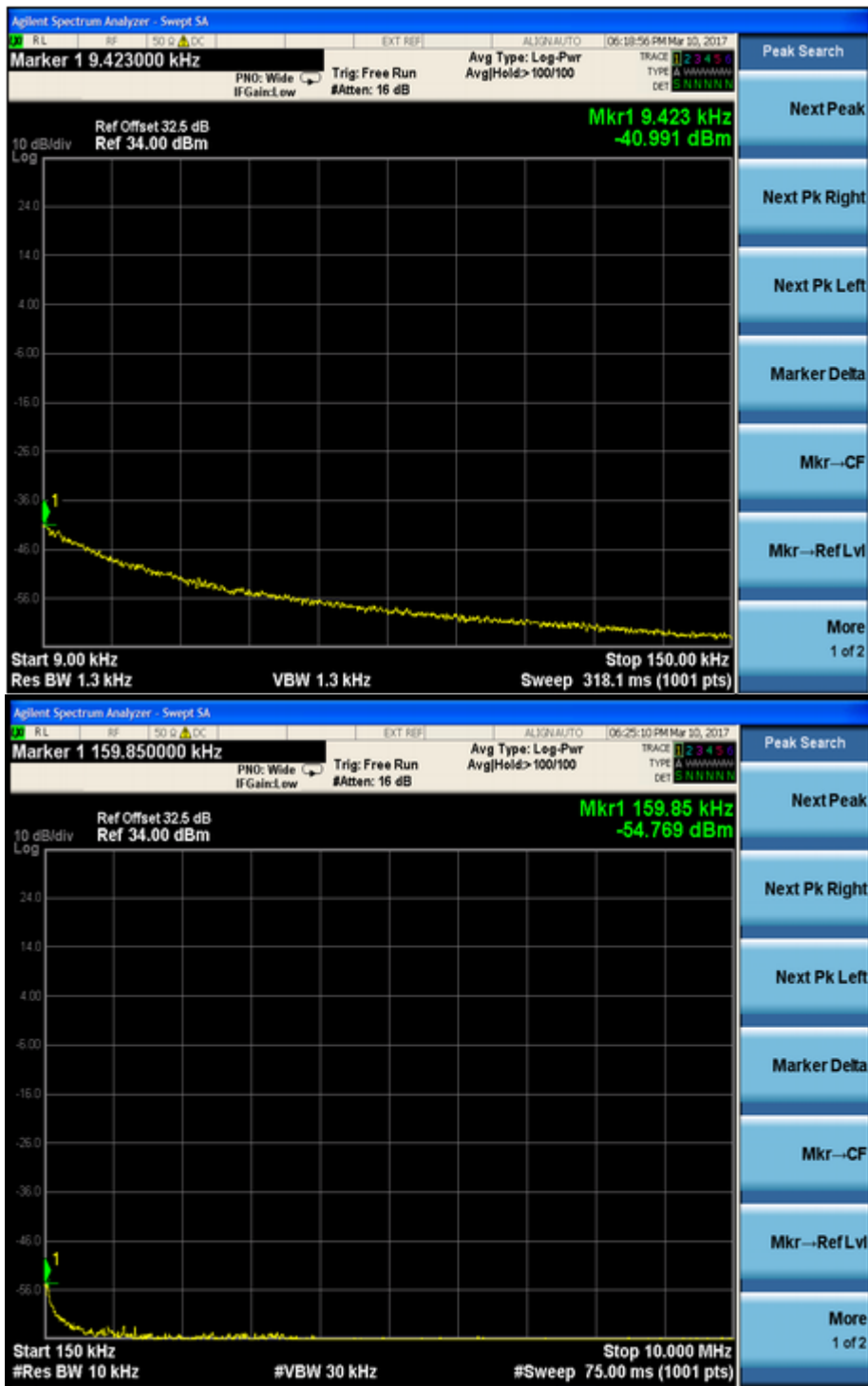
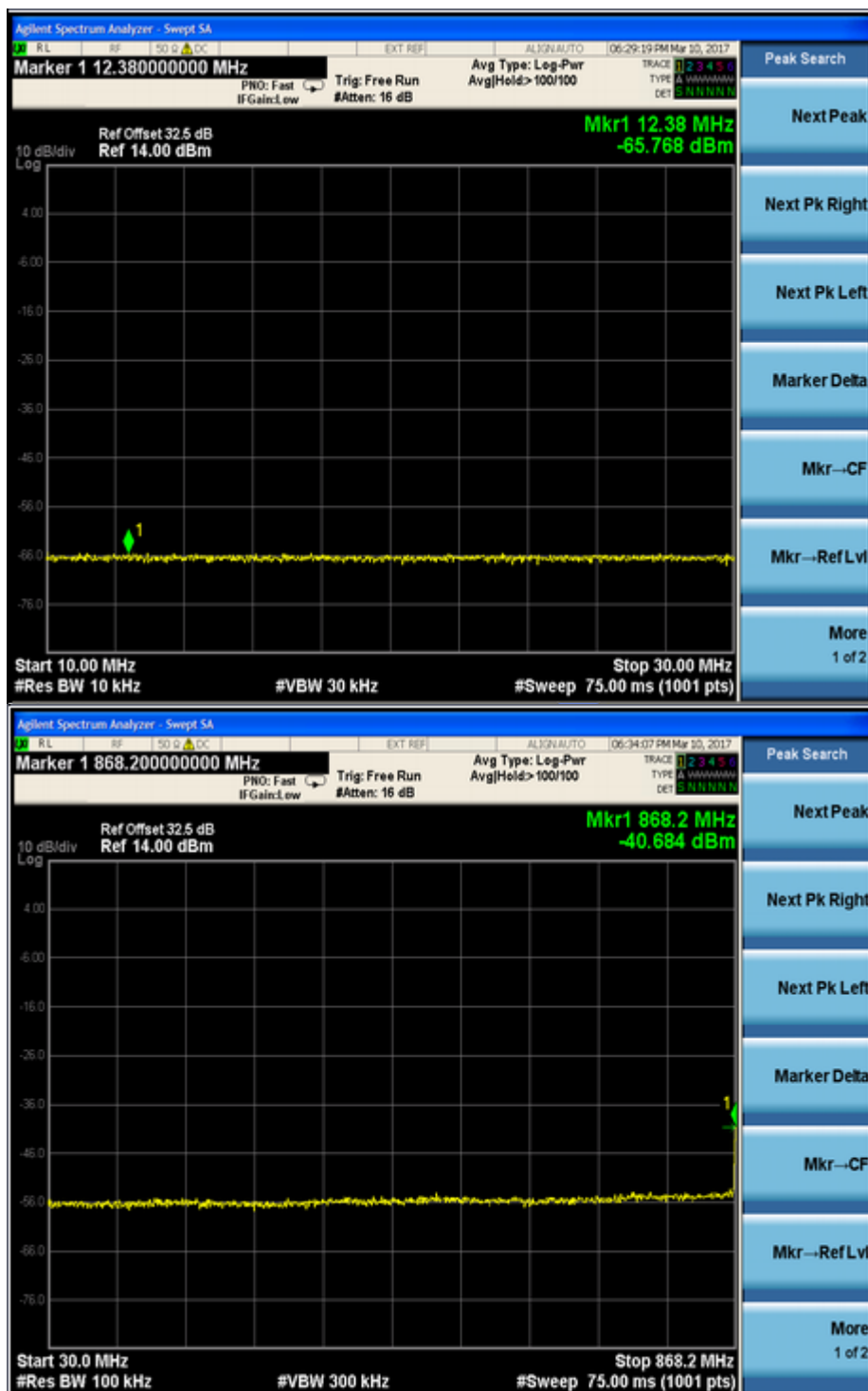




