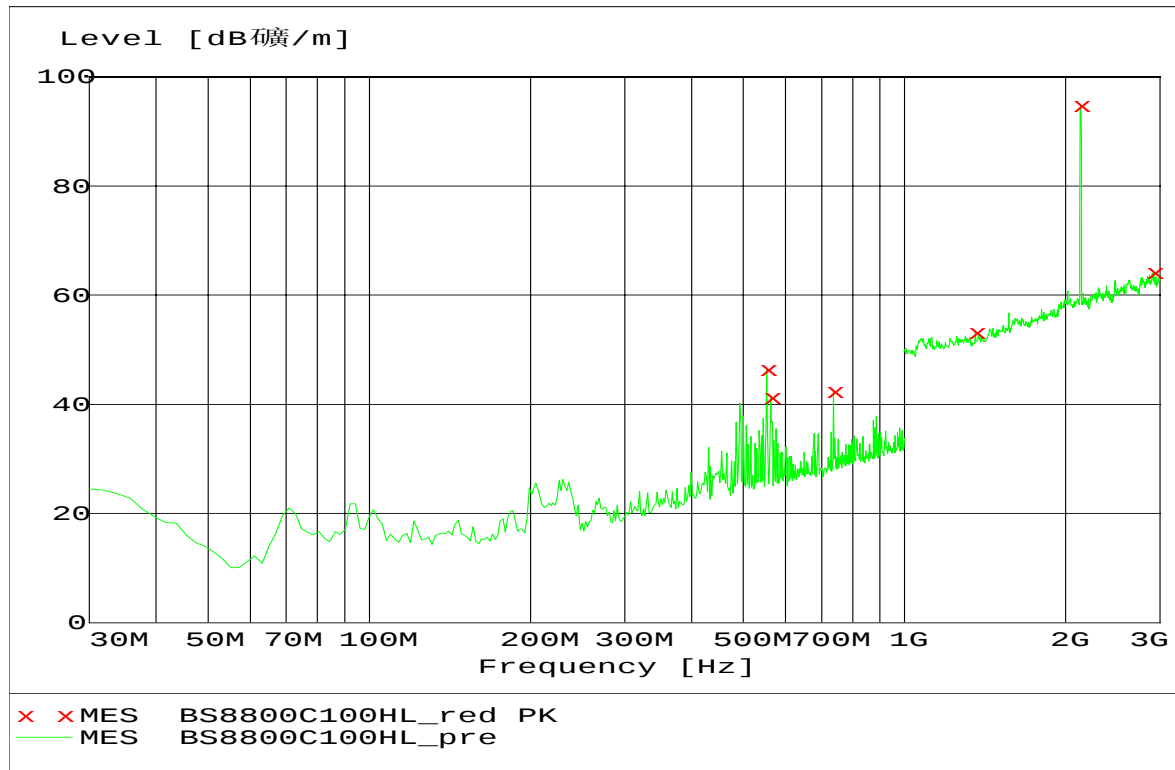
Test Results Summary: PASS

Environmental Conditions

Temperature:	26°C
Relative Humidity:	60 %
ATM Pressure:	1009 mbar

The testing was performed by Guan Bin on 2009-4-14 and 2009-4-17.

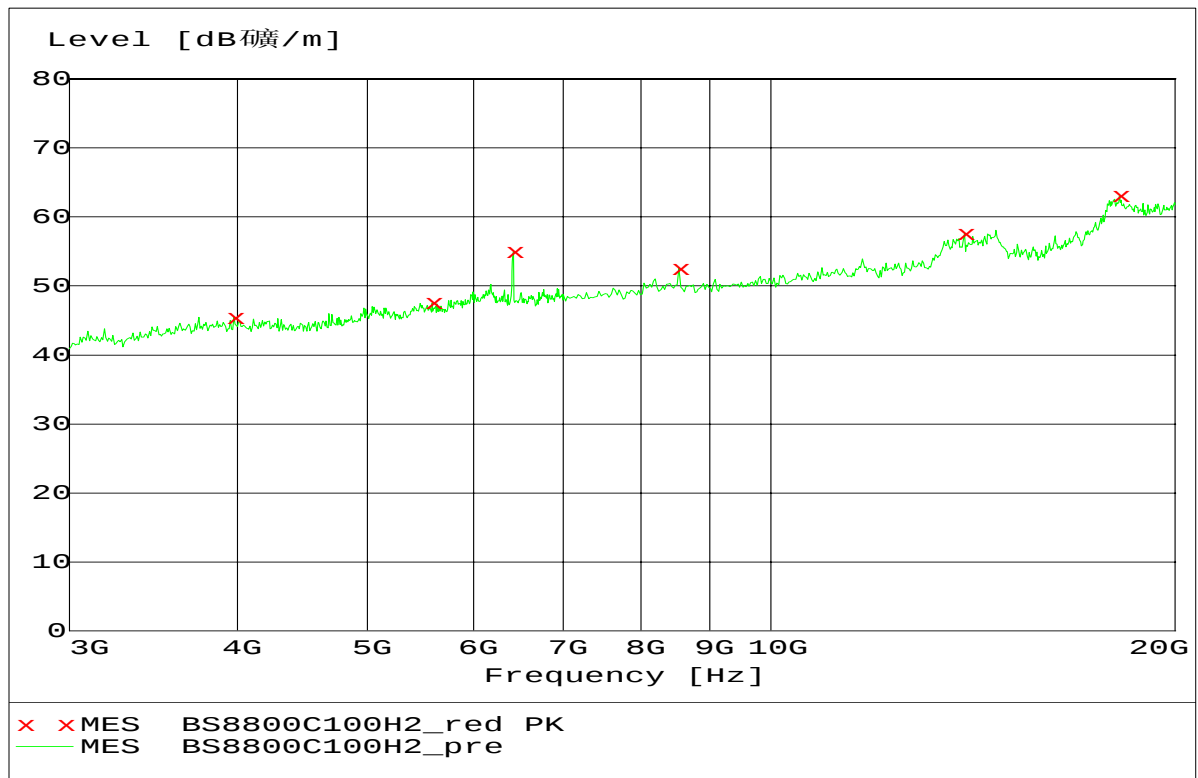
Test data



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
552.90581	46.38	-50.39	2	-1.46	-56	-13	43
562.62525	41.17	-55.6	2	-1.46	-61.21	-13	48.21
737.57515	42.43	-54.74	2.3	-0.95	-60.14	-13	47.14
1356.7134	53.11	-52.99	3.1	4.25	-53.99	-13	40.99
2130.2605	94.65	-10.55	3.9	7.05	-9.55	--	--
2915.8317	64.11	-40	4.6	7.95	-38.8	-13	25.8

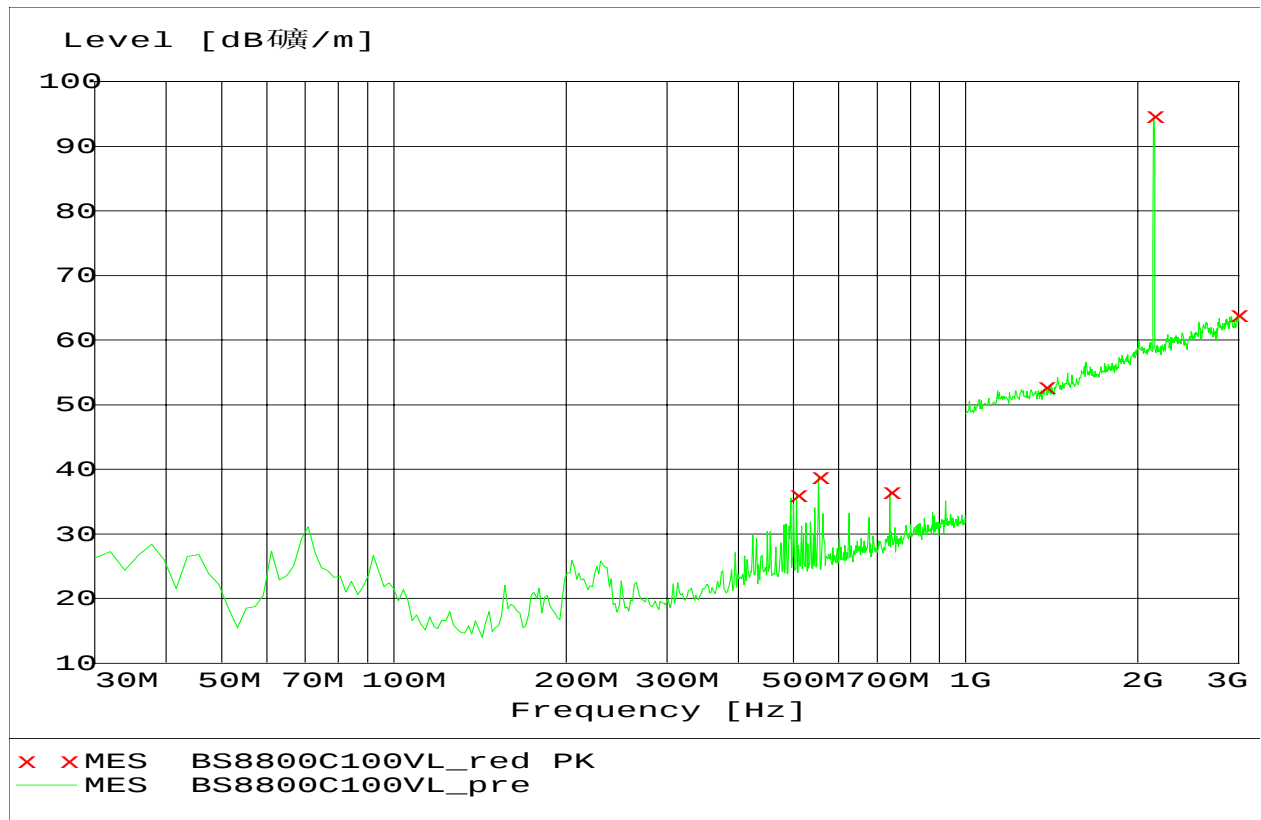
Notes: 2130.2605MHz is in the scope of working band.

Radiation emission spurious 30MHz~3GHz in low frequency (horizontal and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
3977.9559	45.5	-57.9	5.3	7.75	-57.6	-13	44.6
5589.1784	47.56	-51.05	6.4	9.05	-50.55	-13	37.55
6422.8457	55.02	-46.75	7	9.05	-46.85	-13	33.85
8537.0741	52.57	-55.4	8.2	9.65	-56.1	-13	43.1
13929.86	57.63	-53.82	10.6	10.45	-56.12	-13	43.12
18176.353	63.03	-43.41	12.2	6.45	-51.31	-13	38.31

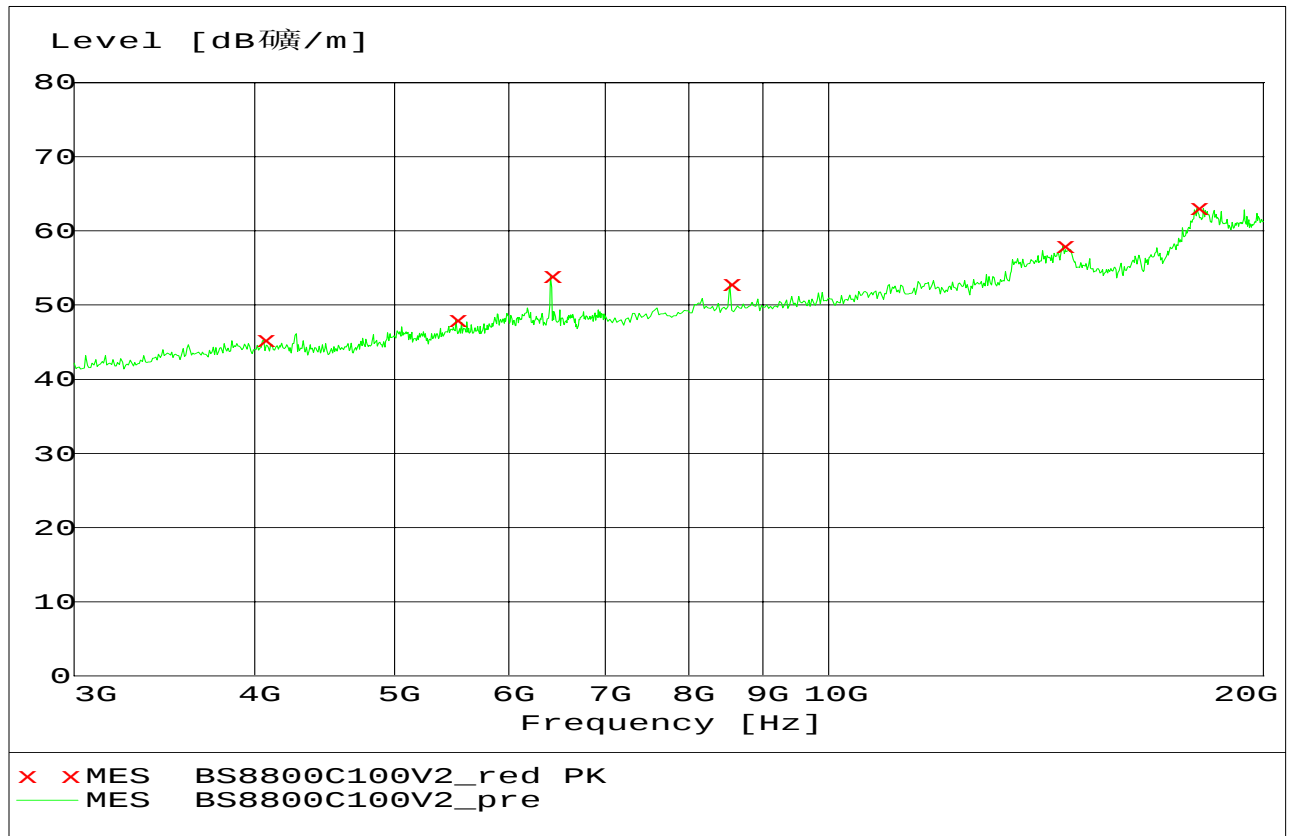
Radiation emission spurious 3GHz~20GHz in low frequency (horizontal and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
506.25251	36.03	-58.92	1.9	-1.27	-64.24	-13	51.24
552.90581	38.83	-56.74	2	-1.46	-62.35	-13	49.35
737.57515	36.42	-61.62	2.3	-0.95	-67.02	-13	54.02
1376.7535	52.77	-51.02	3.1	4.25	-52.02	-13	39.02
2130.2605	94.66	-6.82	3.9	7.05	-5.82	--	--
2983.9679	63.78	-37.96	4.6	7.95	-36.76	-13	23.76

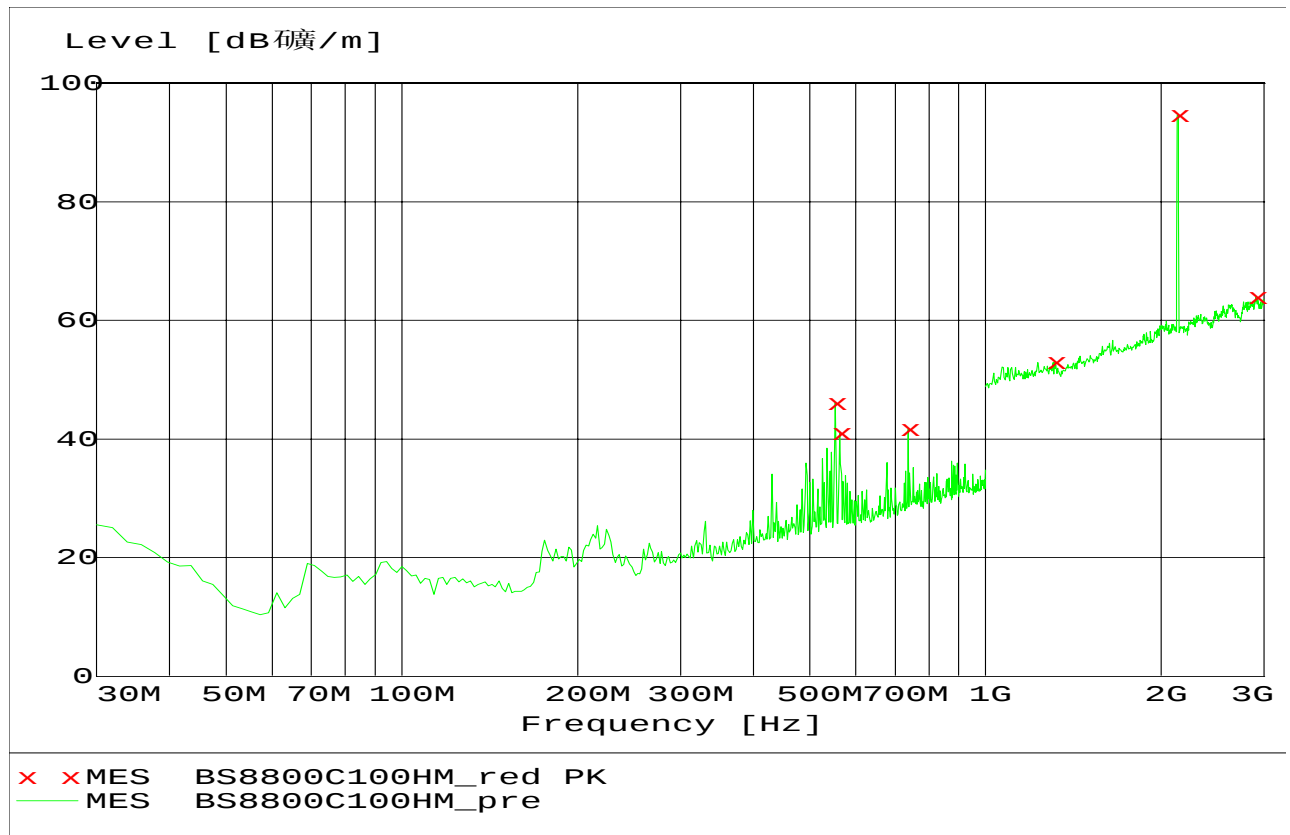
Notes: 2130.2605MHz is in the scope of working band.