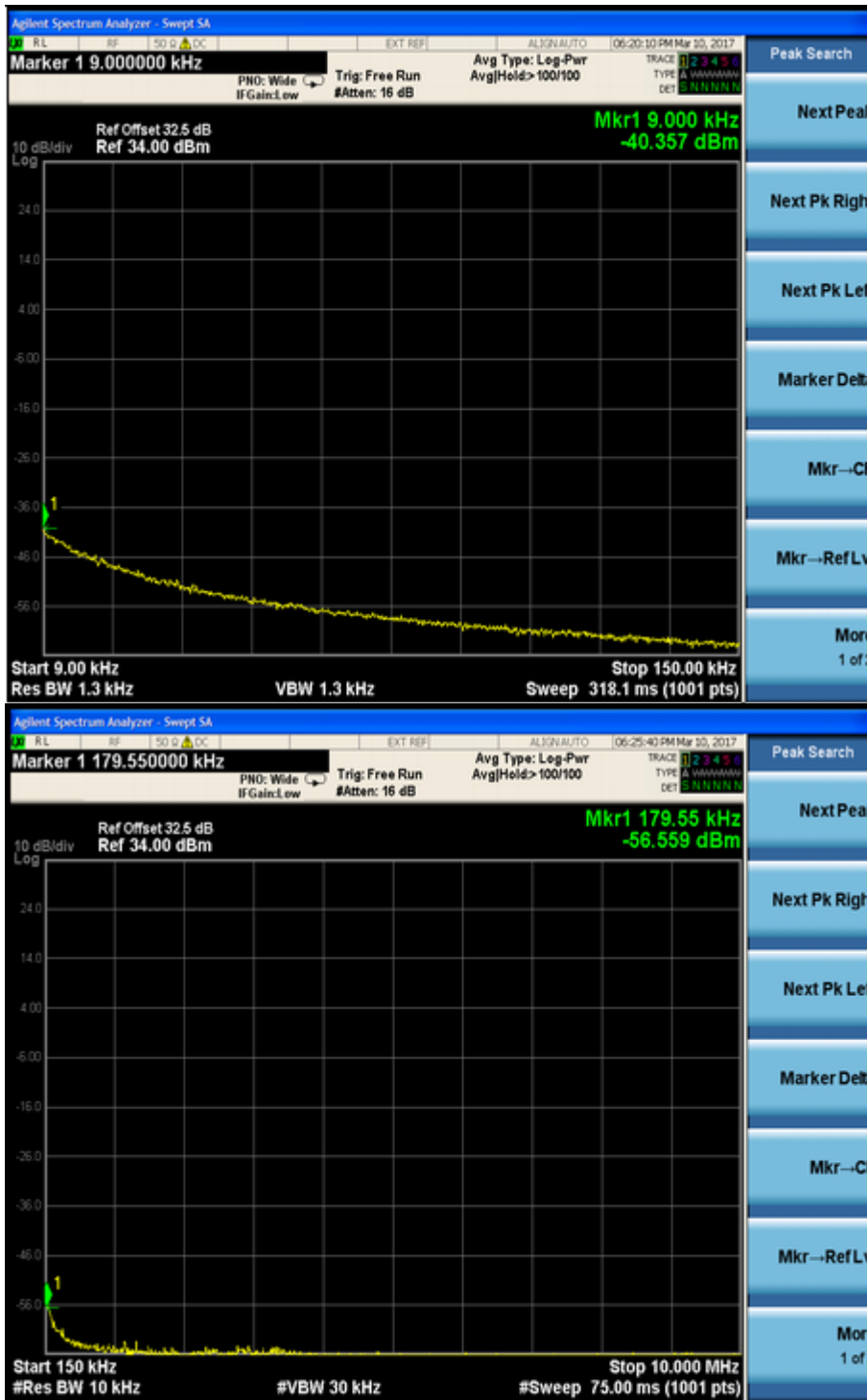
ANT4
Four Carriers

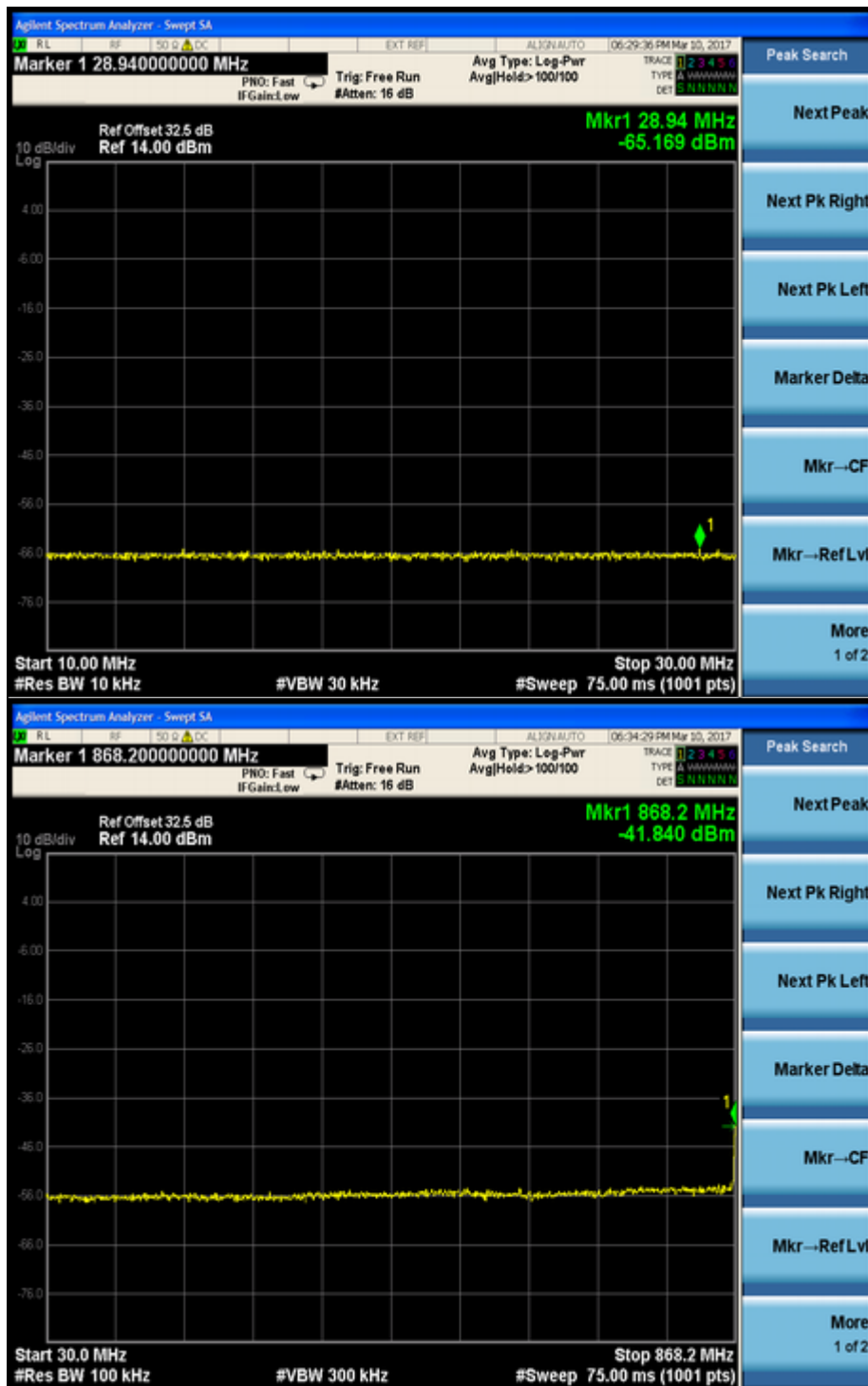


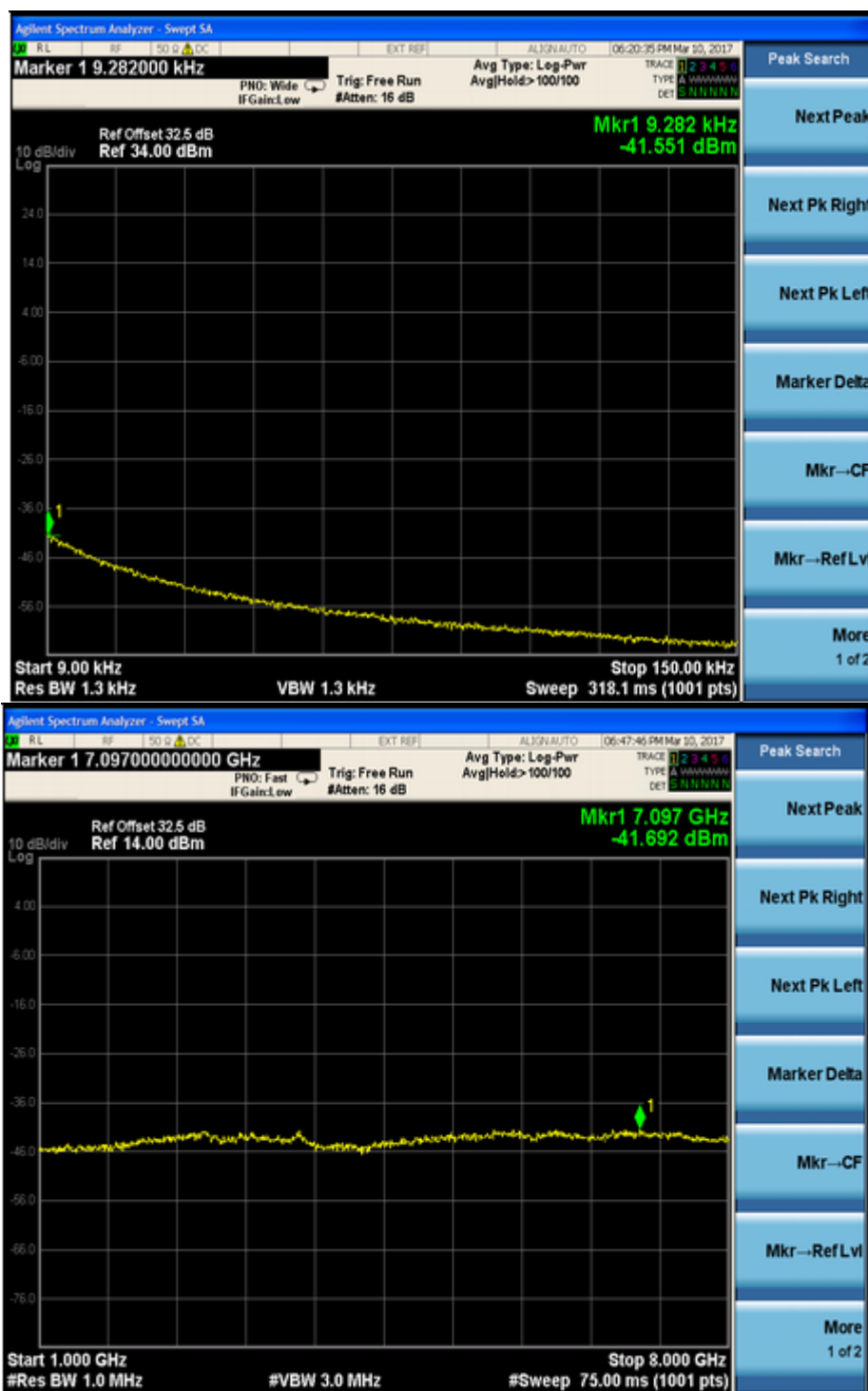




Three Carriers

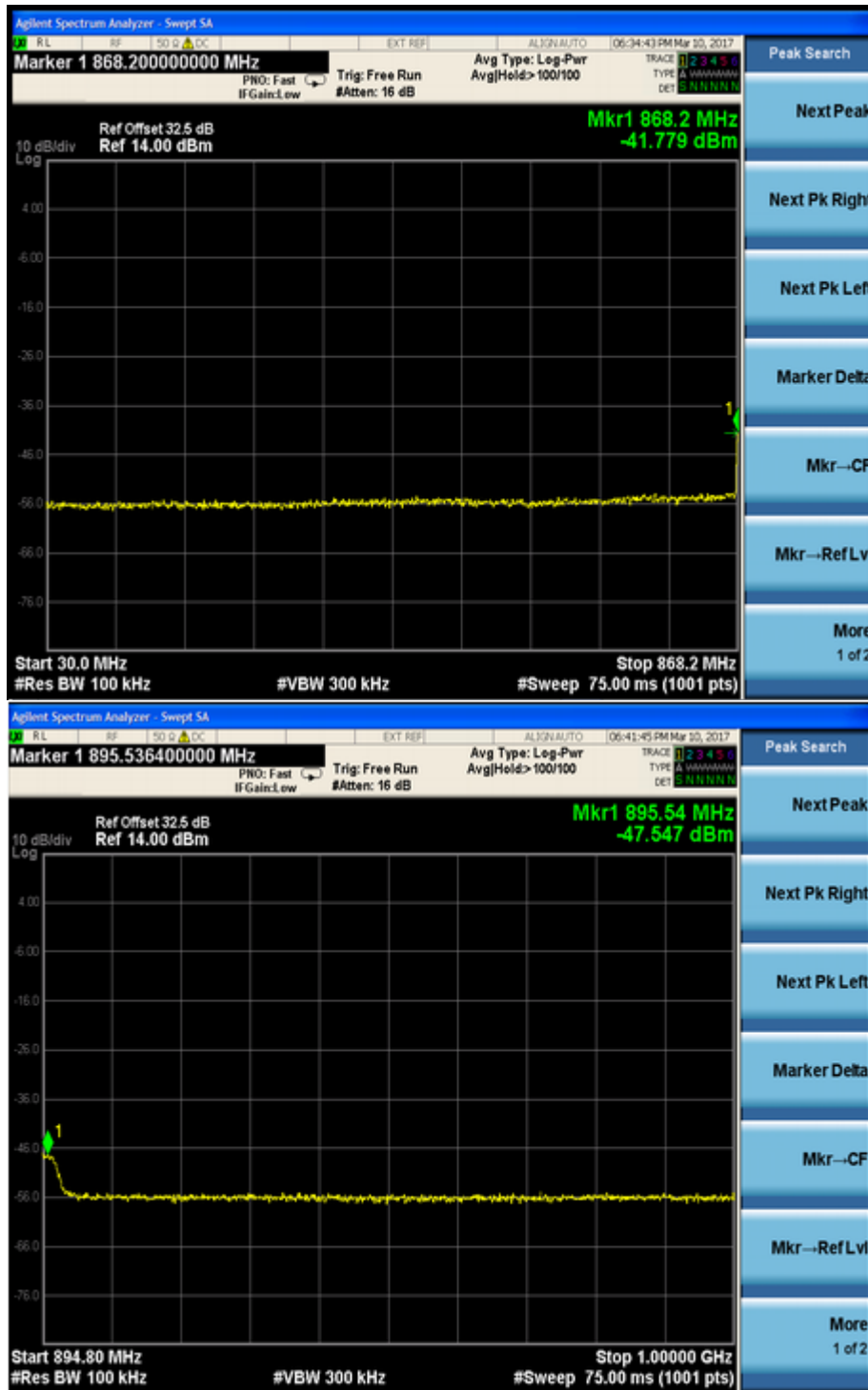


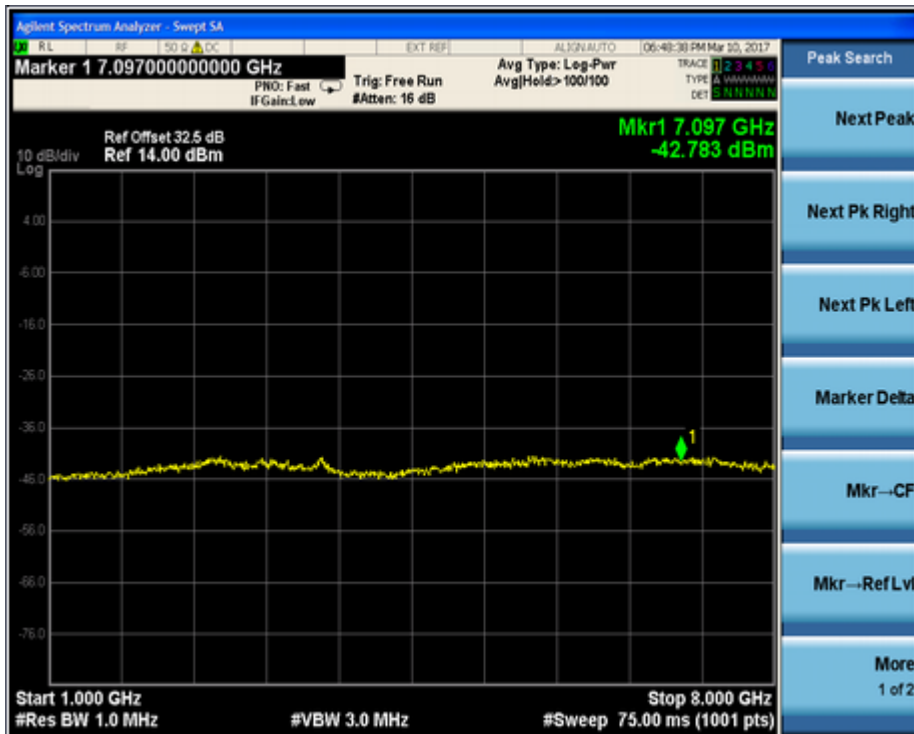




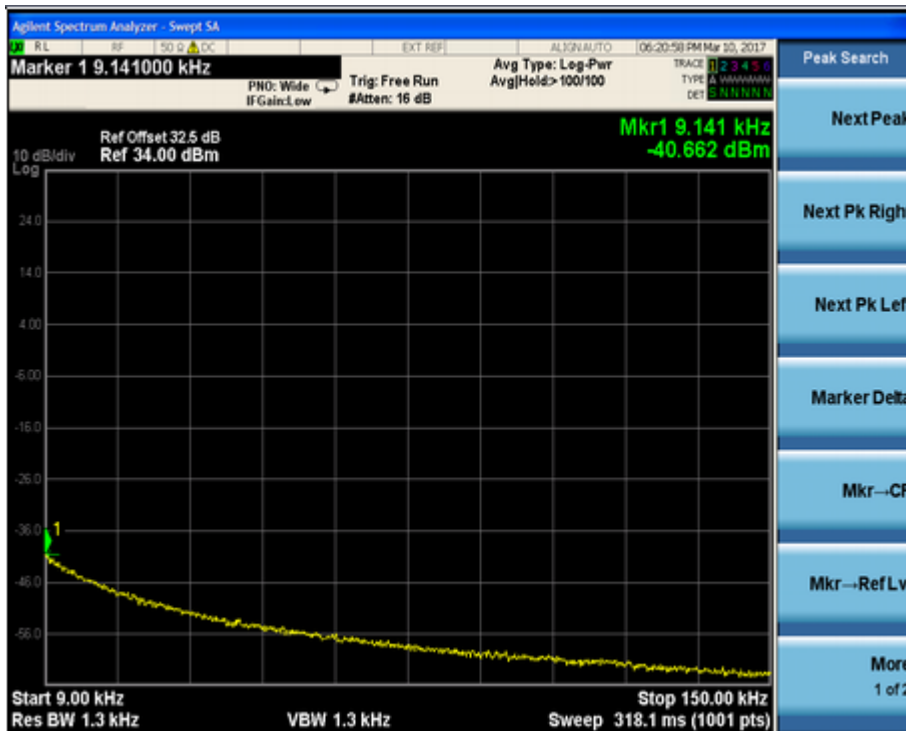
Two Carriers

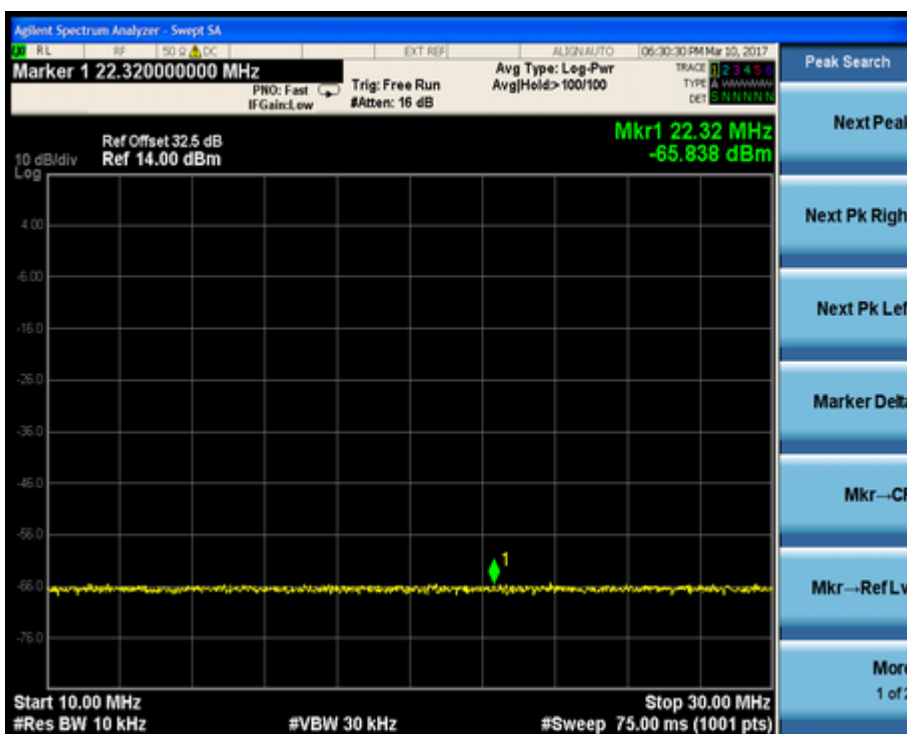


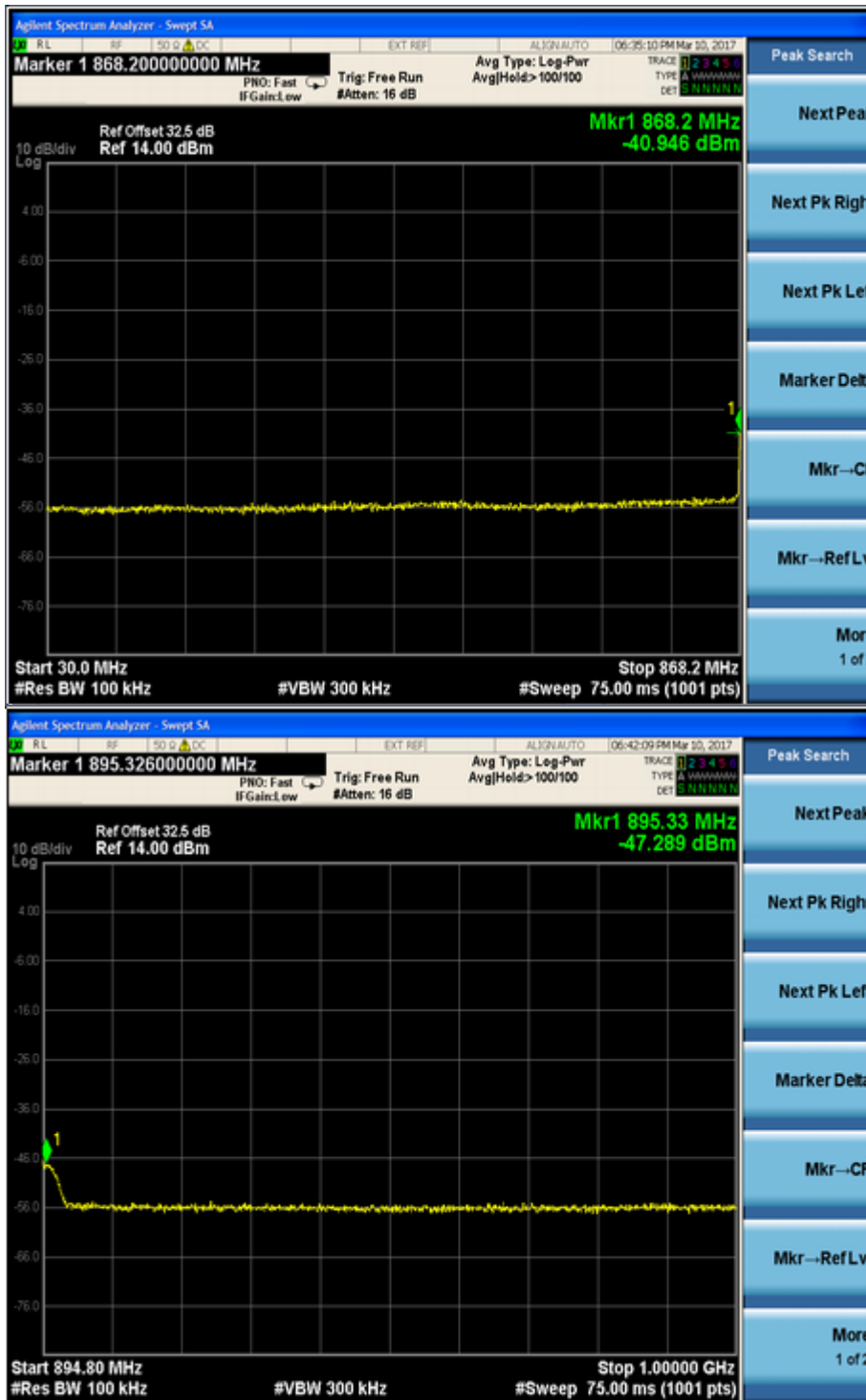


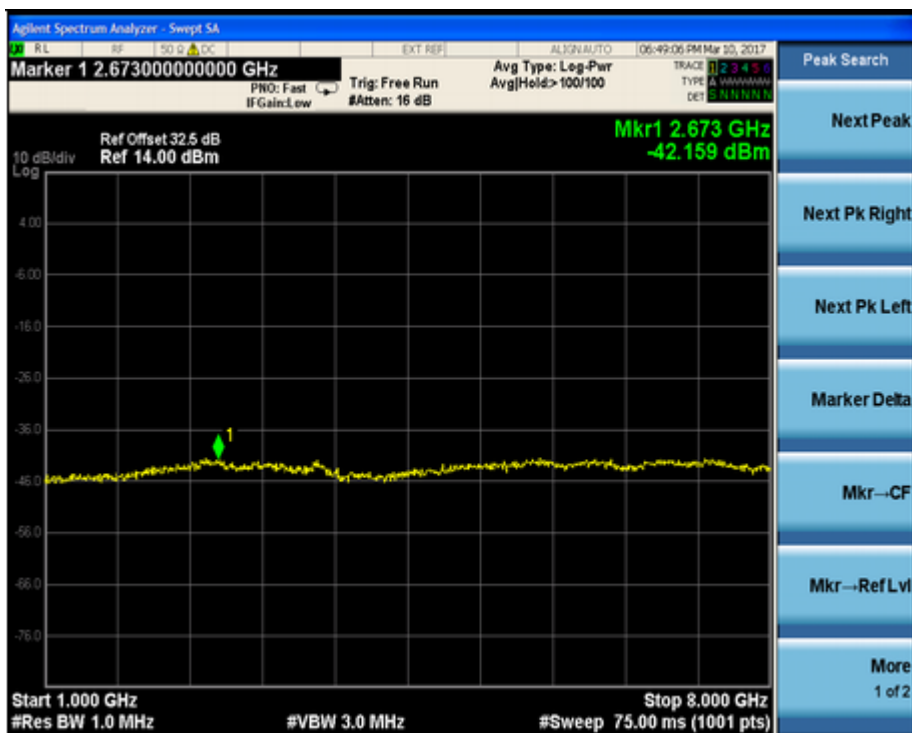


One Carrier











11 OCCUPIED BANDWIDTH

11.1 Applicable Standard: FCC §2.1049 §22.917

11.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090451	2016-3-15	2017-3-15
DST	DST100 30dB Attenuator	DTS100-30dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** The