Radiation emission spurious 30MHz~3GHz in low frequency (Vertical and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
4058.1162	45.29	-60.8	5.3	7.95	-60.3	-13	47.3
5517.0341	47.94	-58.69	6.4	9.05	-58.19	-13	45.19
6414.8297	53.85	-51.31	7	9.05	-51.41	-13	38.41
8537.0741	52.85	-58.17	8.2	9.65	-58.87	-13	45.87
14529.058	58	-55.25	11	9.15	-59.25	-13	46.25
17993.988	63.02	-47.91	12.2	8.95	-53.31	-13	40.31

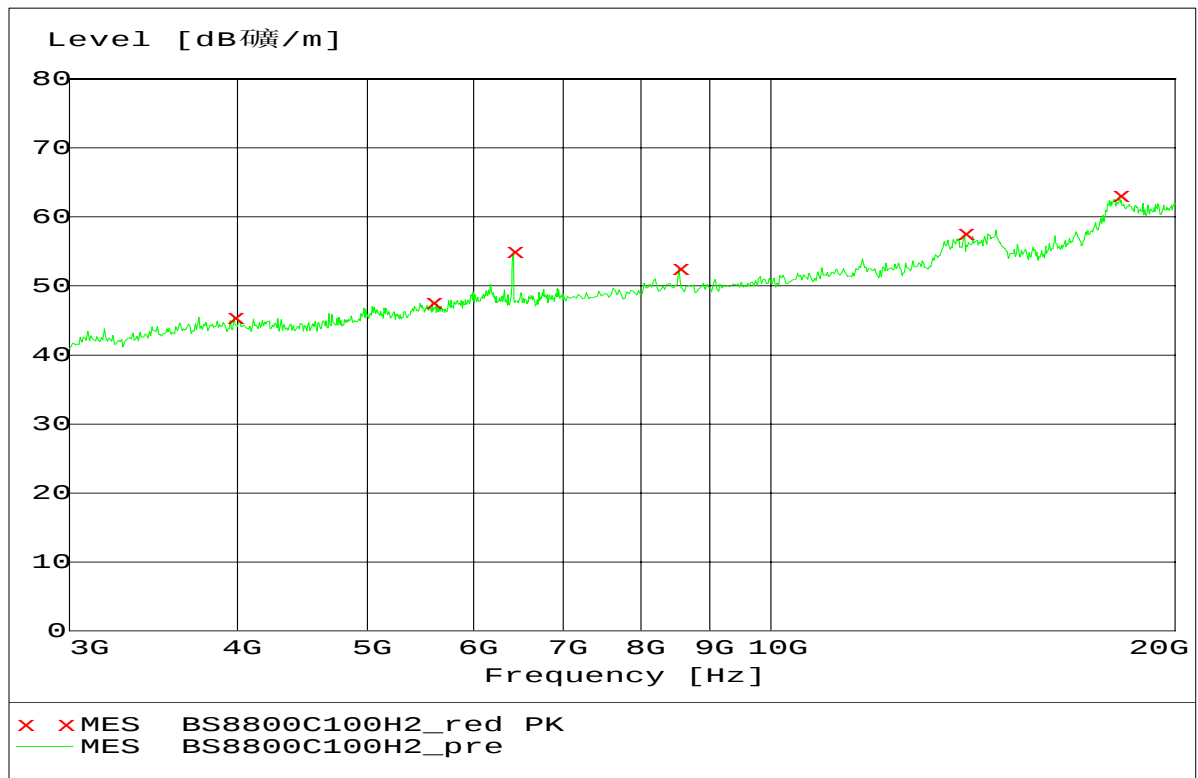
Radiation emission spurious 3GHz~20GHz in low frequency (vertical and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
552.90581	46.12	-50.65	2	-1.46	-56.26	-13	43.26
562.62525	40.97	-55.8	2	-1.46	-61.41	-13	48.41
737.57515	41.62	-55.55	2.3	-0.95	-60.95	-13	47.95
1312.6253	52.97	-53.18	3.1	4.25	-54.18	-13	41.18
2134.2685	94.58	-10.62	3.9	7.05	-9.62	--	--
2899.7996	63.9	-40.21	4.5	7.95	-38.91	-13	25.91

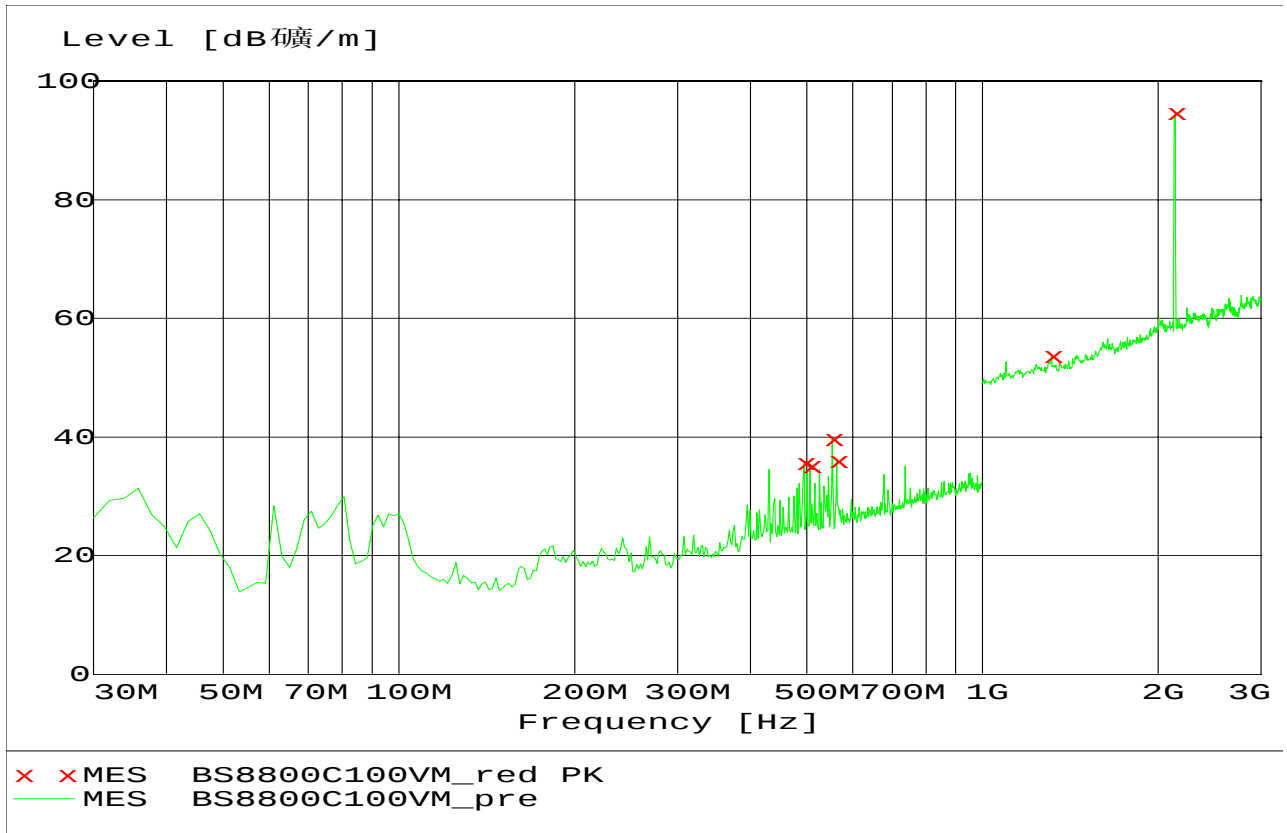
Notes: 2134.2685MHz is in the scope of working band.

Radiation emission spurious 30MHz~3GHz in middle frequency (horizontal and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
3977.9559	45.5	-57.9	5.3	7.75	-57.6	-13	44.6
5589.1784	47.56	-51.05	6.4	9.05	-50.55	-13	37.55
6422.8457	55.02	-46.75	7	9.05	-46.85	-13	33.85
8537.0741	52.57	-55.4	8.2	9.65	-56.1	-13	43.1
13929.86	57.63	-53.82	10.6	10.45	-56.12	-13	43.12
18176.353	63.03	-43.41	12.2	6.45	-51.31	-13	38.31

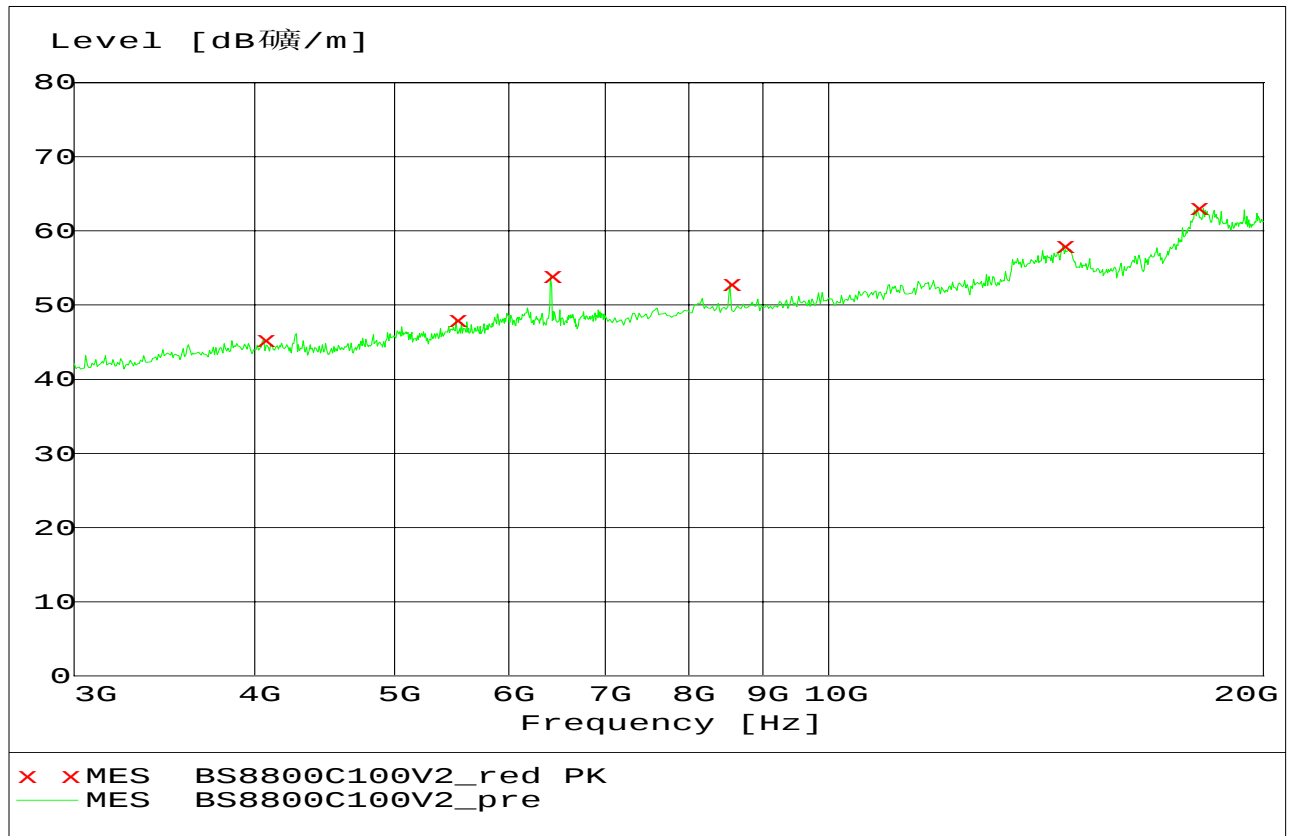
Radiation emission spurious 3GHz~20GHz in middle frequency (horizontal and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
494.58918	35.57	-58.53	1.9	-1.45	-64.03	-13	51.03
506.25251	35.23	-59.72	1.9	-1.27	-65.04	-13	52.04
552.90581	39.63	-55.94	2	-1.46	-61.55	-13	48.55
562.62525	35.99	-59.58	2	-1.46	-65.19	-13	52.19
1312.6253	53.75	-55.08	3.1	4.25	-56.08	-13	43.08
2134.2685	94.58	-6.9	3.9	7.05	-5.9	--	--

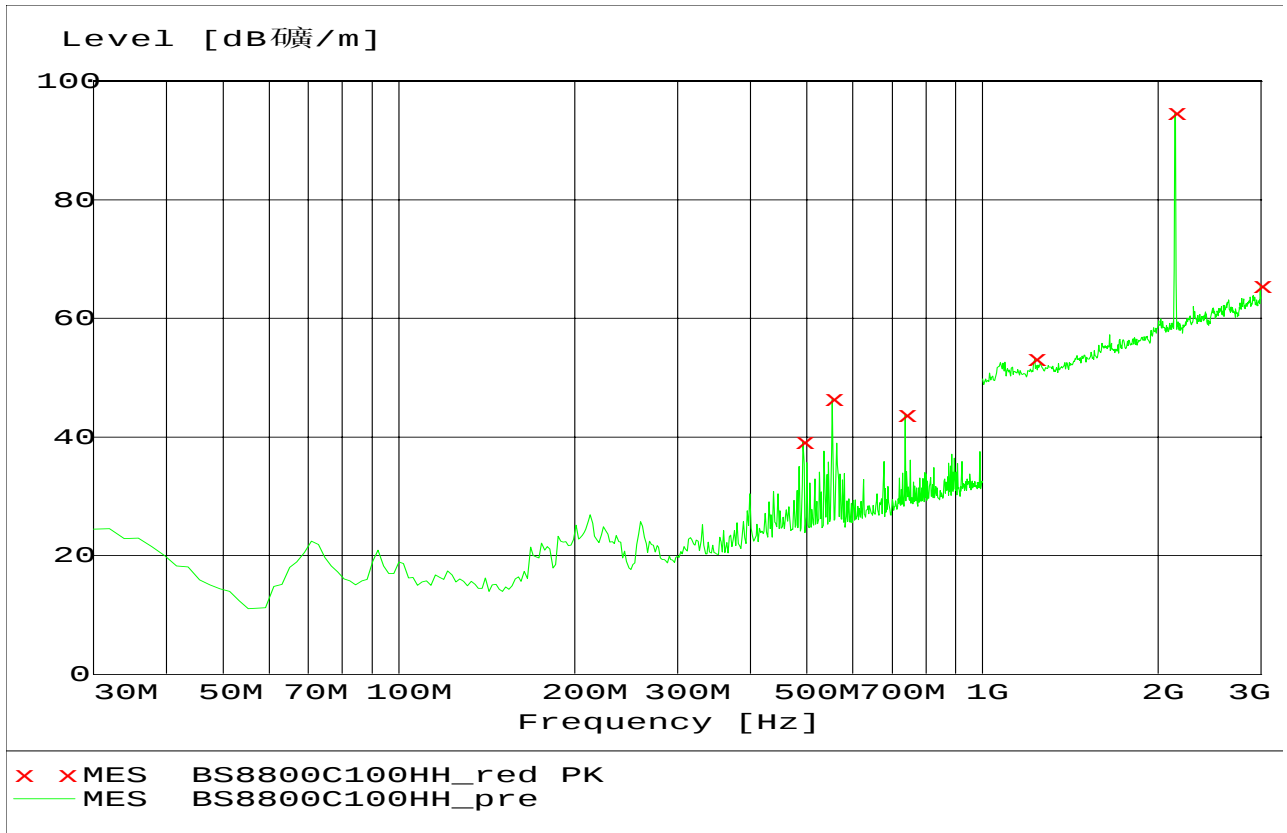
Notes: 2134.2685MHz is in the scope of working band.

Radiation emission spurious 30MHz~3GHz in middle frequency (vertical and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
4058.1162	45.29	-60.8	5.3	7.95	-60.3	-13	47.3
5517.0341	47.94	-58.69	6.4	9.05	-58.19	-13	45.19
6414.8297	53.85	-51.31	7	9.05	-51.41	-13	38.41
8537.0741	52.85	-58.17	8.2	9.65	-58.87	-13	45.87
14529.058	58	-55.25	11	9.15	-59.25	-13	46.25
17993.988	63.02	-47.91	12.2	8.95	-53.31	-13	40.31

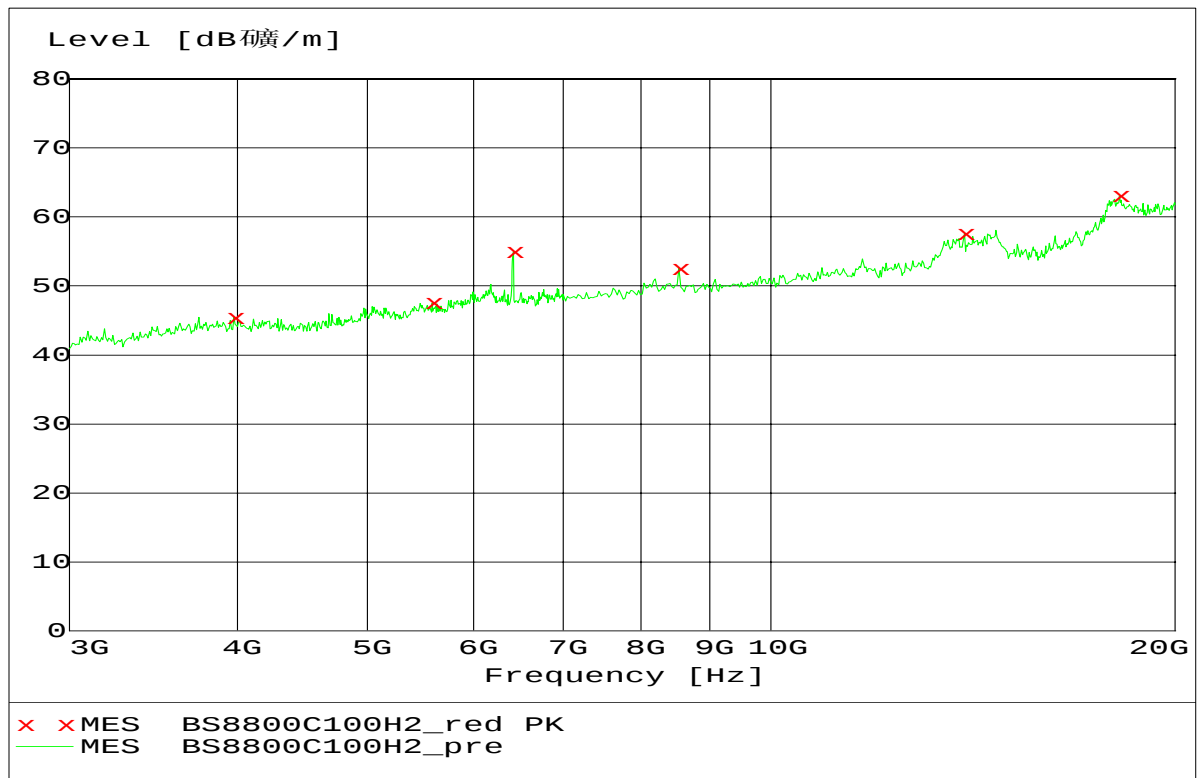
Radiation emission spurious 3GHz~20GHz in middle frequency (vertical and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
492.64529	39.15	-57.73	1.9	-1.45	-63.23	-13	50.23
552.90581	46.38	-50.39	2	-1.46	-56	-13	43
737.57515	43.72	-53.45	2.3	-0.95	-58.85	-13	45.85
1228.4569	53.17	-52.23	2.9	4.25	-53.03	-13	40.03
2134.2685	94.59	-10.61	3.9	7.05	-9.61	--	--
2991.984	65.46	-38.65	4.6	7.95	-37.45	-13	24.45

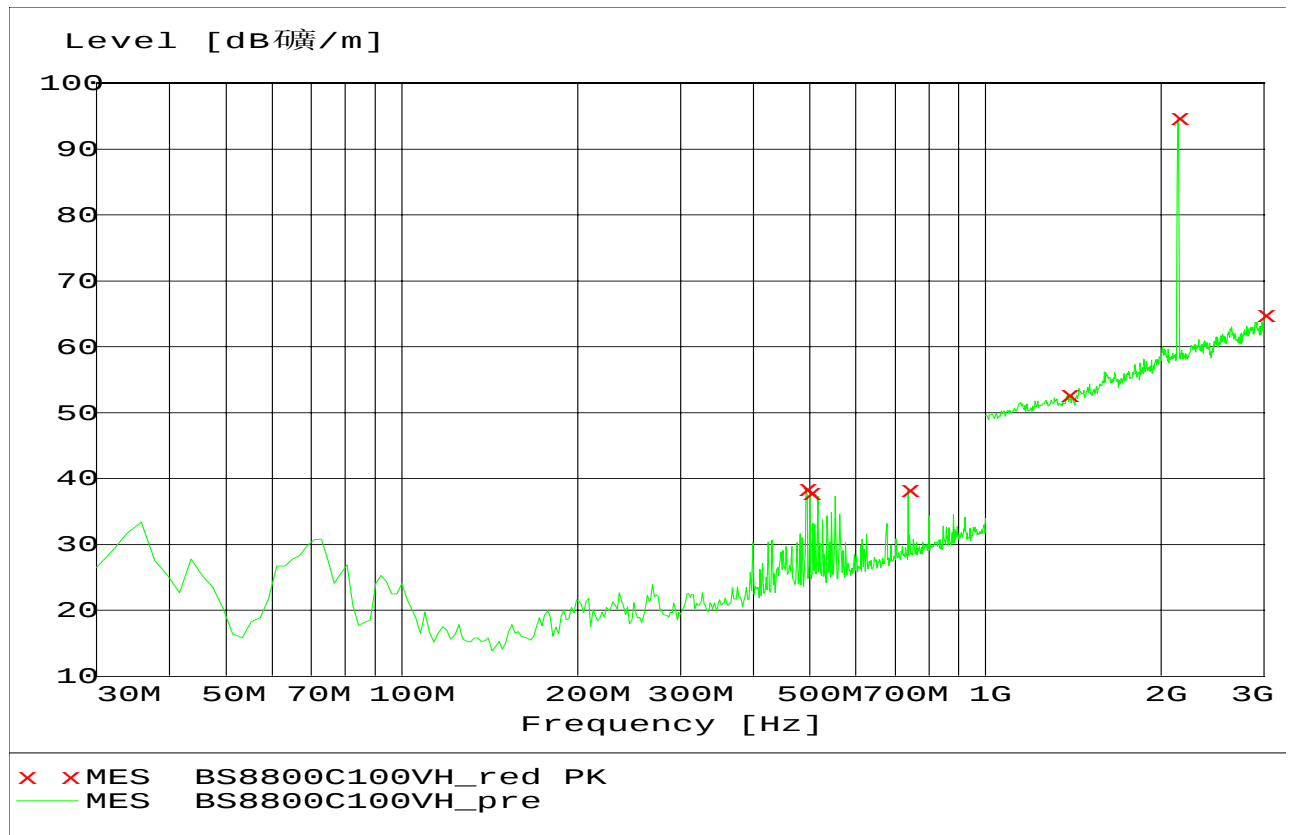
Notes: 2134.2685MHz is in the scope of working band.

Radiation emission spurious 30MHz~3GHz in top frequency (horizontal and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
3977.9559	45.5	-57.9	5.3	7.75	-57.6	-13	44.6
5589.1784	47.56	-51.05	6.4	9.05	-50.55	-13	37.55
6422.8457	55.02	-46.75	7	9.05	-46.85	-13	33.85
8537.0741	52.57	-55.4	8.2	9.65	-56.1	-13	43.1
13929.86	57.63	-53.82	10.6	10.45	-56.12	-13	43.12
18176.353	63.03	-43.41	12.2	6.45	-51.31	-13	38.31

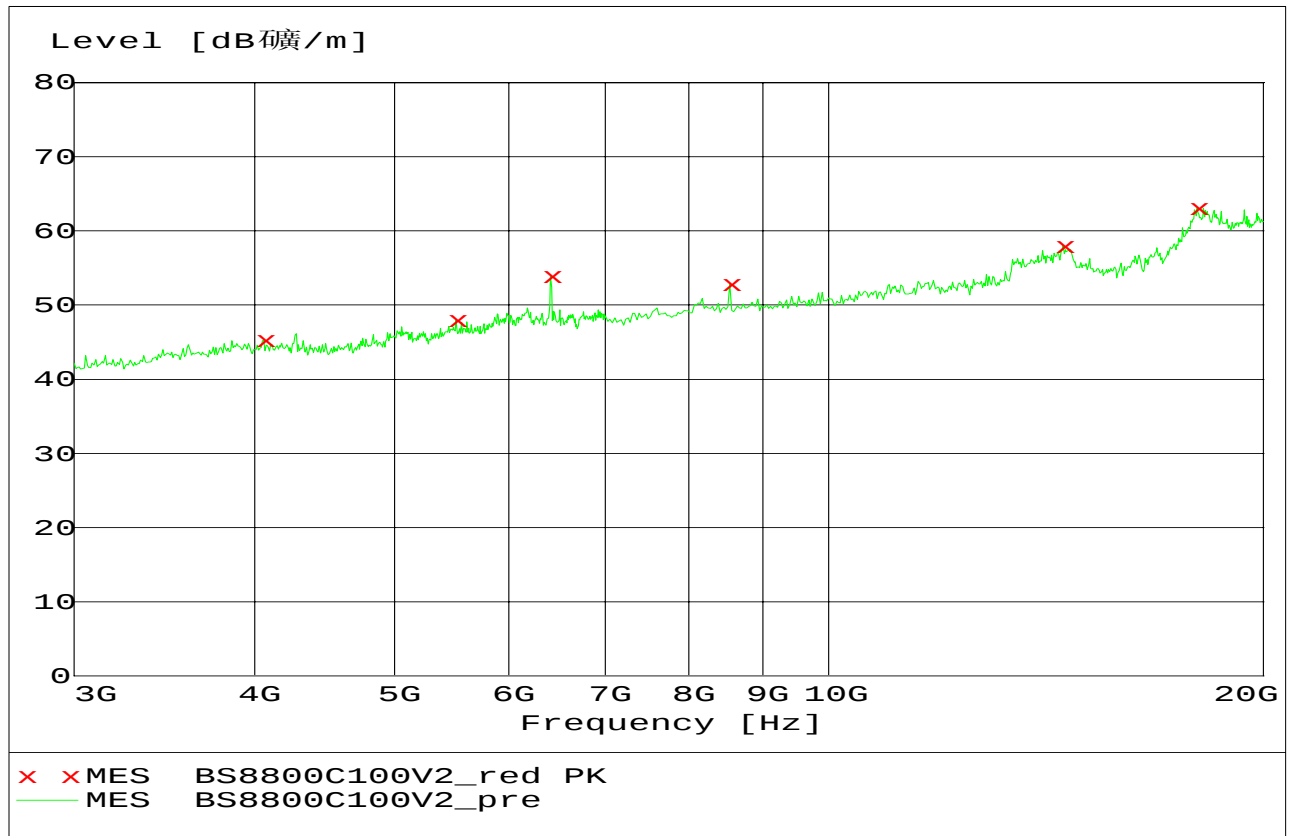
Radiation emission spurious 3GHz~20GHz in top frequency (horizontal and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
492.64529	38.47	-55.63	1.9	-1.45	-61.13	-13	48.13
500.42084	37.73	-57.22	1.9	-1.27	-62.54	-13	49.54
737.57515	38.28	-59.76	2.3	-0.95	-65.16	-13	52.16
1384.7695	52.67	-51.12	3.1	4.25	-52.12	-13	39.12
2134.2685	94.65	-6.83	3.9	7.05	-5.83	--	--
3000	64.88	-36.86	4.6	7.75	-35.86	-13	22.86

Notes: 2134.2685MHz is in the scope of working band.

Radiation emission spurious 30MHz~3GHz in top frequency (vertical and four carriers)



Frequency MHz	Field strength dBmV/m	Output power of the signal generator PS (dBm)	Cable loss C (dB)	Isotropic gain of the substitution antenna G (dBi)	Measurement result erp (dBm)	Limiterp(dBm)	Margin (dB)
4058.1162	45.29	-60.8	5.3	7.95	-60.3	-13	47.3
5517.0341	47.94	-58.69	6.4	9.05	-58.19	-13	45.19
6414.8297	53.85	-51.31	7	9.05	-51.41	-13	38.41
8537.0741	52.85	-58.17	8.2	9.65	-58.87	-13	45.87
14529.058	58	-55.25	11	9.15	-59.25	-13	46.25
17993.988	63.02	-47.91	12.2	8.95	-53.31	-13	40.31

Radiation emission spurious 3GHz~20GHz in top frequency (vertical and four carriers)

9 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard: CFR 47§2.1051, §27.53, IC RSS 139 §6.5

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in §2.1051.

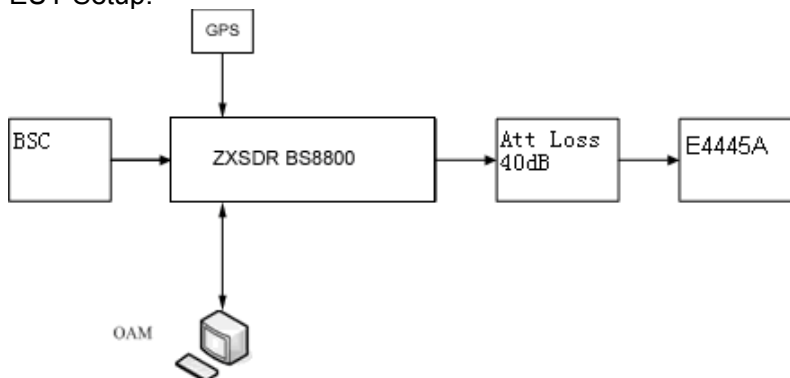
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Series Spectrum Analyzer	E4445A	MY44300451	2009-3-24	2010-3-23
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

EUT Setup:



REMARKS: Attenuator loss (dB)=40dB, Cable Loss (dB)=3dB.

The RF output of the transceiver was connected to a spectrum analyzer through appropriate

attenuation. The resolution bandwidth of the spectrum analyzer was set at 1 kHz for 9KHz to 150KHz scanning, set at 10KHz for 150KHz to 30MHz scanning, set at 100KHz for 30MHz to 1GHz scanning, set at 1MHz or 3MHz for 1GHz to 22GHz scanning. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