RF Laboratory of Shenzhen Zoom Rel Testing Technology Co., Ltd attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

11.3 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.

11.4 Environmental Conditions

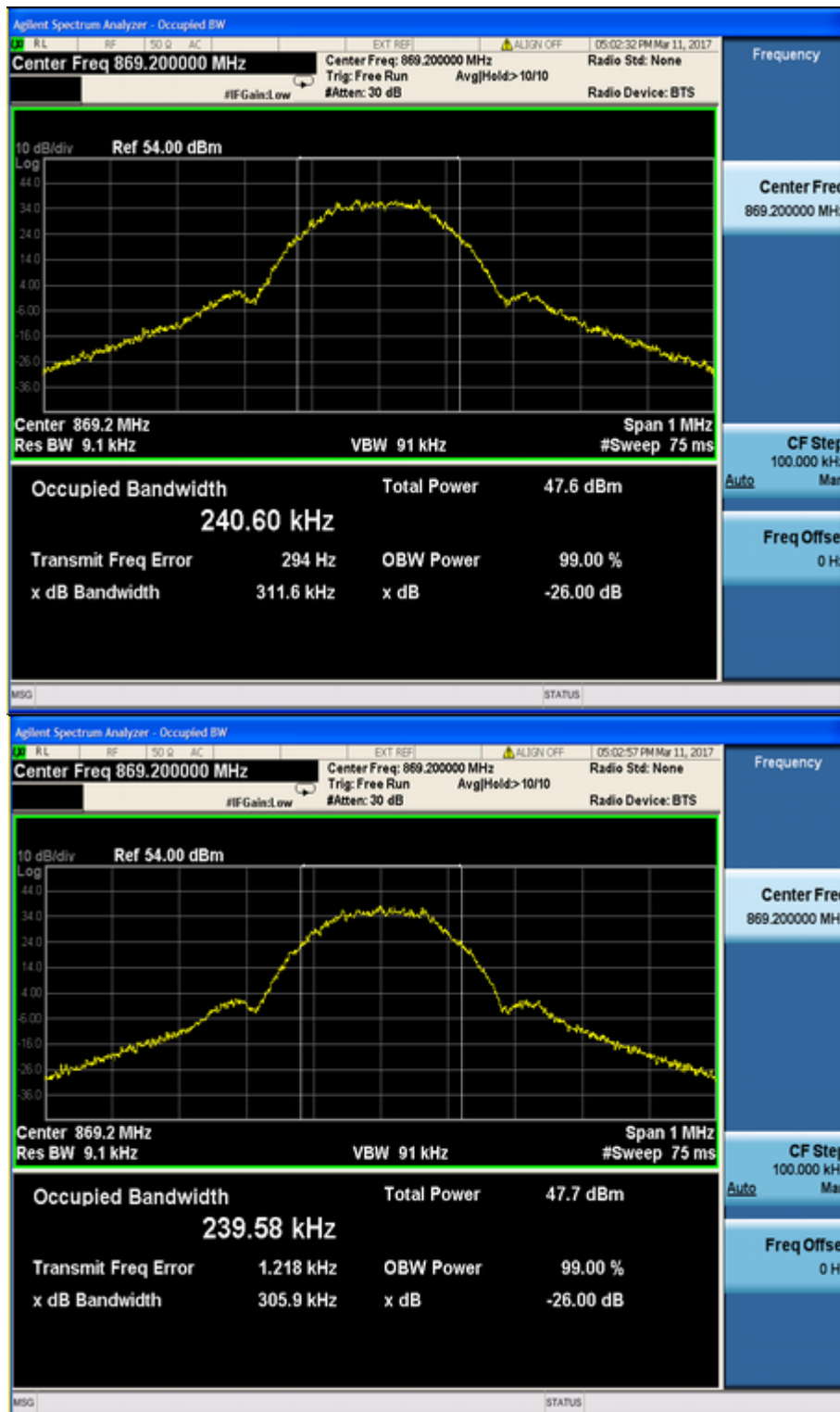
Temperature:	20 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

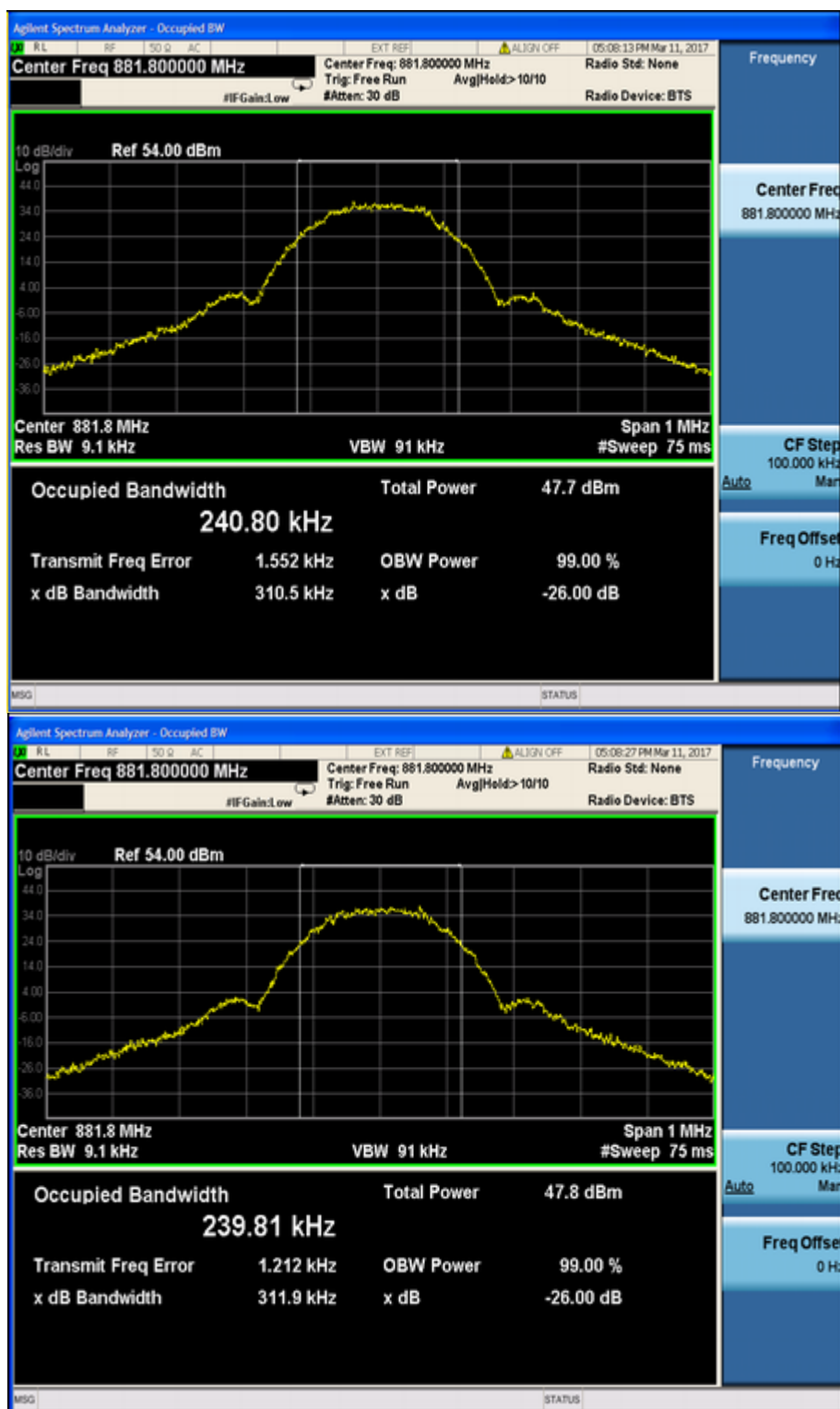
11.5 Test Result: Pass

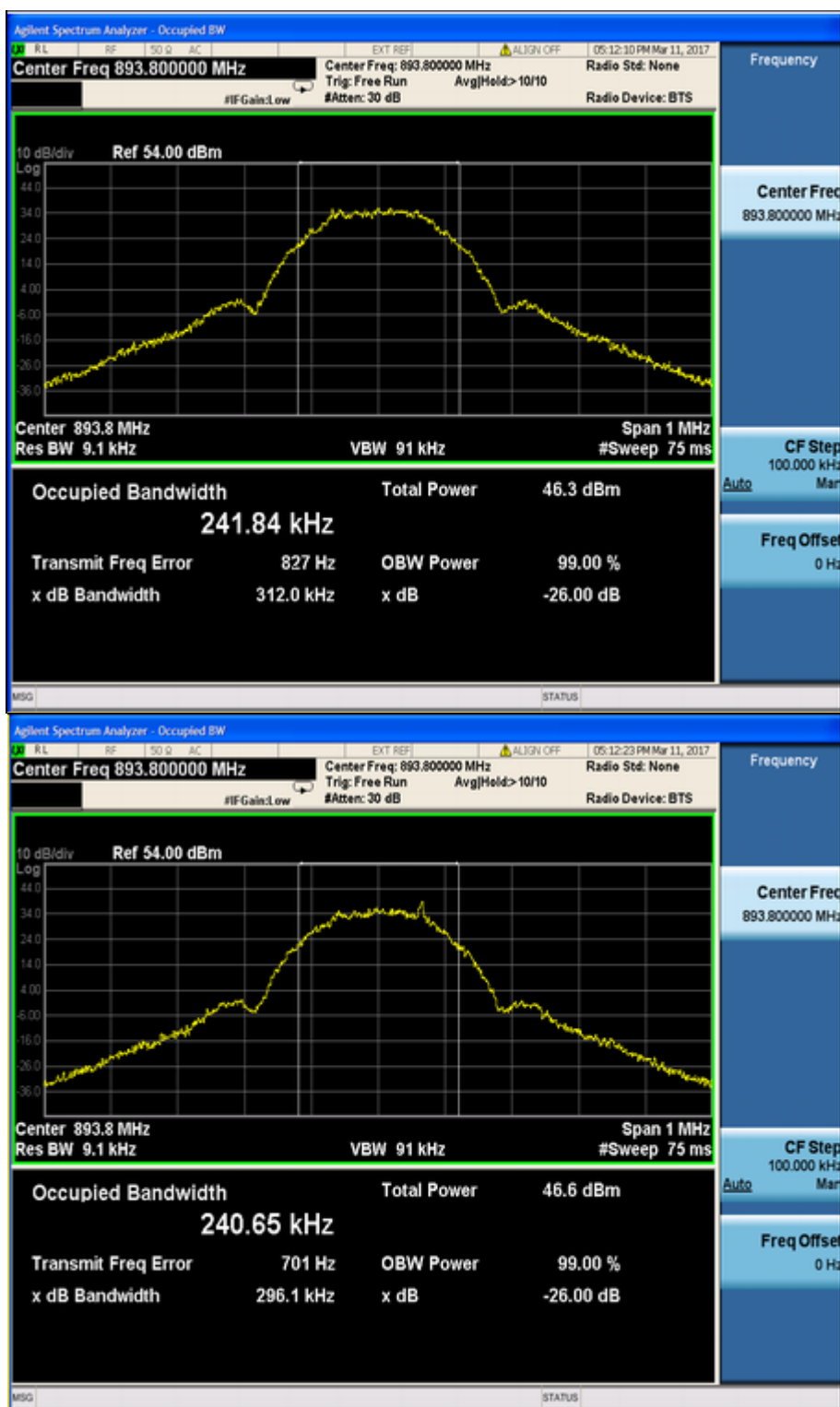
11.6 Test Mode: Transmitting GSM

11.7 Test Data

Modulation	ANT	Frequency (MHz)	99% Power Bandwidth (kHz)	Limit (kHz)
GMSK	ANT1	869.2/881.8/893.8	240.6/240.8/241.84	250
GMSK	ANT2	869.2/881.8/893.8	239.58/239.81/240.65	250