Test Data Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

The testing was performed by Wei bin on May 10-13,2009

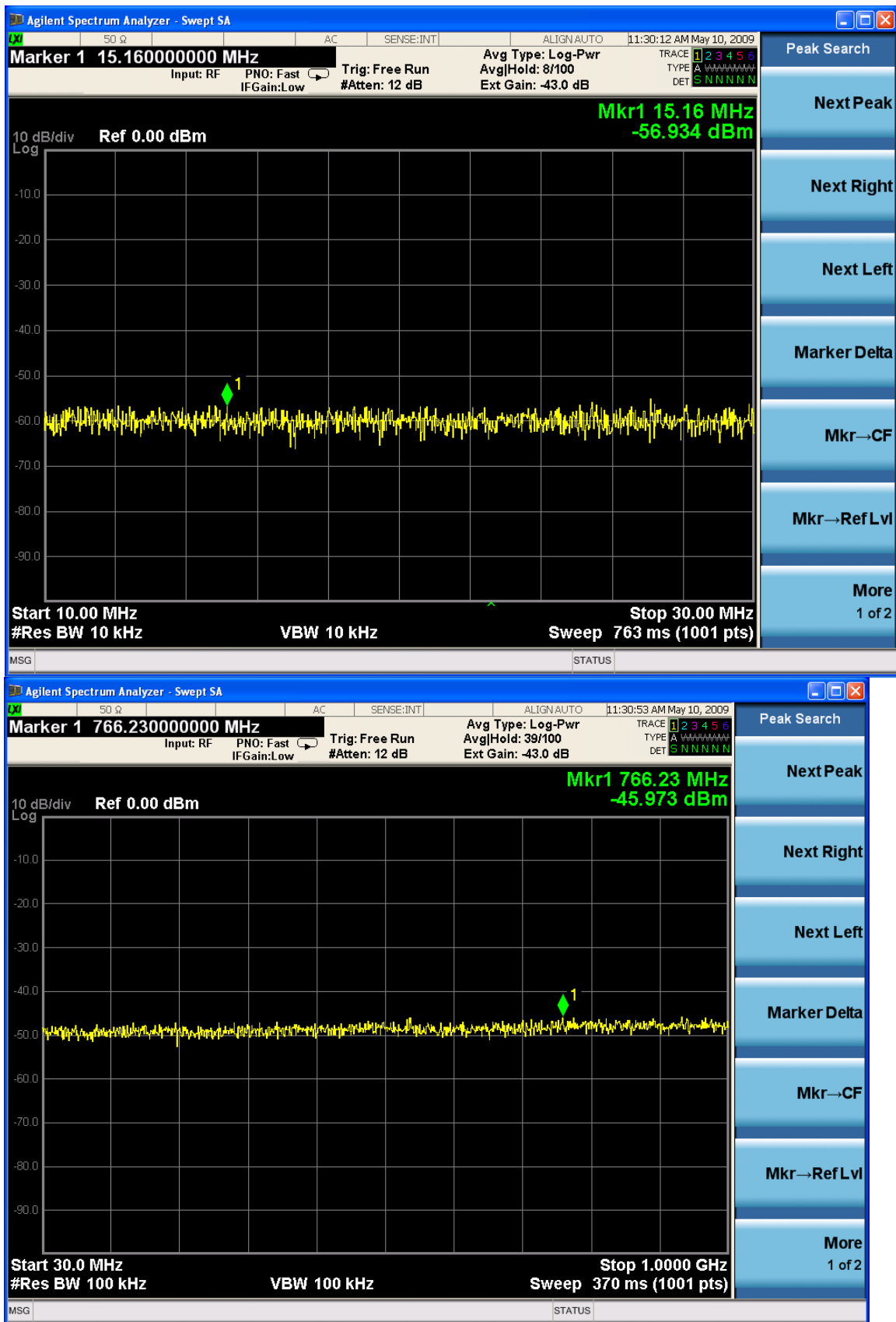
Test Result: Pass

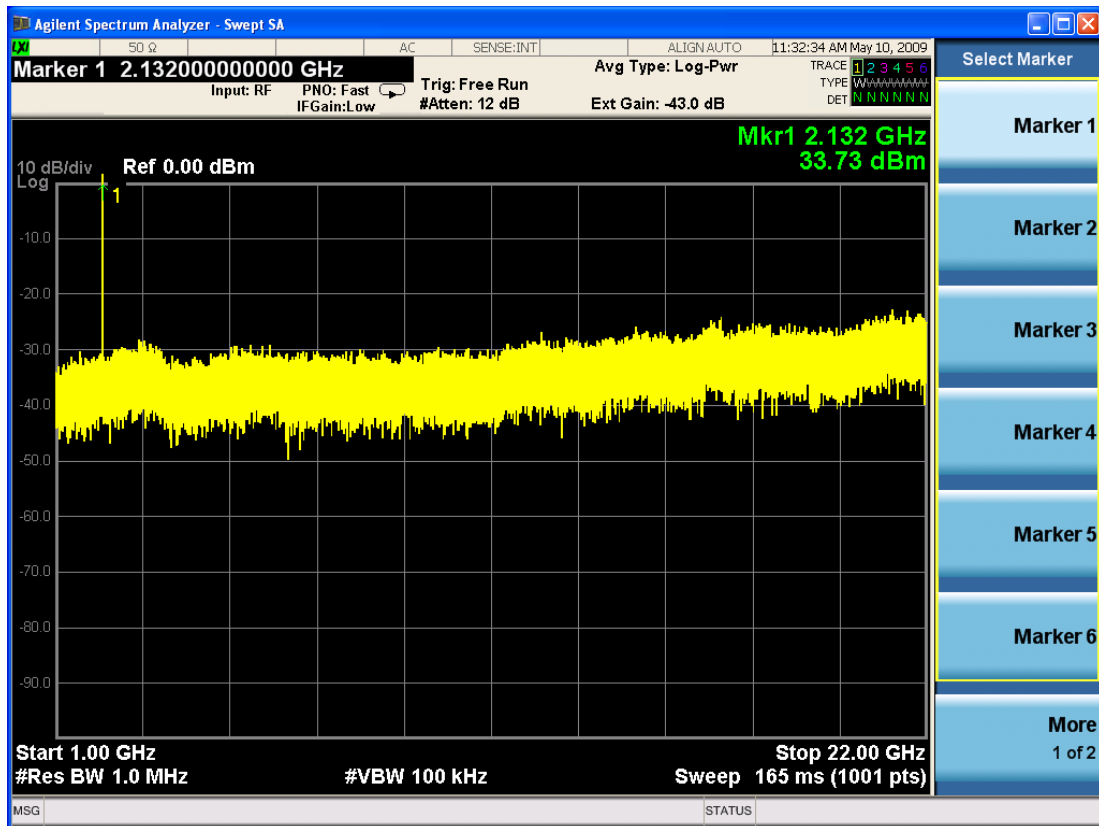
Test Mode: Transmitting CDMA

Test Data:

Four Carriers (working in bottom frequency)

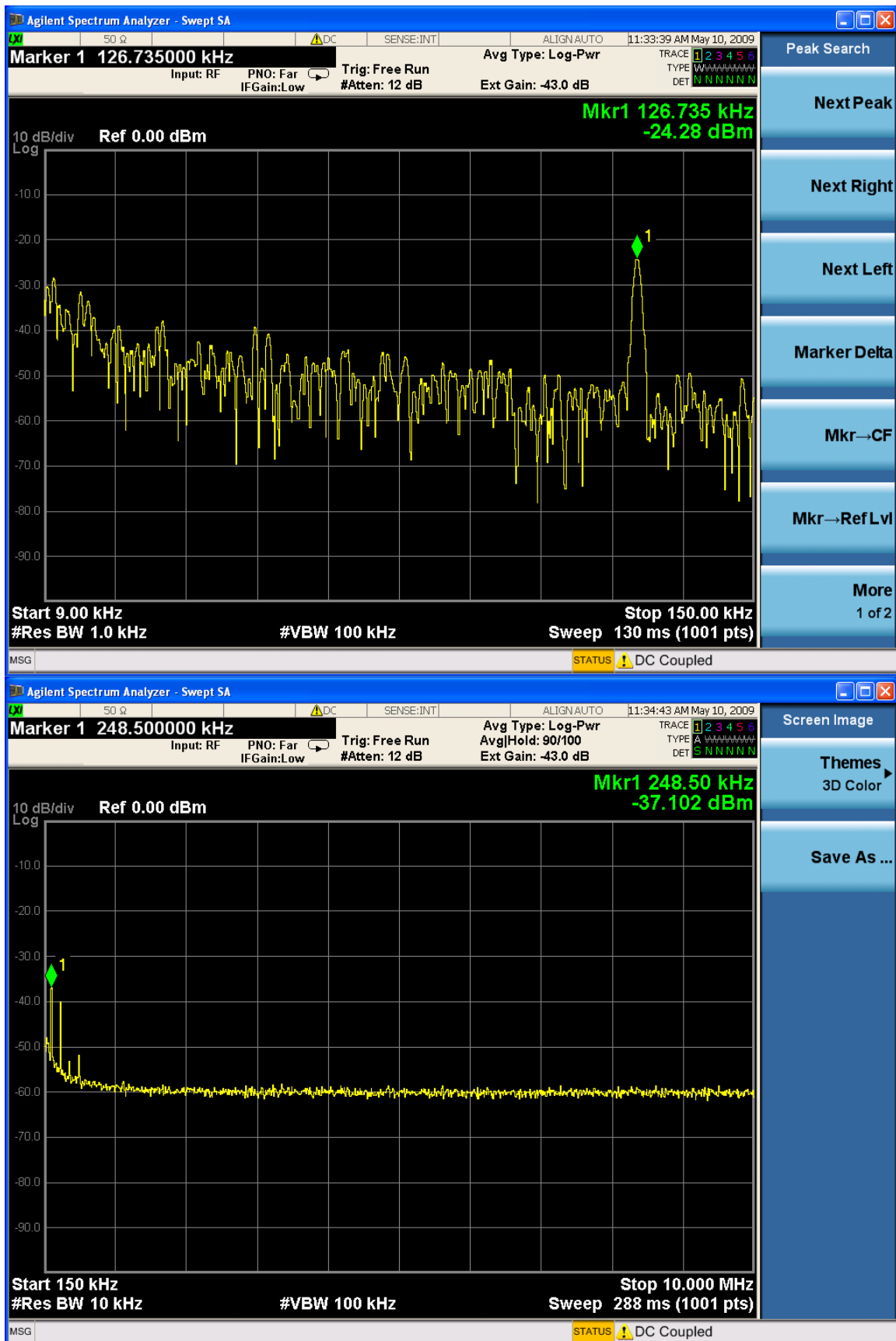


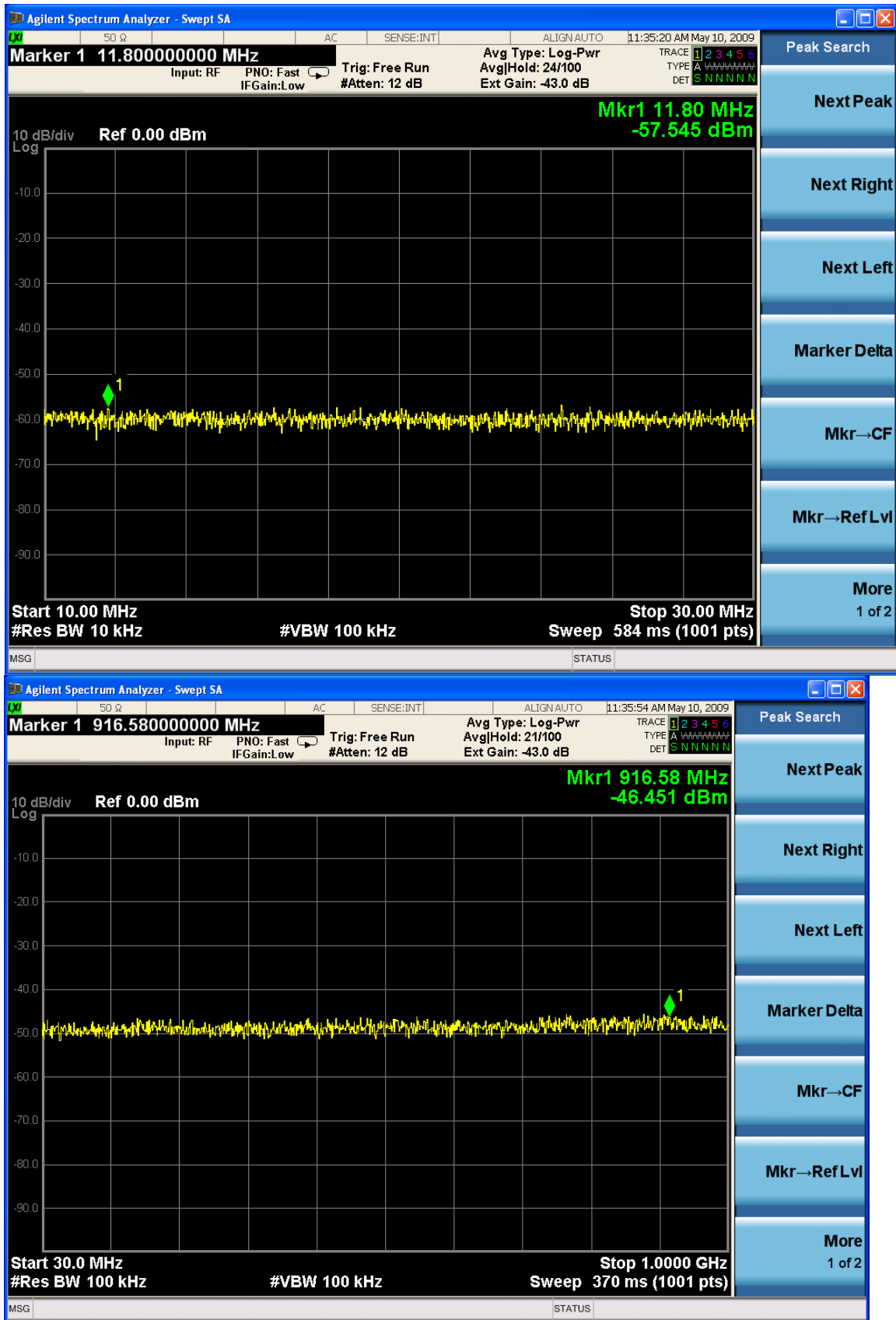


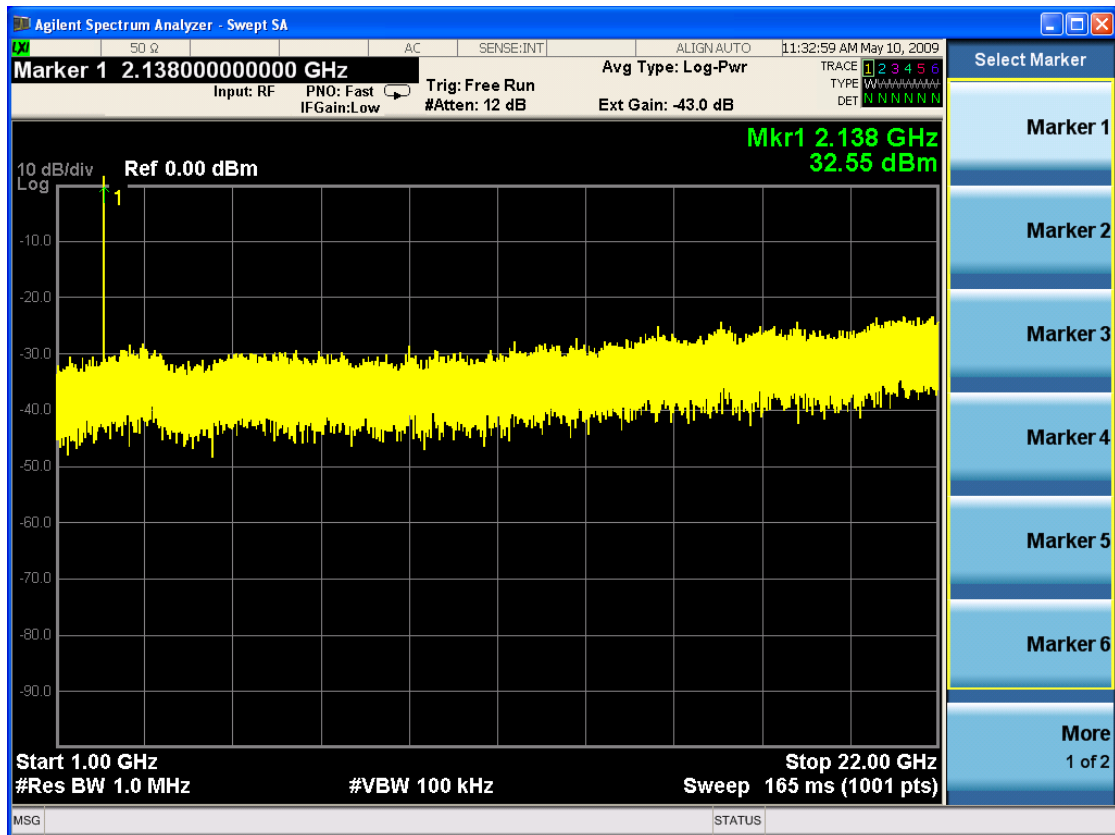


* 2.132GHz is in working frequency block

Four carriers (working in top frequency)