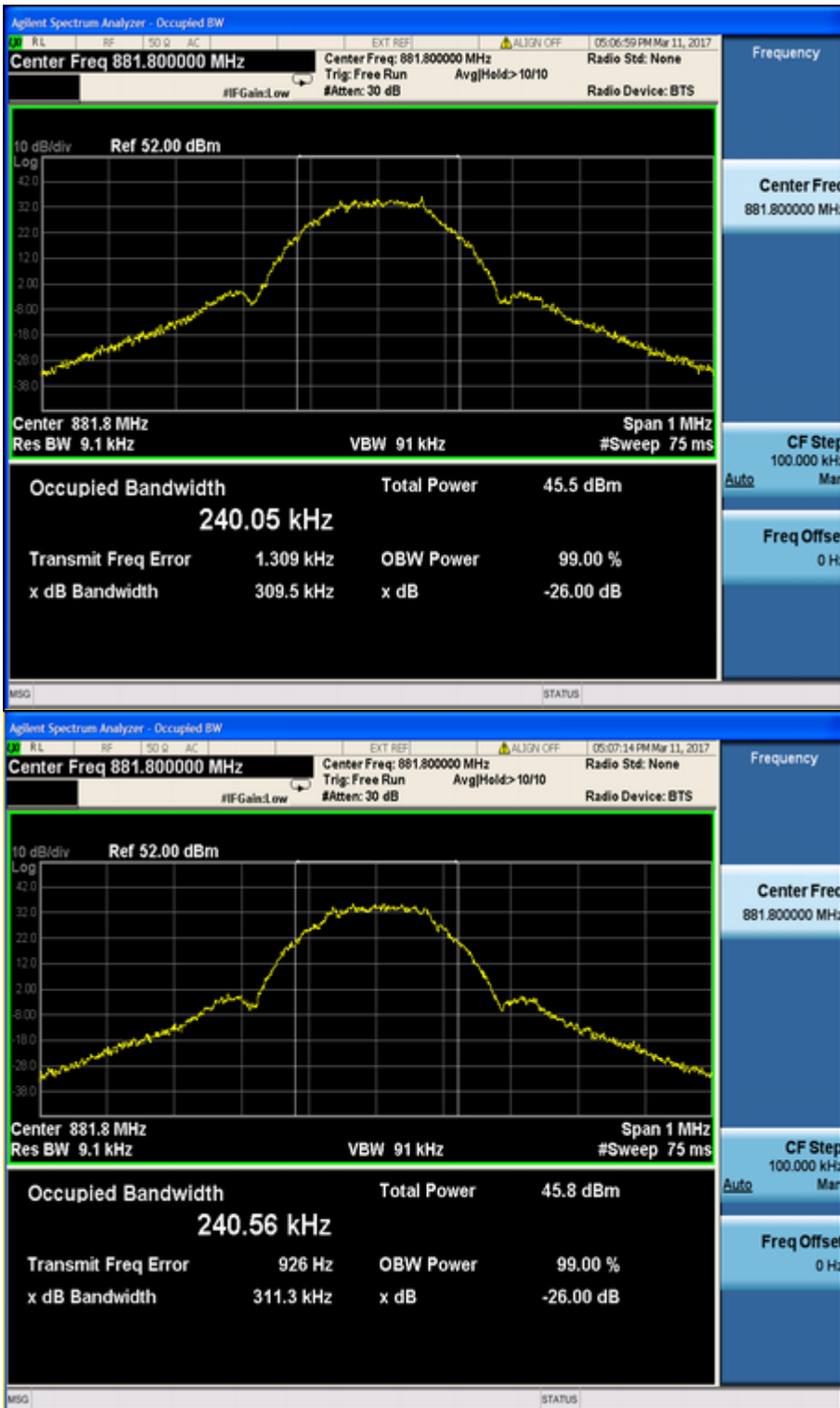


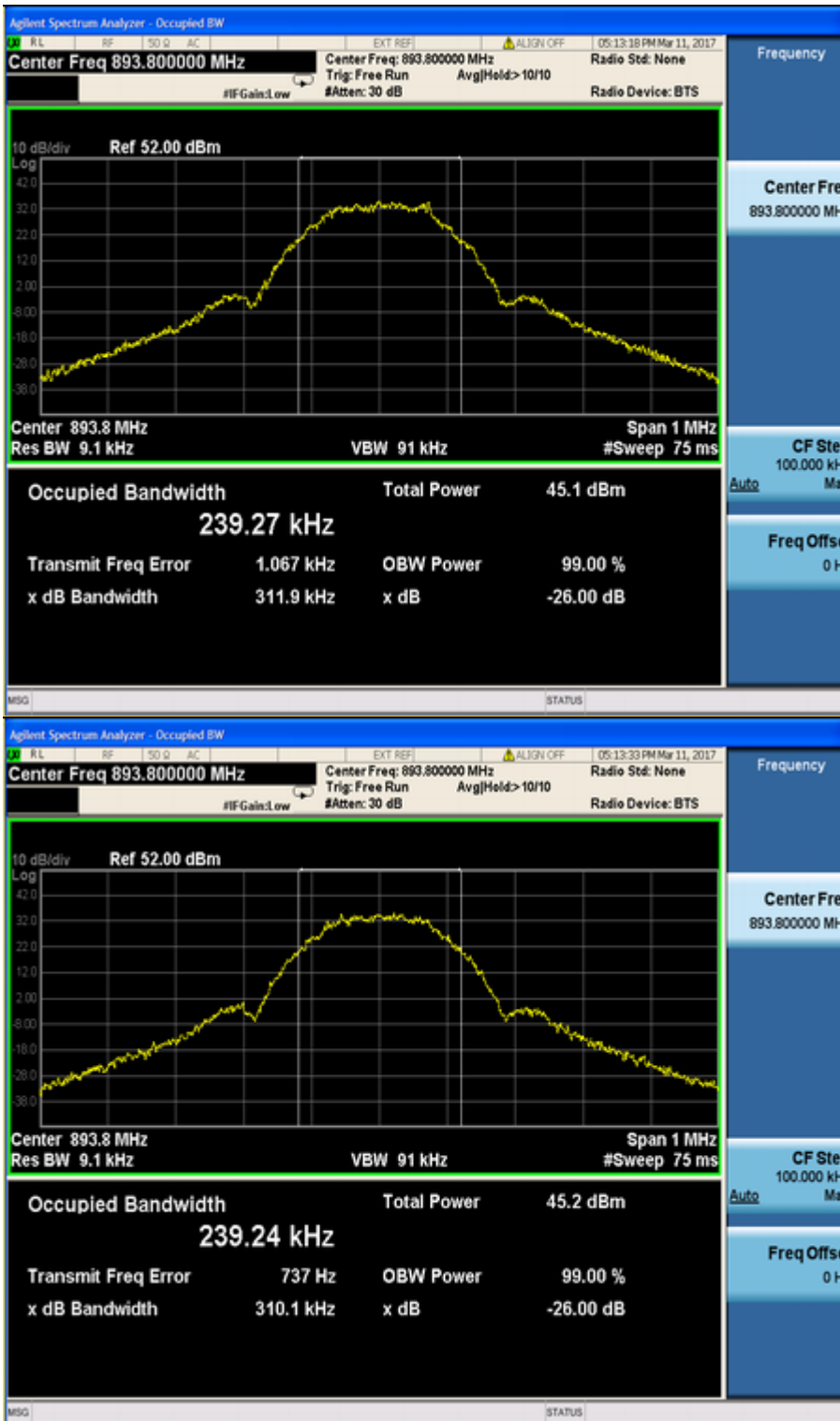




Modulation	ANT	Frequency (MHz)	99% Power Bandwidth (kHz)	Limit (kHz)
8PSK	ANT1	869.2/881.4/893.8	241.79/240.05/239.27	250
8PSK	ANT4	869.2/881.4/893.8	240.37/240.56/239.24	250







12 BAND EDGES

12.1 Applicable Standard: FCC §2.1051

According to §2.1051 and §24.238, 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 $< P - (43 + 10 \log(P)) = -13\text{dBm}$.

12.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090451	2016-3-15	2017-3-15
DST	DST100 30dB Attenuator	DTS100-30dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** The RF Laboratory of Shenzhen Zoom Rel Testing Technology Co., Ltd attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

12.3 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.