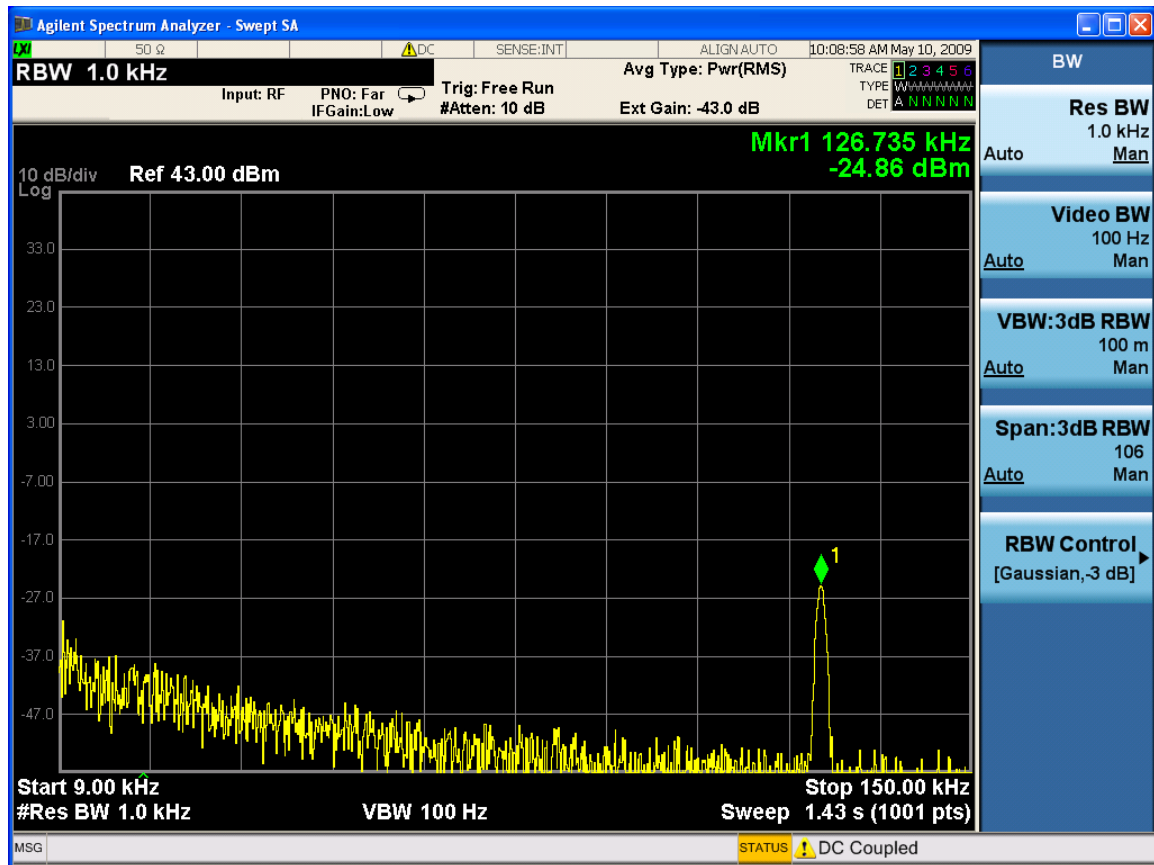


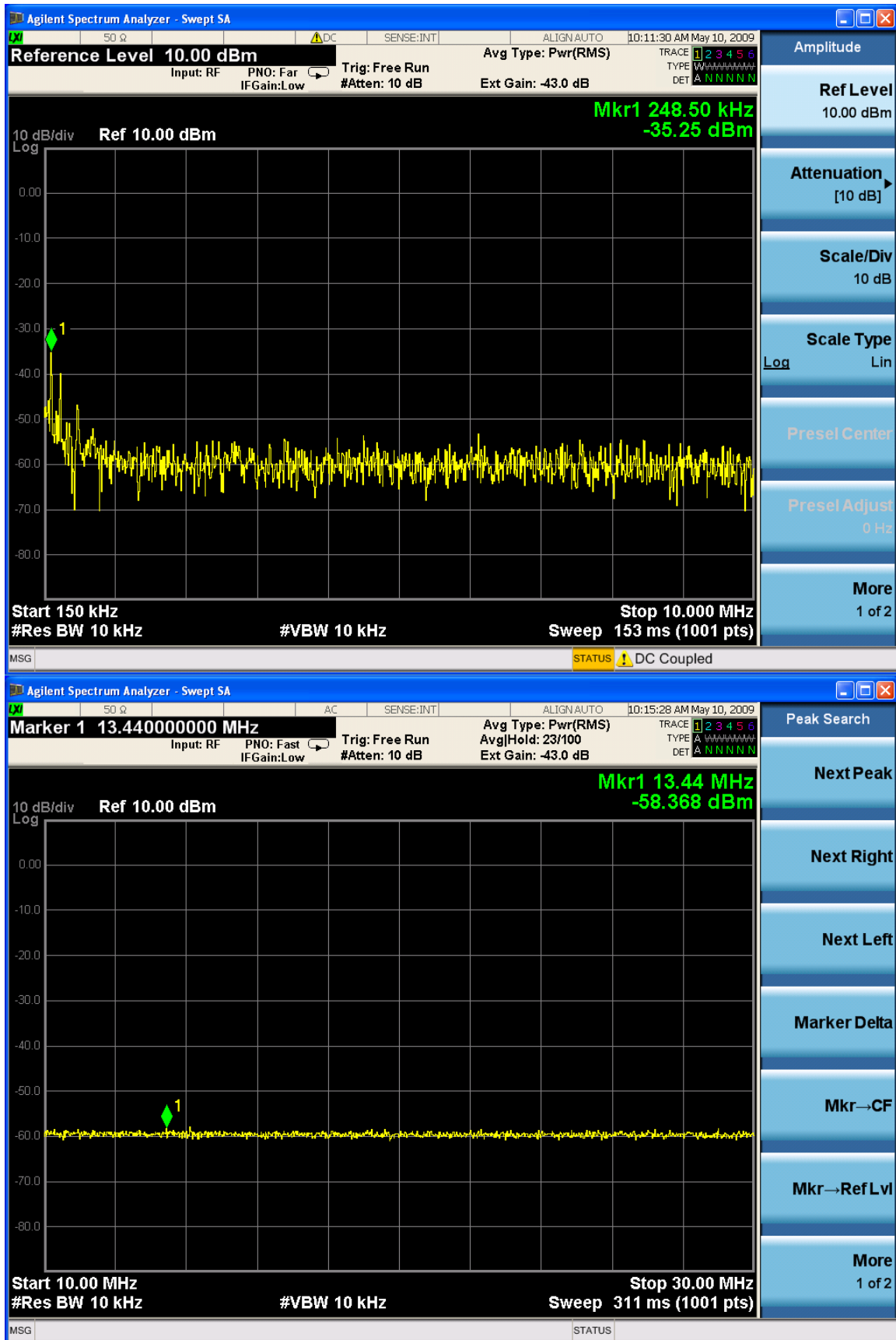


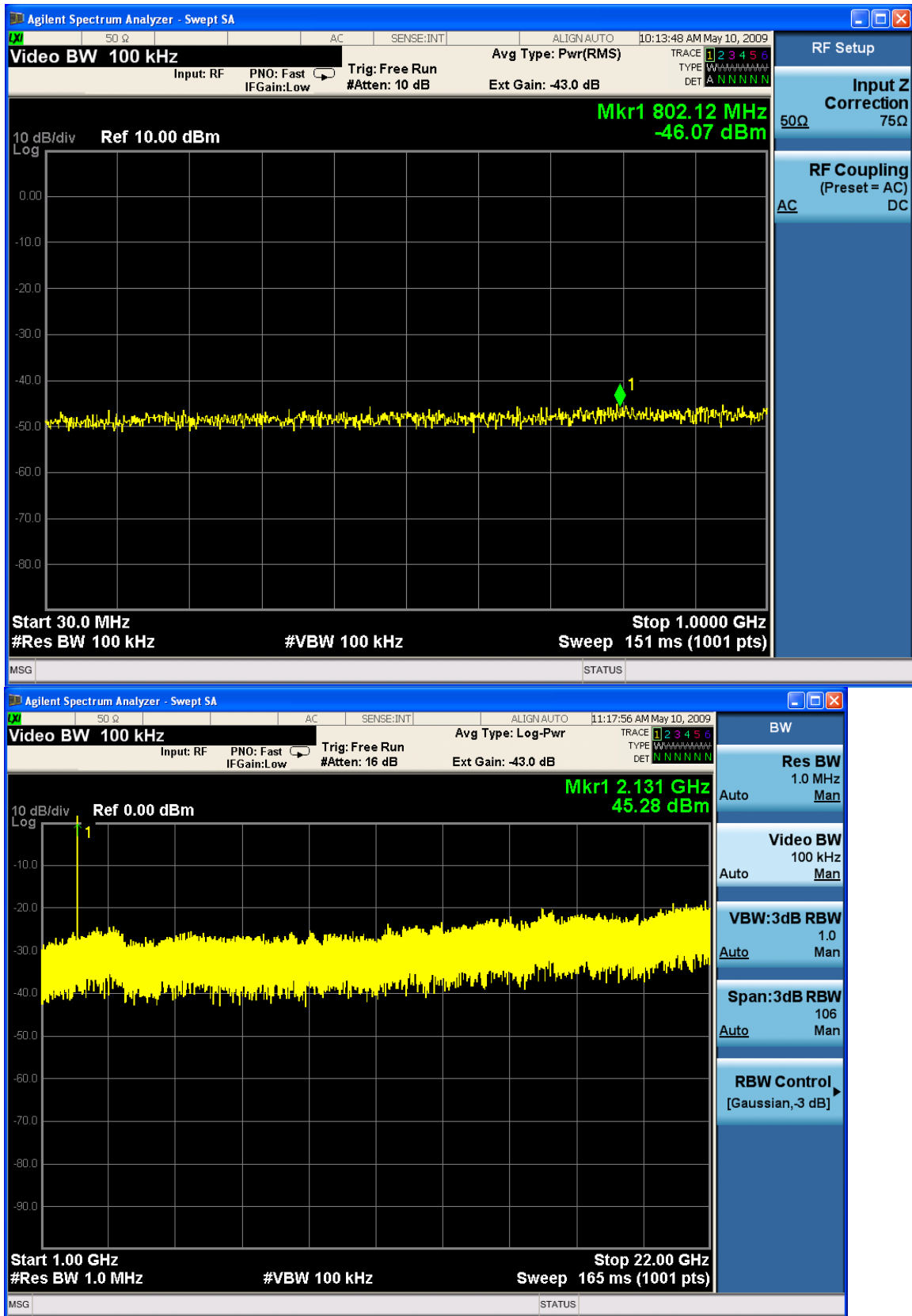


* 2.138GHz is in working frequency block

One carrier (working in bottom frequency)

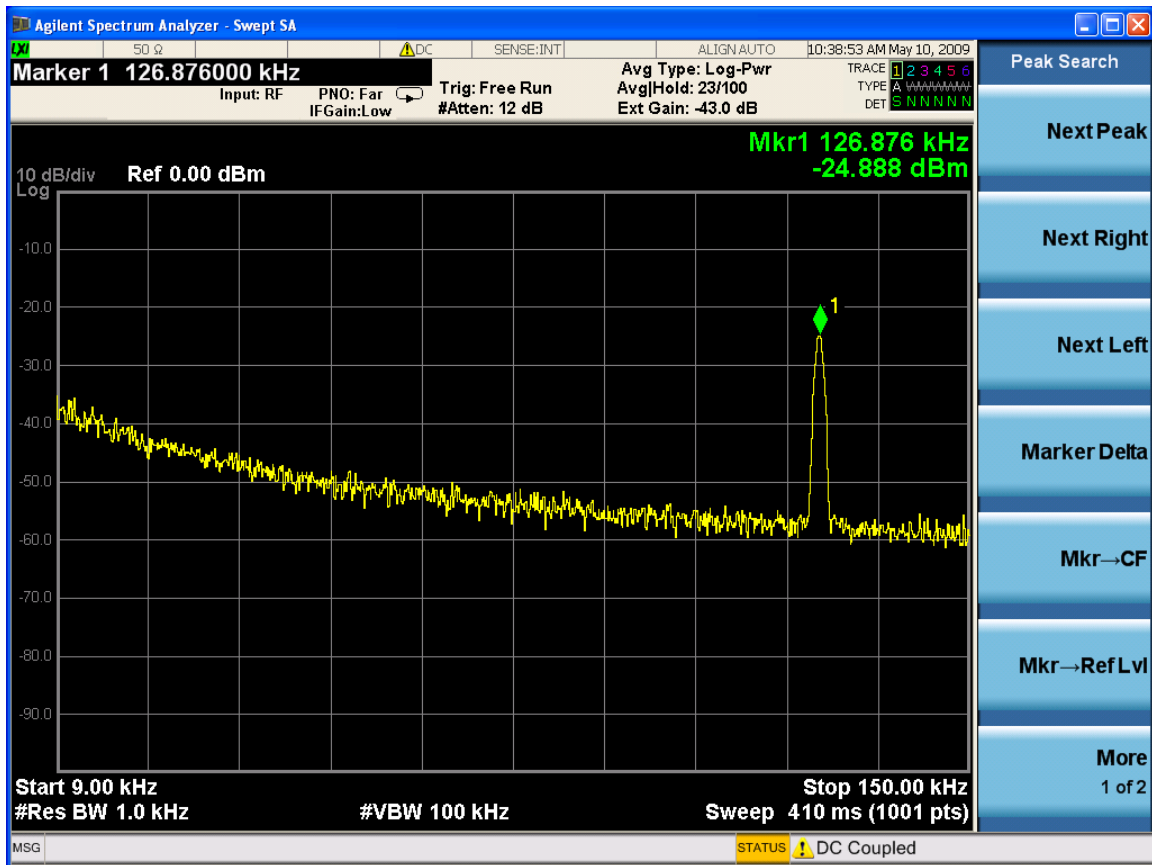


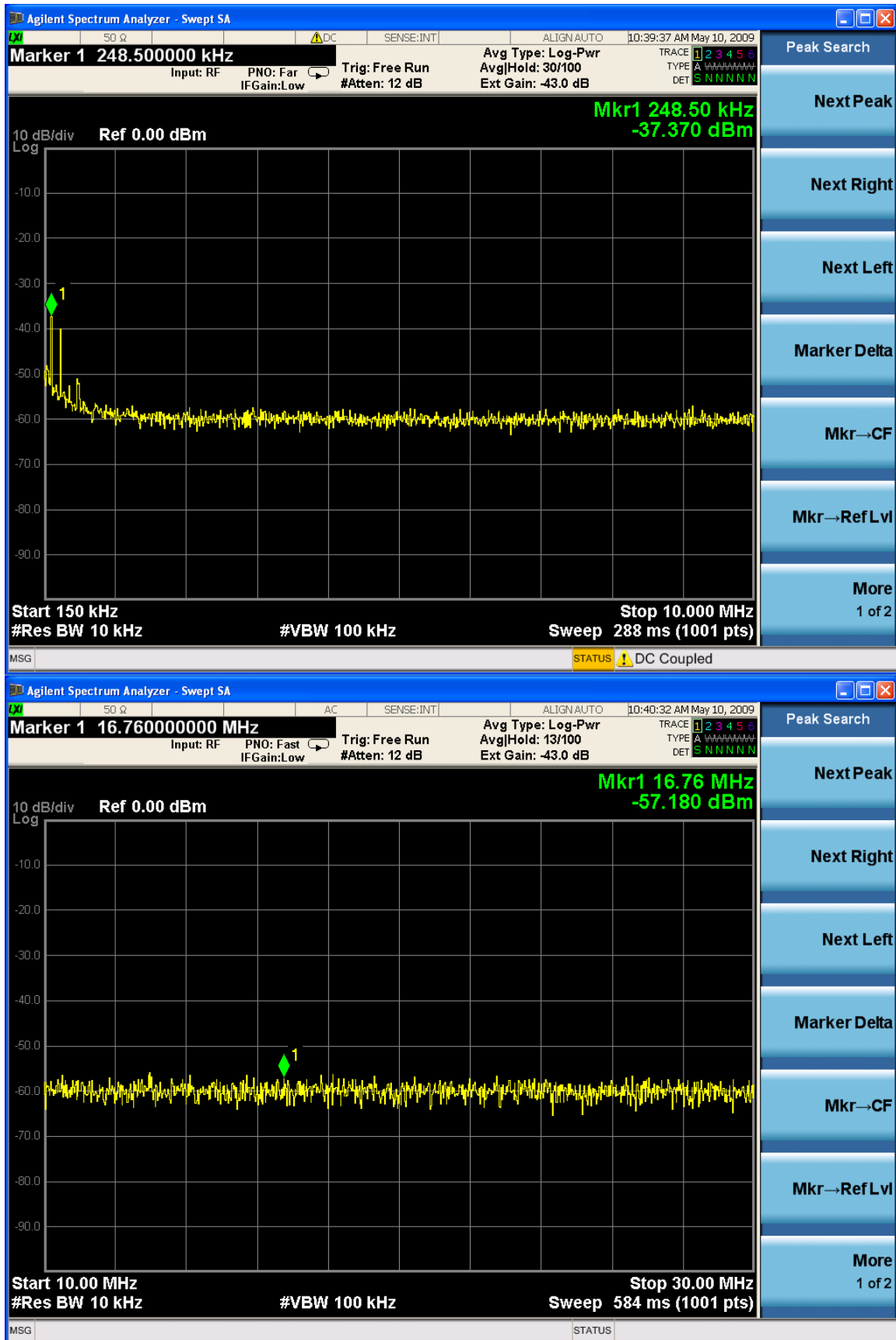


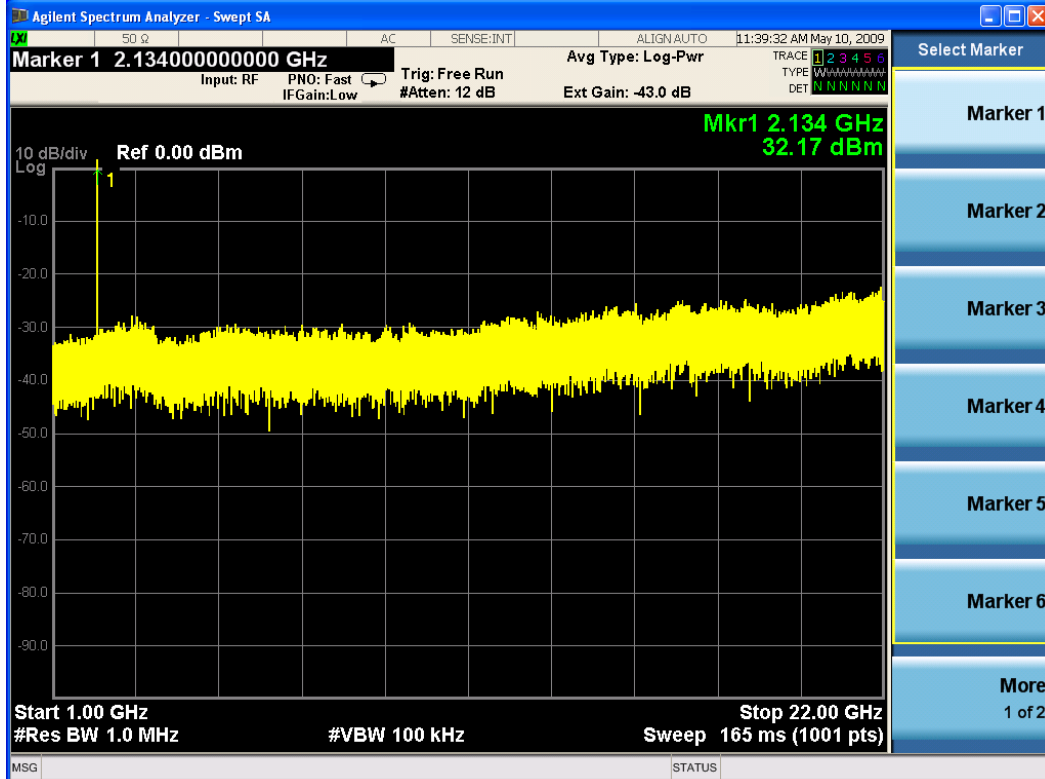
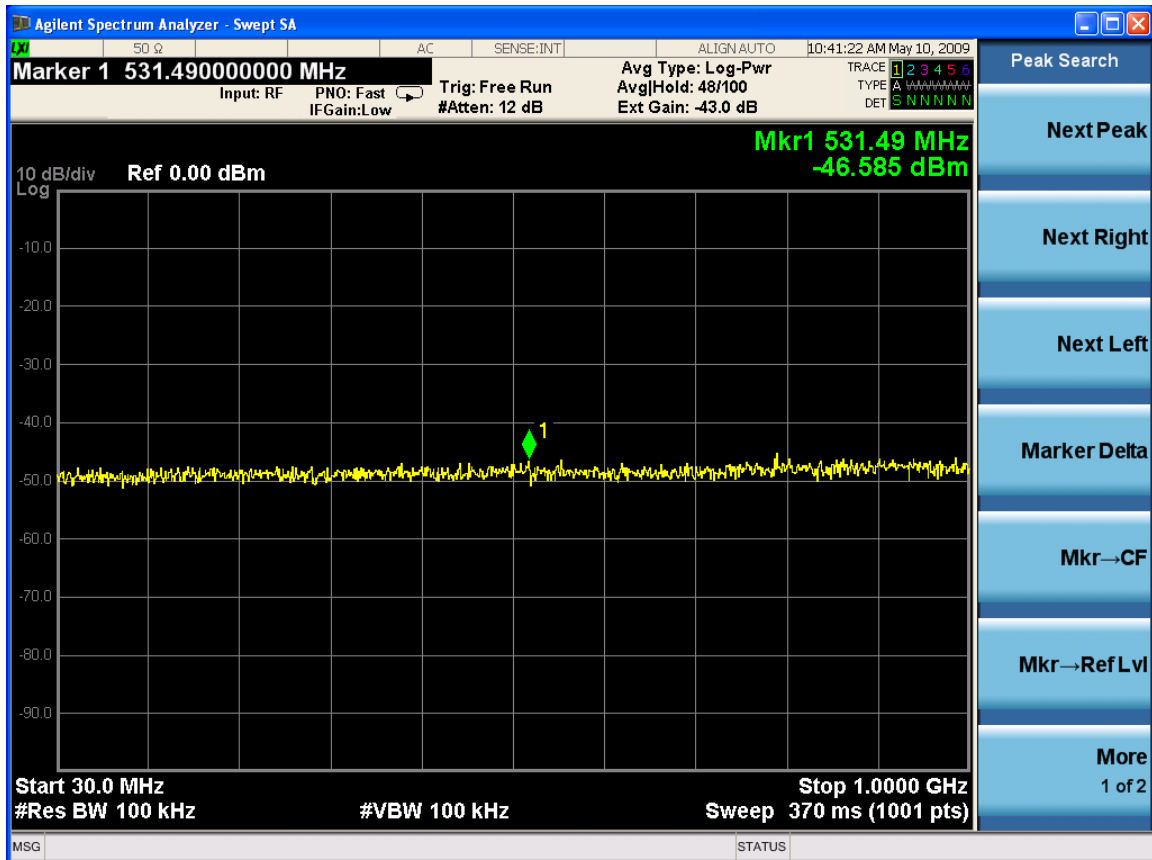