12.4 Test Data Environmental Conditions

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

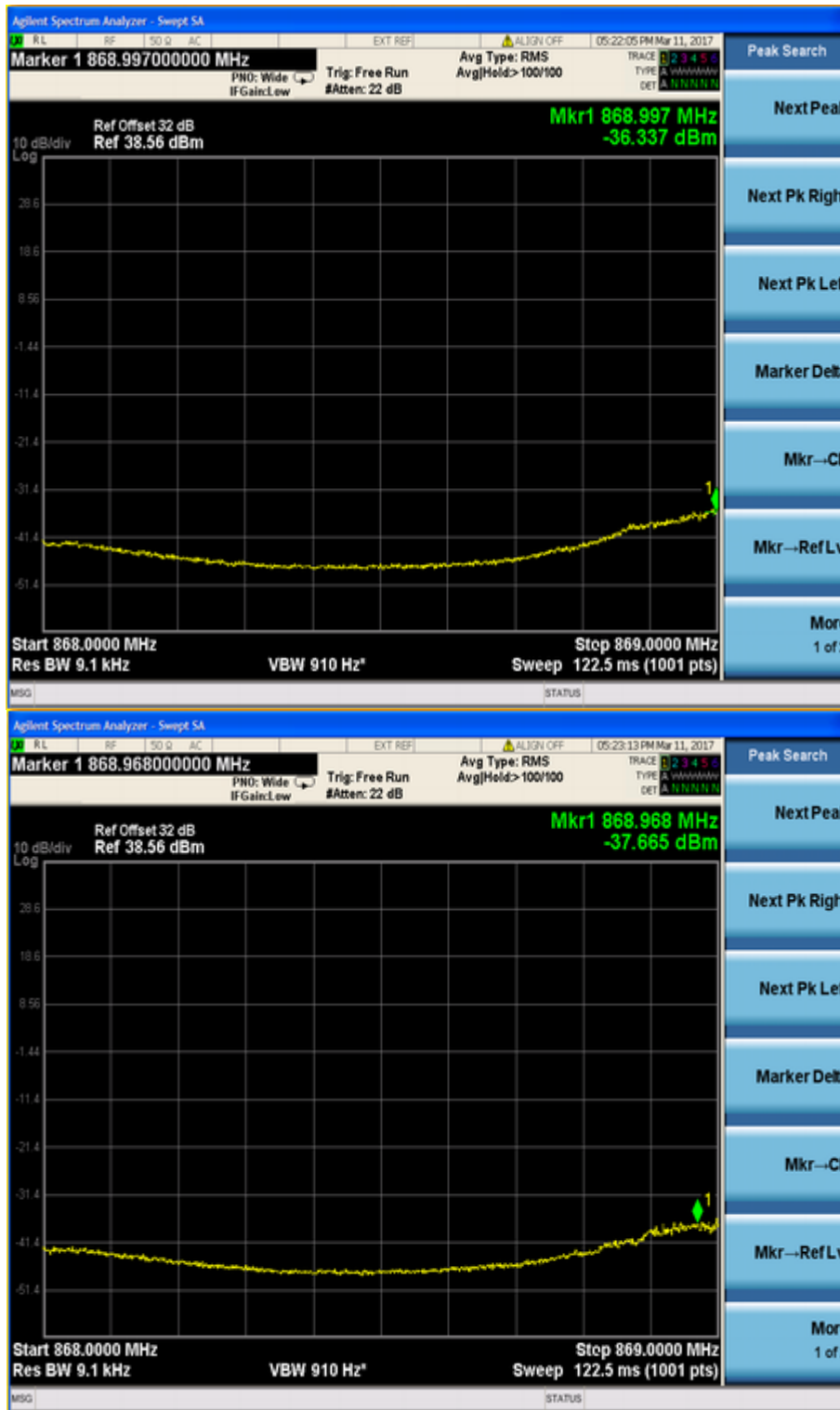
12.5 Test Result: Pass

12.6 Test Mode: Transmitting GSM

12.7 Test Data

Four carrier

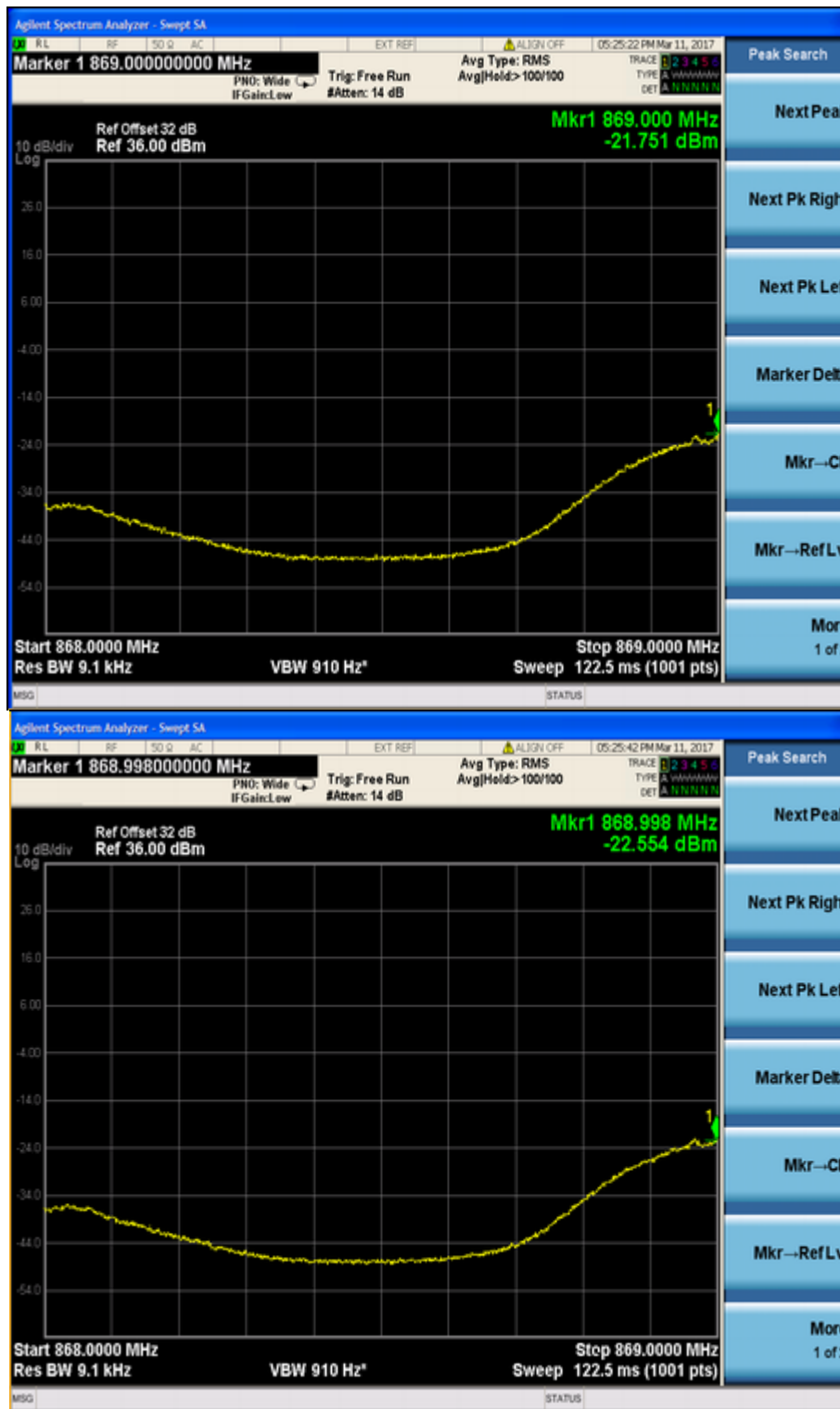
ANT	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
ANT1	869.2/877/ 886 /893.8	-36.337/-23.419	-13.00
ANT4	869.2/877/ 886 /893.8	-37.665/-23.112	-13.00





Three carriers

ANT	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
ANT1	869.2/881.8/893.8	-27.251/-22.562	-13.00
ANT4	869.2/881.8/893.8	-22.254/-22.481	-13.00





Two carriers

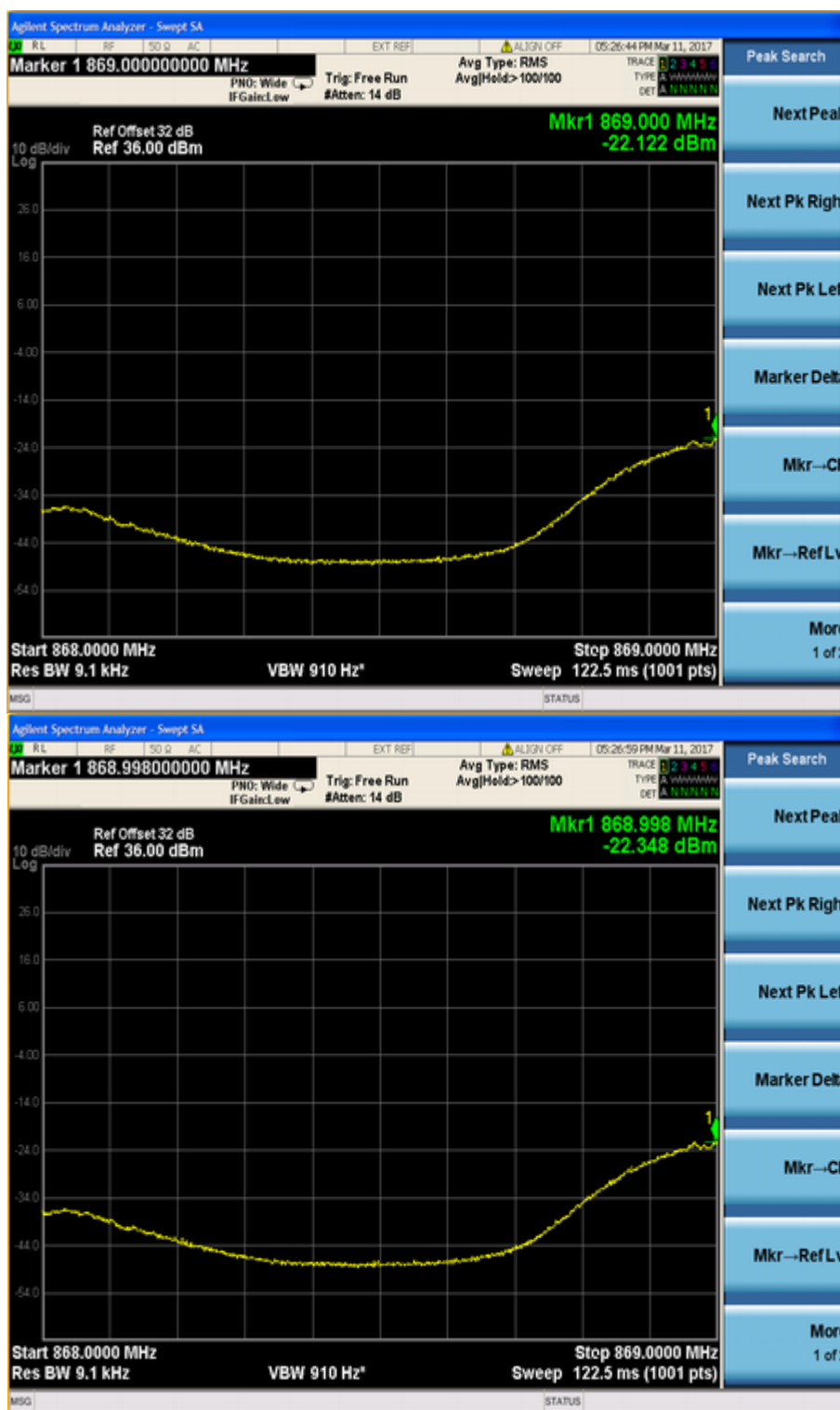
ANT	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
ANT1	869.2/893.8	-23.309/-22.027	-13.00
ANT4	869.2/893.8	-22.915/-22.451	-13.00