* 2.131GHz is in working frequency block

One carrier (working in middle frequency)

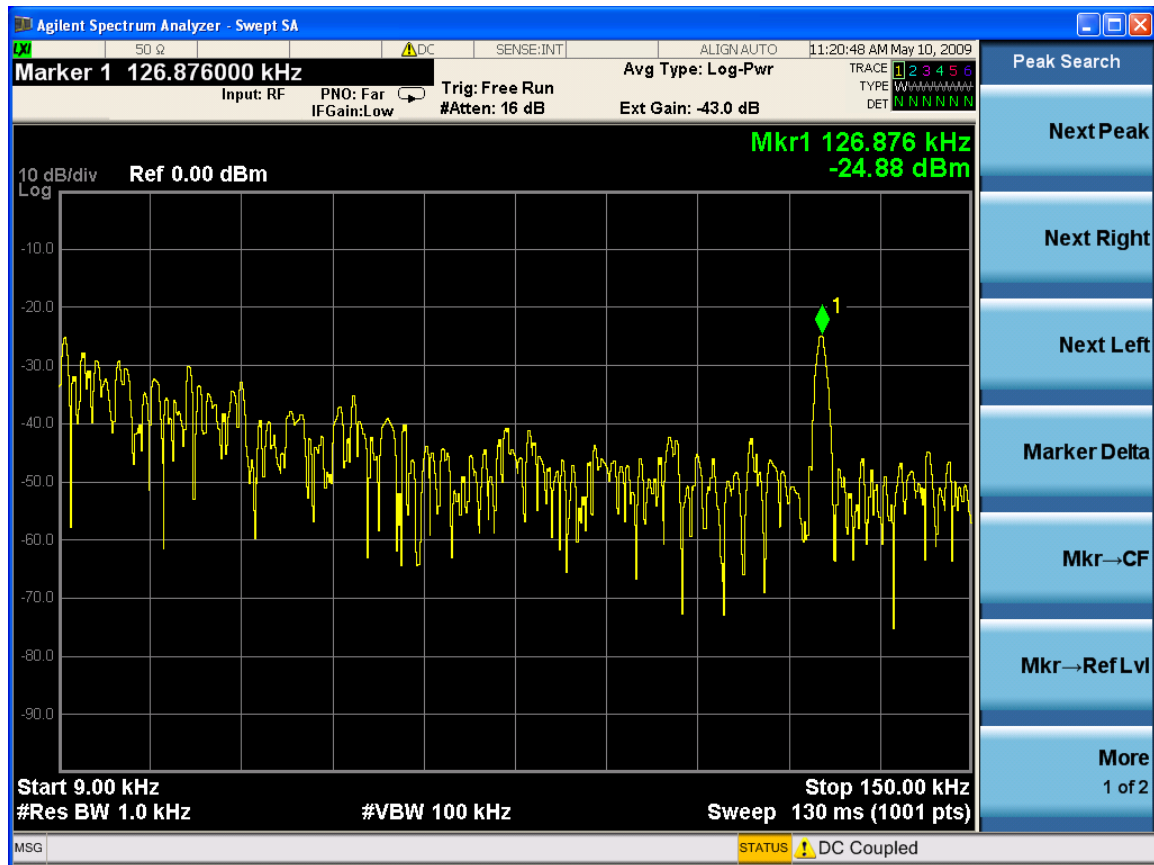


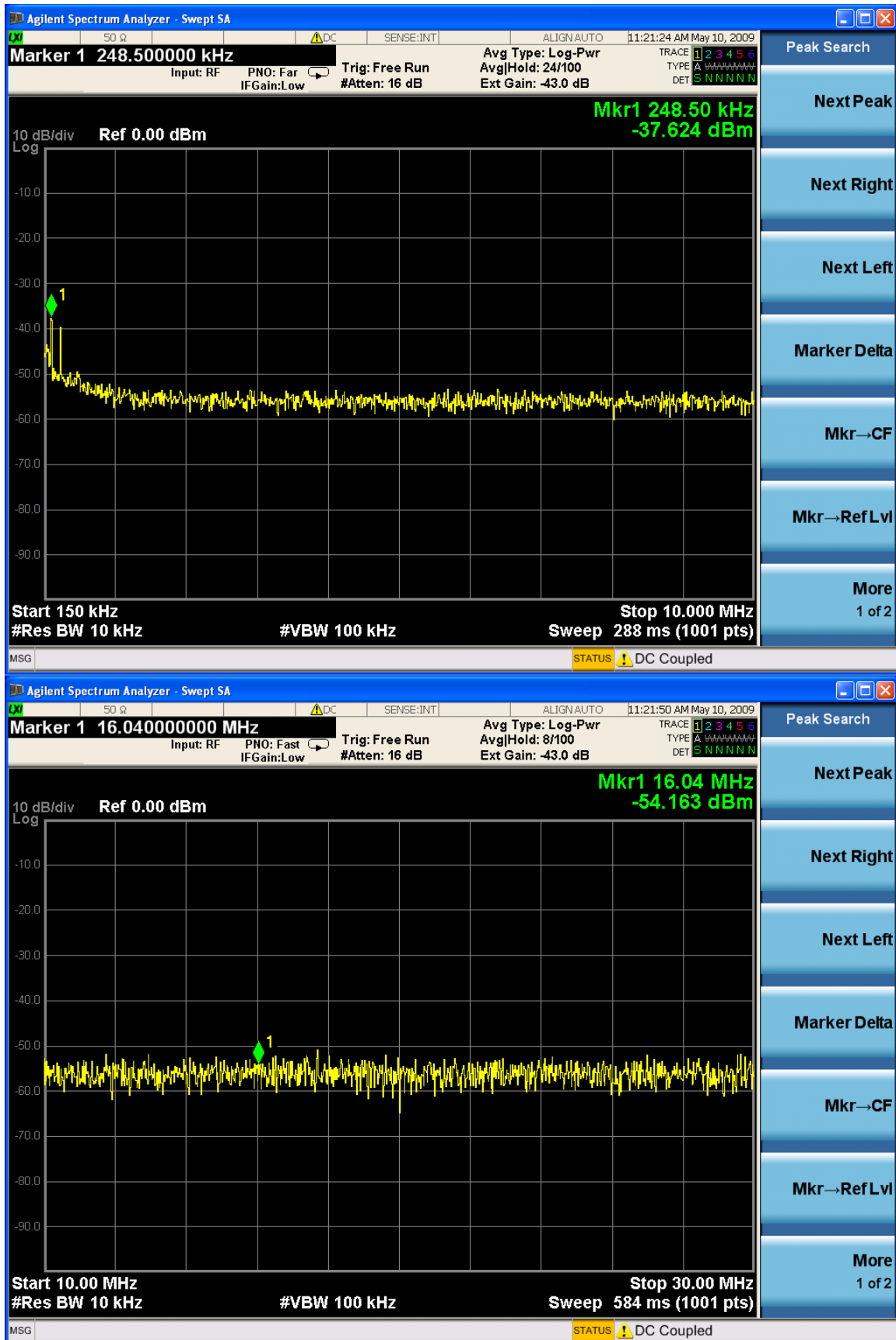


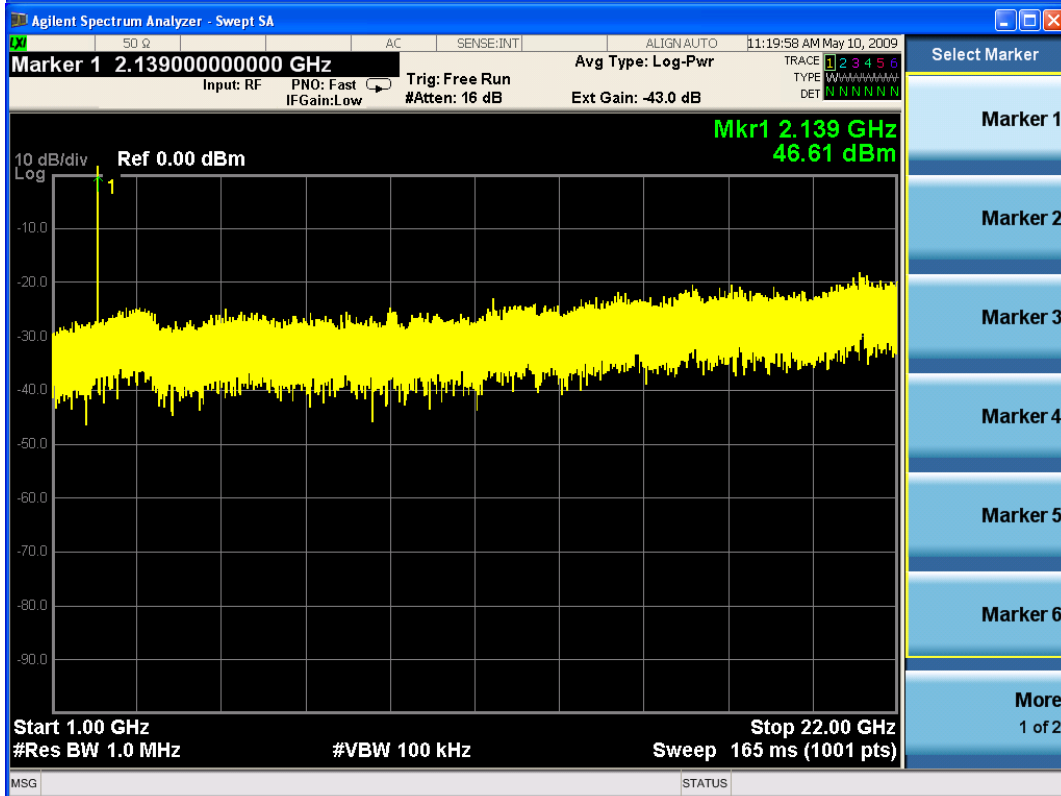
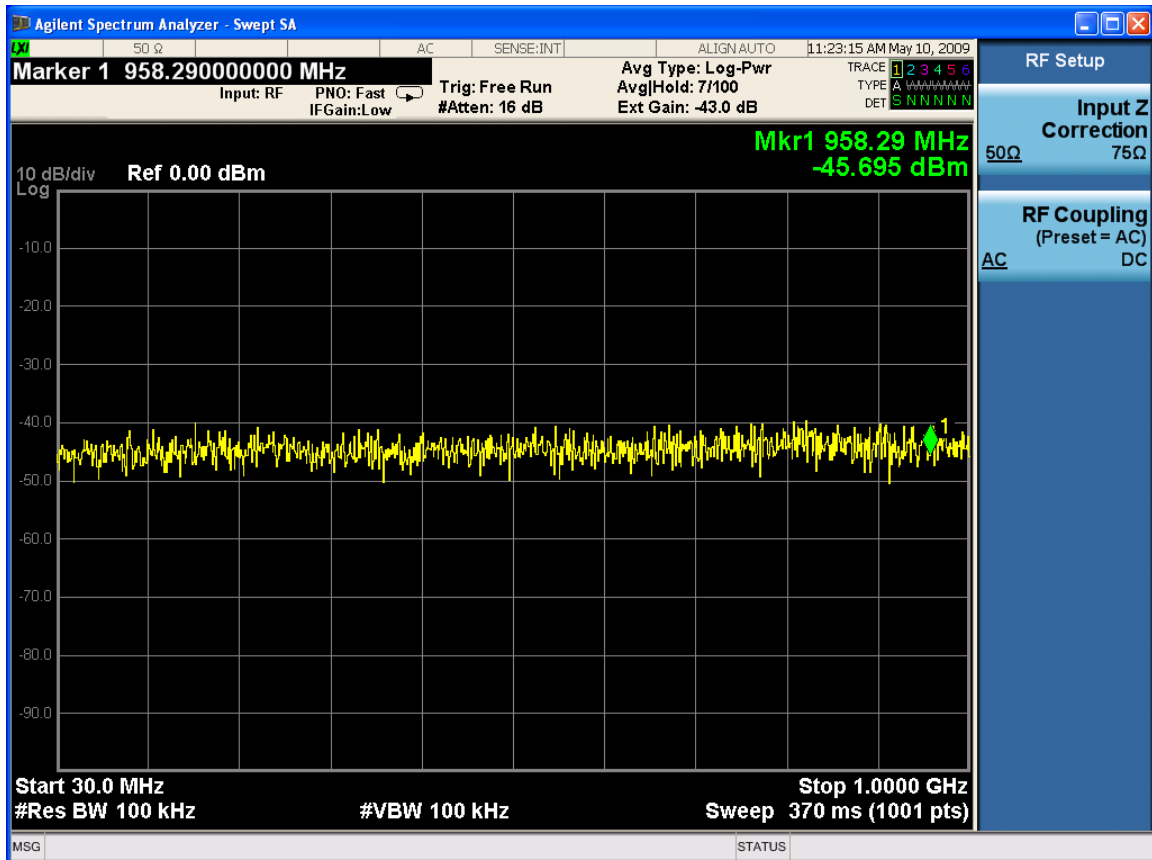


* 2.134GHz is in working frequency block

One carrier (working in top frequency)







* 2.139GHz is in working frequency block

10 OCCUPIED BANDWIDTH

Applicable Standard: CFR 47, Section 2.1049 and IC RSS Gen § 4.6.1

Test Equipment List and Details :

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Series Spectrum Analyzer	E4445A	MY44300451	2008-3-24	2009-3-23
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

The RF out of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth of the spectrum analyzer was set at 1% of the span or higher and 99%Power bandwidth was recorded.

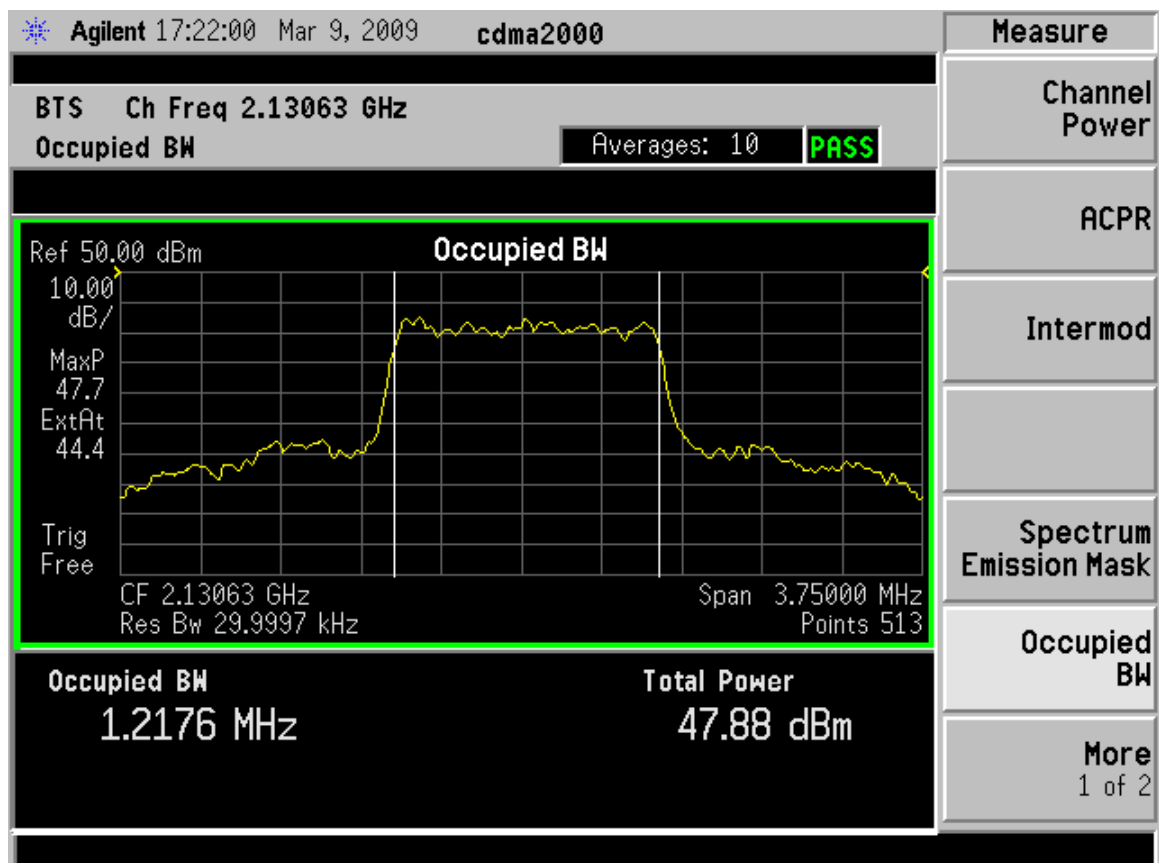
Environmental Conditions

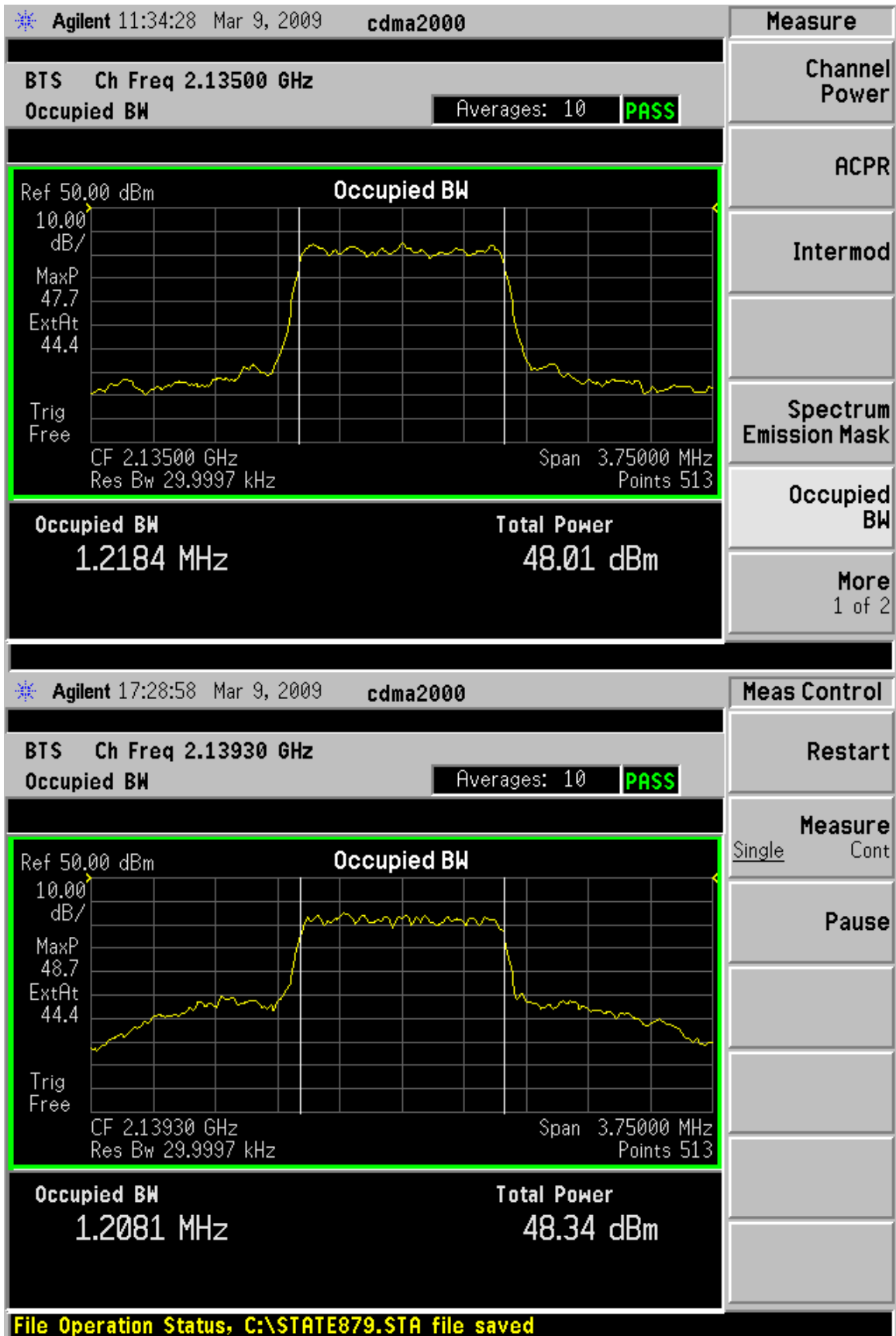
Temperature:	20 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

The testing was performed by Wei bin on Mar 10-13, 2009.

Test Result: Pass**Test Mode:** Transmitting CDMA**Test Data**

Frequency (MHz)	Channel	99% Power Bandwidth (MHz)	Limit (MHz)
2130/2135/2139	413/500/586	1.2176/1.2184/1.2081	<1.23





11 BAND EDGES

Applicable Standard: FCC §2.1051, §27.53 and IC RSS 139 §6.5

According to §2.1051 and §27.53, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (p) by a factor of at least $43 + 10 \log(p)$ dB. The limit (dBm) should $< P - (43 + 10 \log(P)) = -13 \text{ dBm}$.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Series Spectrum Analyzer	E4445A	MY44300451	2008-3-24	2009-3-23
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.

Test Data Environmental Conditions

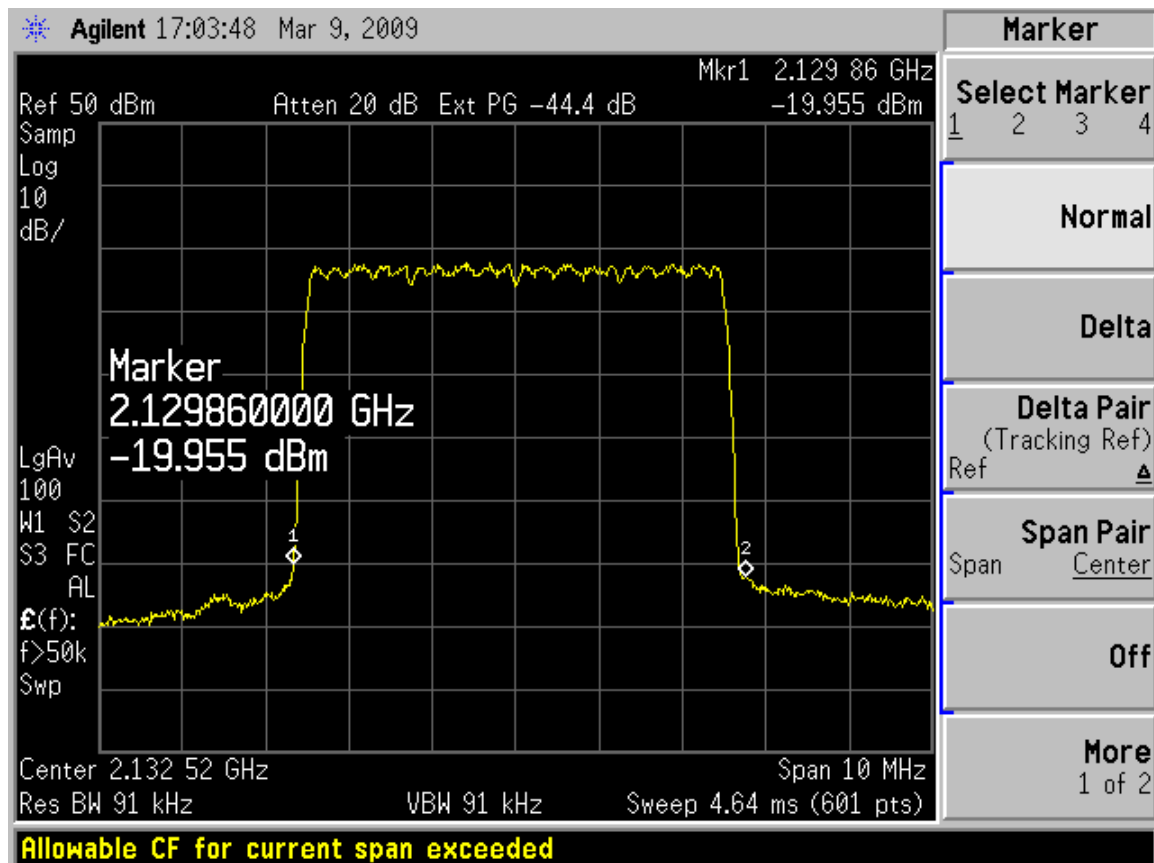
Temperature:	20 °C
Relative Humidity:	53%
ATM Pressure:	1009mbar

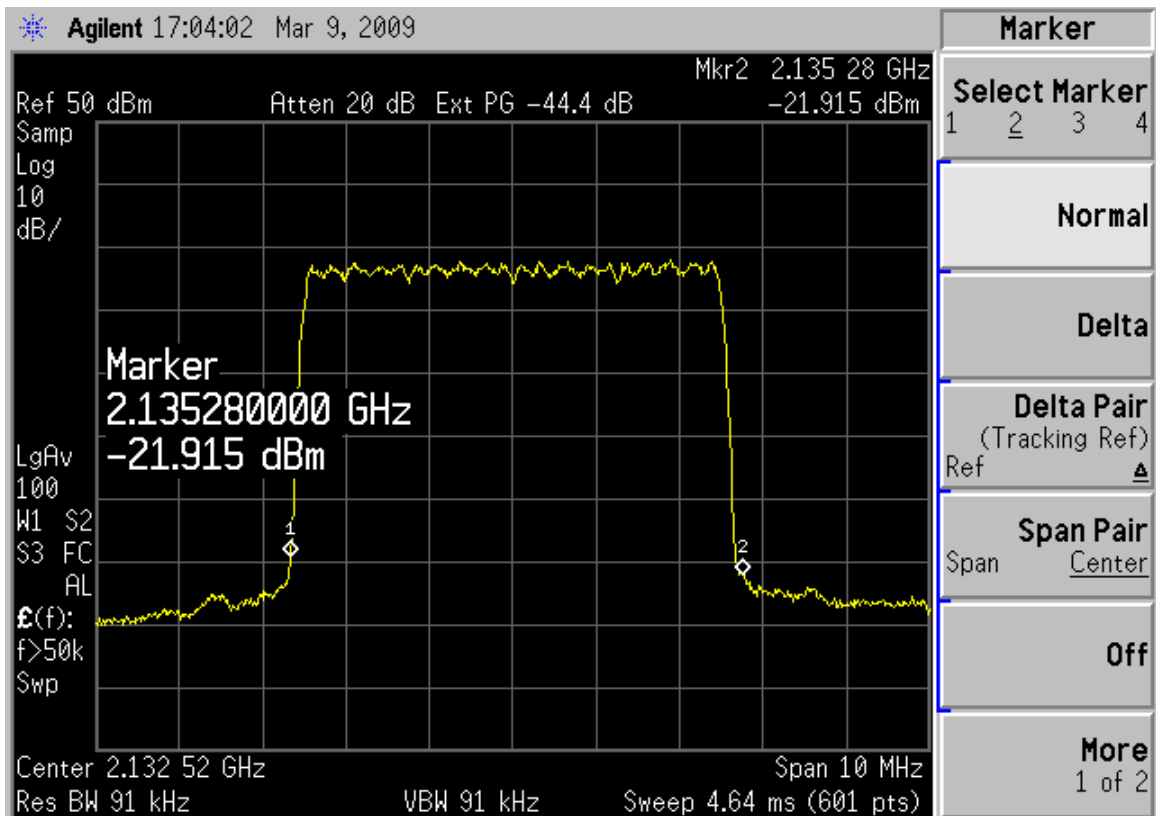
The testing was performed by Wei bin on Mar 10-13, 2009

Test Result: Pass**Test Mode:** Transmitting CDMA**Test Data**

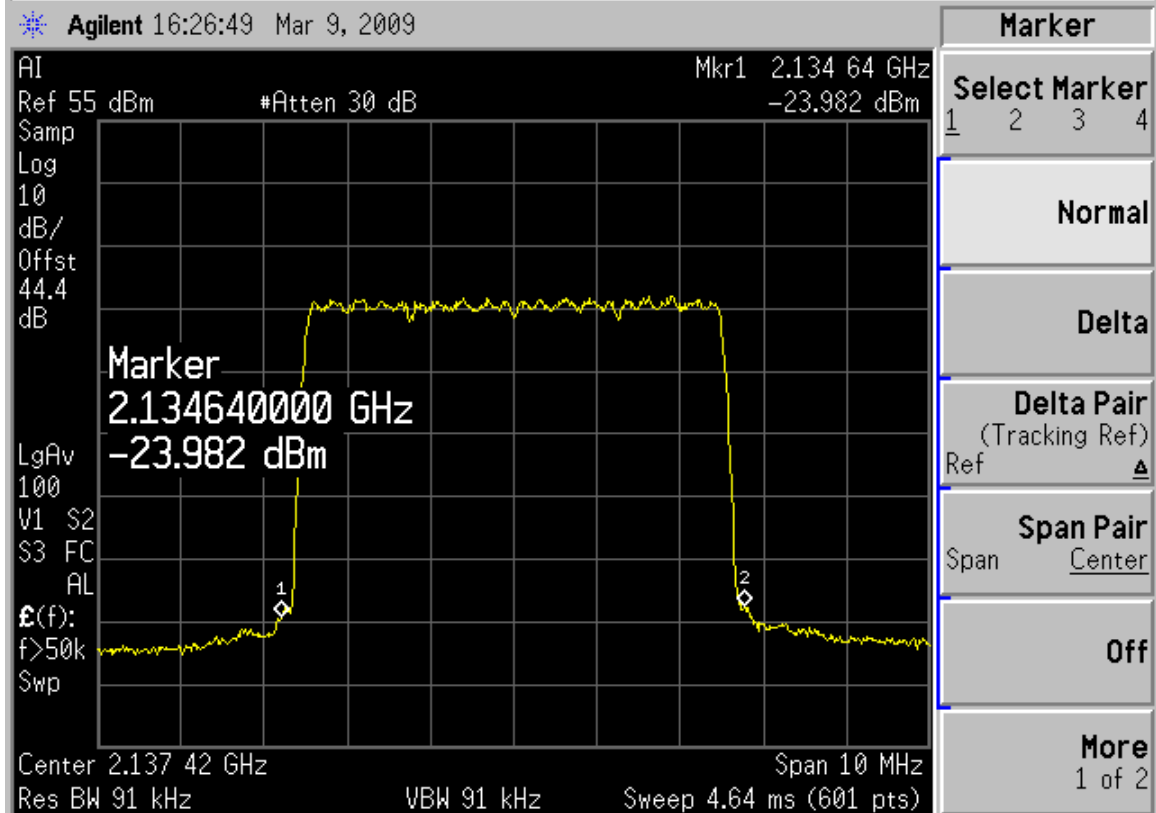
four carriers

Frequency (MHz)	Channel	Emission (dBm)	Limit (dBm)
2130.65/2131.9/2133.15/2134.4	413/438/463/488	-19.955/-21.915	-13.00
2135.55/2136.8/2138.05/2139.3	511/536/561/586	-23.982/-22.280	-13.00

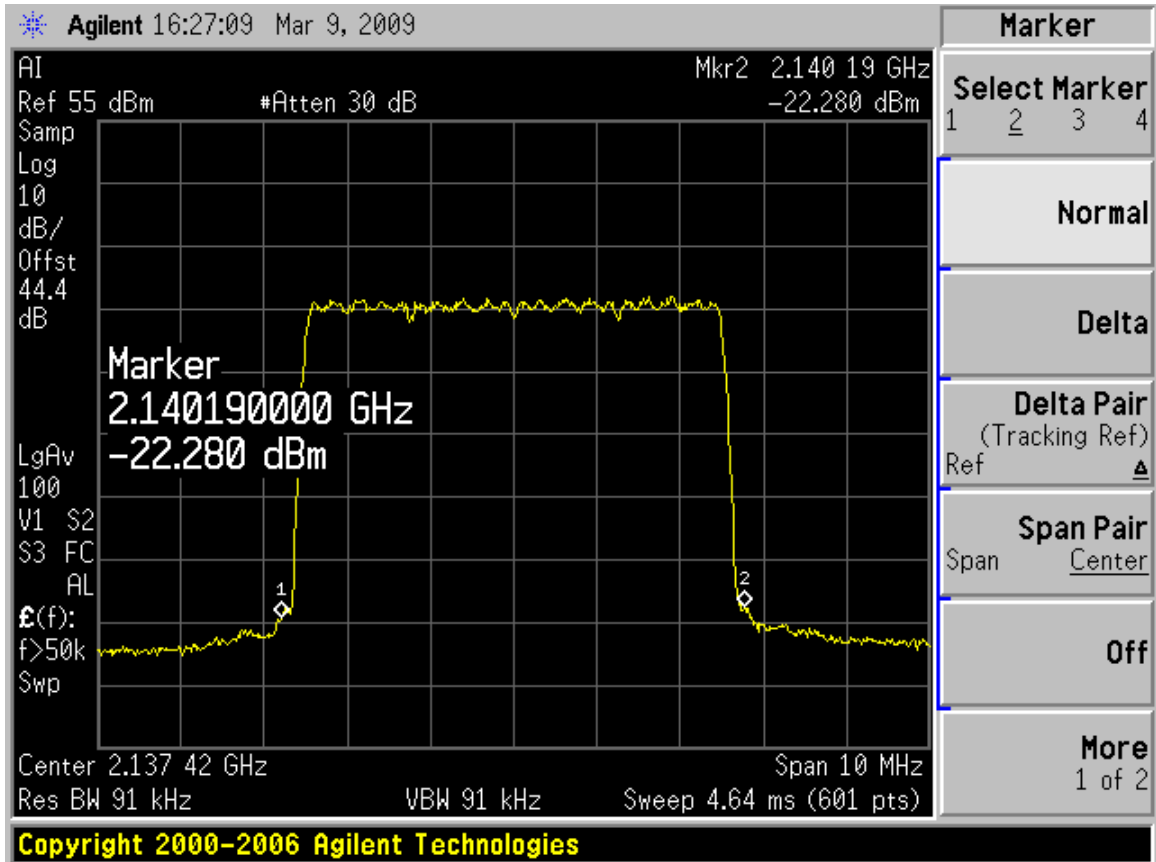




Allowable CF for current span exceeded



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12 FREQUENCY STABILITY

Applicable Standard: FCC § 2.1055 (a), Part 27.54 and IC RSS 139 §6.3, RSS

Gen §4.7

Requirements: FCC § 2.1055 (a)(d), Part 27.54 and IC RSS 139 §6.3, RSS Gen §4.7
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	PSA Spectrum Analyzer	E4445A	MY44300451	2009-3-24	2010-3-23
GZ-ESPEC	Temperature Chamber	GRW-120	00020268	2009-3-8	2009-3-8

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a Spectrum Analyzer via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 150 minutes, the frequency output was recorded from the counter.

Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

Environmental Conditions

Temperature:	20° C
Relative Humidity:	54%

ATM Pressure:	1011 mbar
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The testing was performed by Wei bin on April14-15, 2009.

Test Result: Pass

Test Mode: Transmitting CDMA

Test Data

Frequency Stability Versus Temperature

Frequency Stability vs. Temperature				
Temperature ℃	Power Supplied Vac	Frequency Measure Error Hz	Error ppm	Limit 0.02ppm
f=2130.65MHz Channel 413				
-40	-48	-15.6	-0.00732	PASS
-30	-48	12.4	0.00582	PASS
-20	-48	10.1	0.00474	PASS
-10	-48	-8.6	-0.00404	PASS
0	-48	13.1	0.006148	PASS
10	-48	14.3	0.006712	PASS
20	-48	-11.5	-0.0054	PASS
30	-48	9.8	0.0046	PASS
40	-48	11.7	0.005491	PASS
50	-48	7.2	0.003379	PASS
55	-48	9.9	0.004646	PASS
f=2135MHz Channel 500				
-40	-48	11.2	0.005246	PASS
-30	-48	10.6	0.004965	PASS
-20	-48	14.3	0.006698	PASS
-10	-48	-9.8	-0.00459	PASS
0	-48	7.6	0.00356	PASS

10	-48	13.4	0.006276	PASS
20	-48	15.8	0.0074	PASS
30	-48	-8.9	-0.00417	PASS
40	-48	-14.7	-0.00689	PASS
50	-48	9.5	0.00445	PASS
55	-48	15.4	0.007213	PASS
f=2139.3MHz Channel 586				
-40	-48	14.5	0.006778	PASS
-30	-48	17.6	0.008227	PASS
-20	-48	9.8	0.004581	PASS
-10	-48	-14.2	-0.00664	PASS
0	-48	-13.3	-0.00622	PASS
10	-48	16.2	0.007573	PASS
20	-48	18.5	0.008648	PASS
30	-48	-11.1	-0.00519	PASS
40	-48	-12.7	-0.00594	PASS
50	-48	11.7	0.005469	PASS
55	-48	15.3	0.007152	PASS

Frequency Stability Versus Voltage

Frequency Stability vs. Voltage				
VoltageVac	Temperature °C	Frequency Measure Error Hz	Error ppm	Limit 0.02ppm
f=2130.65MHz Channel 413				
-40	20	18.2	0.008542	PASS
-44	20	15.3	0.007181	PASS
-47	20	10.2	0.004787	PASS
-50	20	-8.7	-0.00408	PASS
-53	20	11.3	0.005304	PASS
-57	20	-15.6	-0.00732	PASS
f=2135MHz Channel 500				
-40	20	10.5	0.004918	PASS
-44	20	-17.7	-0.00829	PASS
-47	20	8.6	0.004028	PASS
-50	20	-18.4	-0.00862	PASS
-53	20	12.1	0.005667	PASS
-57	20	-10.8	-0.00506	PASS
f=2139.3MHz Channel 586				
-40	20	13.4	0.006264	PASS
-44	20	-15.7	-0.00734	PASS
-47	20	11.4	0.005329	PASS
-50	20	9.5	0.004441	PASS
-53	20	-15.5	-0.00725	PASS
-57	20	13.6	0.006357	PASS

13 RECEIVER SPURIOUS EMISSION

Applicable Standard: IC RSS 139 §6.6, RSS Gen §6.

Test Equipment List and Details

Item	Equipment	Manufacturer	Mode	Serial	Last Cal.	Cal. Interval
1	EMI Test Receiver	R&S	ESI26	100058	2008-10-29	1 Year
2	Ultra Broadband Antenna	R&S	HL562	100022	2008-8-11	3 Years
3	Double-Ridged Waveguide Horn Antenna	R&S	HF906	100032	2008-8-11	3 Years
4	Anechoic Chamber	Albatross	3m Site	N/A	2008-7-1	3 Year
5	Cable Set	R&S	RE Cable	N/A	N/A	N/A
6	Cable set II	R&S	Substitution Tx Cable	N/A	N/A	N/A
7	Cable set III	R&S	Hi-freq RX Antenna Cable	N/A	N/A	N/A
8	Software	R&S	ES-K1	N/A	N/A	N/A
9	Double-Ridged Waveguide Horn Antenna	R&S	HF906	100013	2008-8-11	3 Years
10	VHF-UHF Broad band Antenna	SCHWARZBEC K	VUBA 9117	SB3174	2008-8-11	3 Years
11	Signal Generator	R&S	SMR20	100098	2008-11-13	1Year

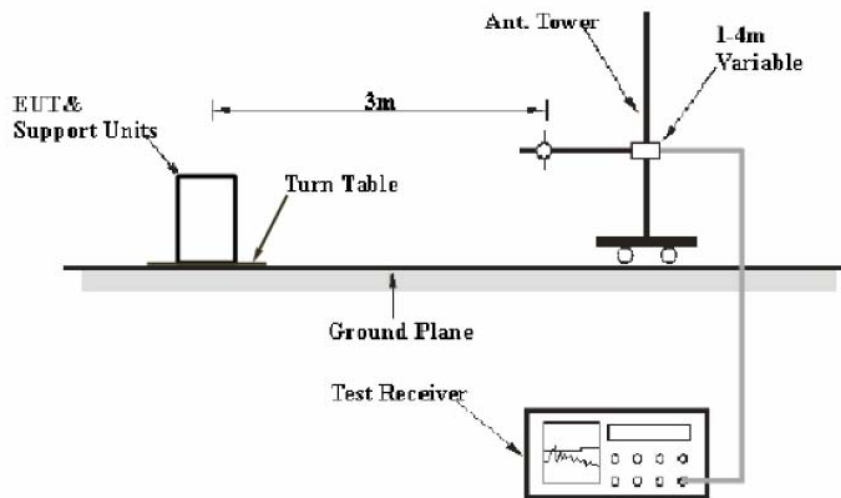
***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiated emissions measurement at the EMC lab of ZTE Corp. is 3.6dB.

EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the TIA/EIA 603-B. The specification used were RSS 139 clause 6.6 limits and RSS Gen §6.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable. (During the test, the transmitter keeping turn off)

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The resolution bandwidth of the spectrum analyzer was set at 100KHz for 30MHz to 1GHz scanning, set at 1MHz or 3MHz for 1GHz to 22GHz scanning.

Limit for receiver spurious emission as below:

Spurious Frequency (MHz)	Field Strength (microvolt/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960	500

Test Results Summary: PASS

Environmental Conditions

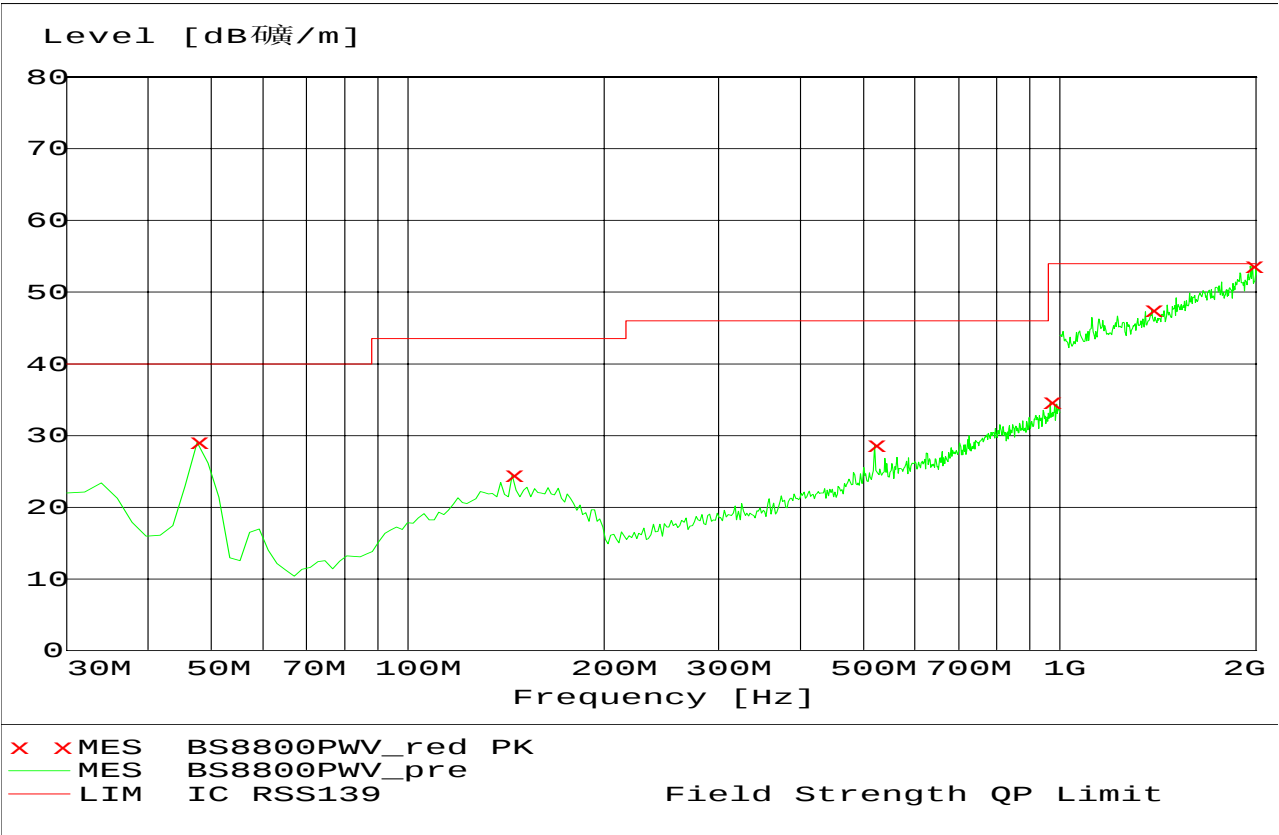
Temperature:	26°C
Relative Humidity:	60 %
ATM Pressure:	1009 mbar

The testing was performed by Guan Bin on 2009-4-14 and 2009-4-17.

Test Result: Pass

Test Mode: Receiving CDMA

Test Data

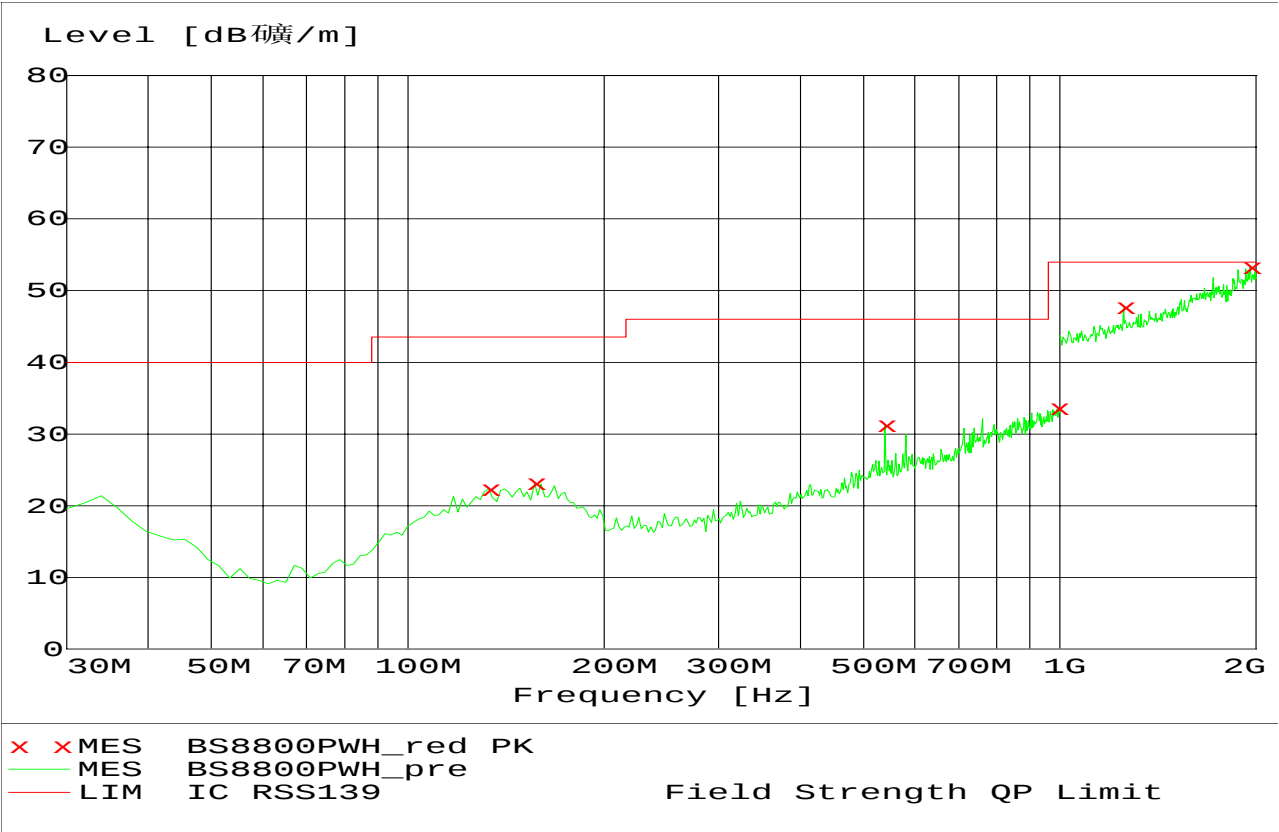


MEASUREMENT RESULT: "BS8800RXV_red PK"

6/27/2009 9:10AM

Frequency	Level	Azimuth	Height	Polarisation	Transd	Limit	Margin
MHz	dBμV/m	deg	cm		dB	dBμV/m	dB
47.494990	29.05	140.00	100.0	VER	-19.2	40.0	11.0
144.689379	24.46	140.00	100.0	VER	-11.4	43.5	19.0
519.859719	28.63	211.00	100.0	VER	-8.0	46.0	17.4
966.953908	34.63	211.00	100.0	VER	-0.8	54.0	19.4
1384.769539	47.46	121.00	100.0	VER	9.8	54.0	6.5
1973.900000	53.67	180.00	100.0	VER	21.7	54.0	0.3

Receiving spurious emission (vertical)



Frequency	Level	Azimuth	Height	Polarisation	Transd	Limit	Margin
MHz	dBμV/m	deg	cm		dB	dBμV/m	dB
133.026052	22.31	34.00	100.0	HOR	-11.8	40.0	17.7
156.352705	23.16	34.00	100.0	HOR	-11.4	43.5	10.3
539.298597	31.20	34.00	100.0	HOR	-7.5	46.0	15.8
992.224449	33.53	105.00	100.0	HOR	-0.6	54.0	20.5
1252.505010	47.70	34.00	100.0	HOR	8.3	54.0	6.3
1961.920000	53.27	105.00	100.0	HOR	22.0	54.0	0.67

Receiving spurious emission (Horizontal)