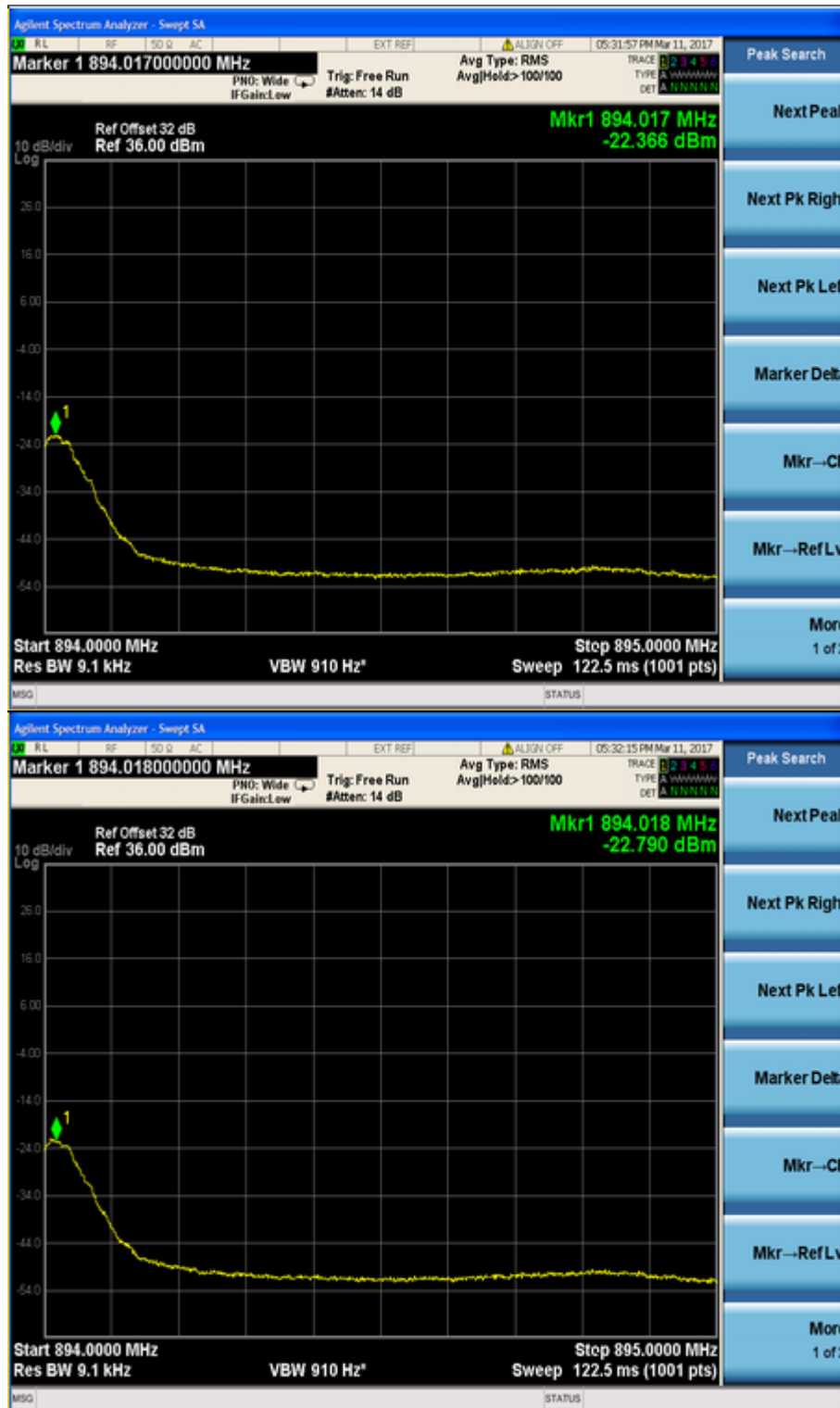




One carrier

ANT	Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
ANT1	869.2/ 893.8	-22.122/-22.366	-13.00
ANT4	869.2/893.8	-22.348/-22.79	-13.00







13 12 FREQUENCY STABILITY

13.1 Applicable Standard: FCC § 2.1055

Requirements: FCC § 2.1055 (a)(d),

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

13.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
GZ-ESPEC	Temperature Chamber	GRW-120	00020268	2016-3-15	2017-3-15
Agilent	MXA Series Spectrum Analyzer	N9020A	MY52090451	2016-3-15	2017-3-15
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:** The RF Laboratory of Shenzhen Zoom Rel Testing Technology Co., Ltd attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

13.3 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.

13.4 Environmental Conditions

Normal condition:	25° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

13.5 Test Result: Pass

13.6 Test Mode: Transmitting GSM

13.7 Test Data

13.7.1 Frequency Stability Versus Temperature

ANT 1



Frequency Stability vs. Temperature				
Temperature °C	Power Supplied VDC	Frequency Measure Error Hz	Limit Hz	Result
f=869.2MHz				
-40	-48	-0.52	43.46	PASS
-30	-48	1.35	43.46	PASS
-20	-48	-0.45	43.46	PASS
-10	-48	-0.28	43.46	PASS
0	-48	-1.56	43.46	PASS
10	-48	0.87	43.46	PASS
20	-48	0.55	43.46	PASS
30	-48	2.45	43.46	PASS
40	-48	-0.17	43.46	PASS
50	-48	-0.82	43.46	PASS
55	-48	-0.33	43.46	PASS
f=881.8MHz				
-40	-48	1.24	44.09	PASS
-30	-48	2.52	44.09	PASS
-20	-48	-0.24	44.09	PASS
-10	-48	-1.56	44.09	PASS
0	-48	-0.45	44.09	PASS
10	-48	1.41	44.09	PASS
20	-48	2.84	44.09	PASS
30	-48	1.47	44.09	PASS
40	-48	-1.67	44.09	PASS
50	-48	0.97	44.09	PASS
55	-48	1.43	44.09	PASS
f=893.8MHz				
-40	-48	1.57	44.69	PASS
-30	-48	0.68	44.69	PASS
-20	-48	-1.47	44.69	PASS
-10	-48	-0.24	44.69	PASS
0	-48	0.67	44.69	PASS
10	-48	-1.59	44.69	PASS
20	-48	-1.96	44.69	PASS
30	-48	0.53	44.69	PASS
40	-48	-1.47	44.69	PASS
50	-48	-0.34	44.69	PASS
55	-48	1.67	44.69	PASS

ANT4



Frequency Stability vs. Temperature				
Temperature °C	Power Supplied VDC	Frequency Measure Error Hz	Limit Hz	Result
f=869.2MHz				
-40	-48	-1.57	43.46	PASS
-30	-48	2.54	43.46	PASS
-20	-48	-0.61	43.46	PASS
-10	-48	-0.67	43.46	PASS
0	-48	-1.47	43.46	PASS
10	-48	1.22	43.46	PASS
20	-48	0.13	43.46	PASS
30	-48	1.56	43.46	PASS
40	-48	-1.34	43.46	PASS
50	-48	-2.14	43.46	PASS
55	-48	-0.88	43.46	PASS
f=881.8MHz				
-40	-48	0.45	44.09	PASS
-30	-48	-2.54	44.09	PASS
-20	-48	0.84	44.09	PASS
-10	-48	-1.21	44.09	PASS
0	-48	-2.34	44.09	PASS
10	-48	-0.54	44.09	PASS
20	-48	1.32	44.09	PASS
30	-48	1.54	44.09	PASS
40	-48	1.66	44.09	PASS
50	-48	1.23	44.09	PASS
55	-48	-0.58	44.09	PASS
f=893.8MHz				
-40	-48	-0.87	44.69	PASS
-30	-48	-1.21	44.69	PASS
-20	-48	1.54	44.69	PASS
-10	-48	1.68	44.69	PASS
0	-48	1.36	44.69	PASS
10	-48	1.20	44.69	PASS
20	-48	-1.33	44.69	PASS
30	-48	1.06	44.69	PASS
40	-48	-0.85	44.69	PASS
50	-48	-0.65	44.69	PASS
55	-48	-0.69	44.69	PASS

---End of Report---