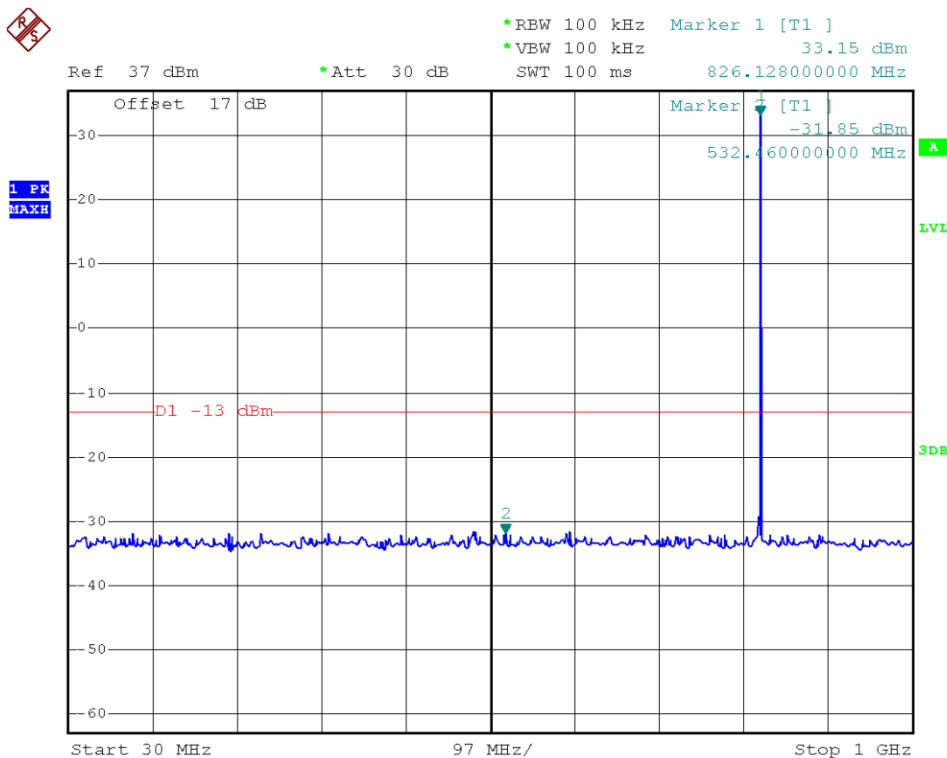
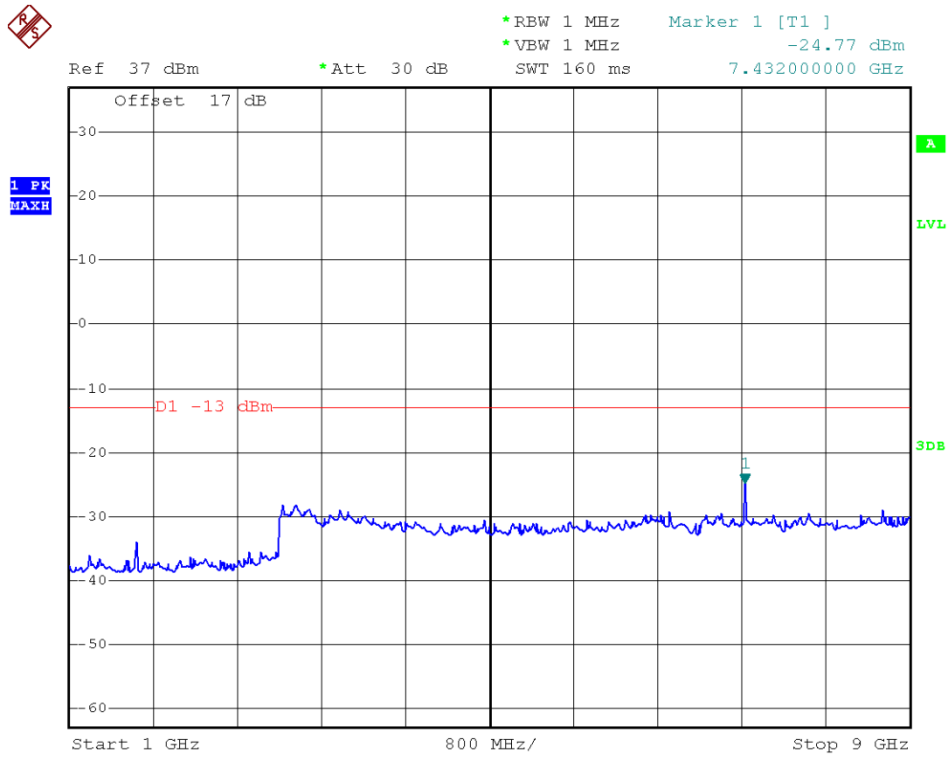


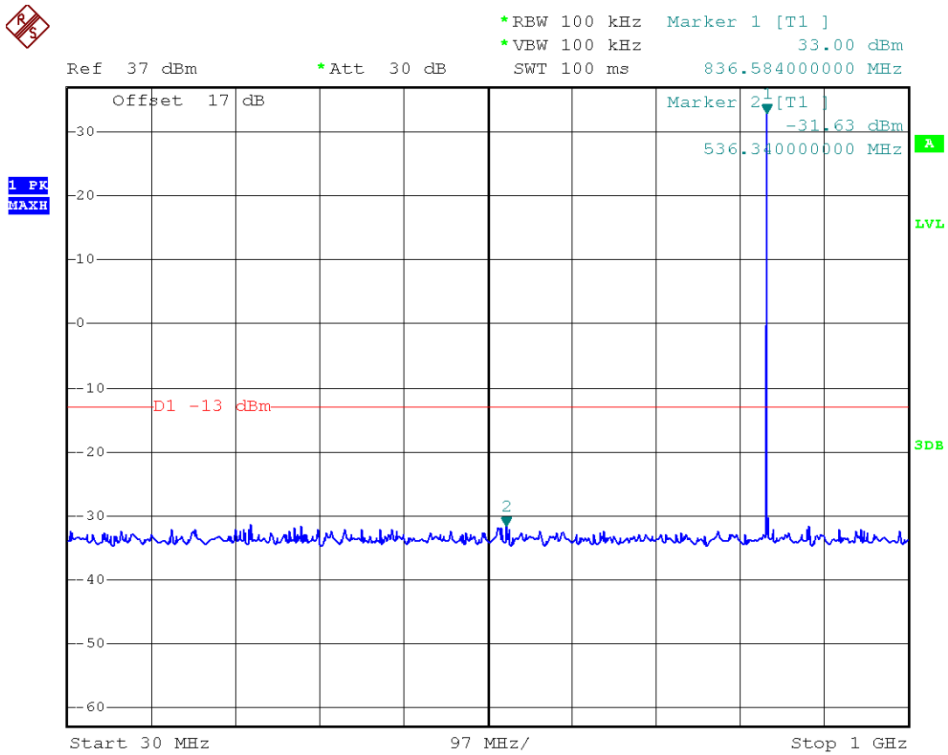
(Plot B3.1: GSM 1900MHz Channel = 810, 1GHz to 20GHz)



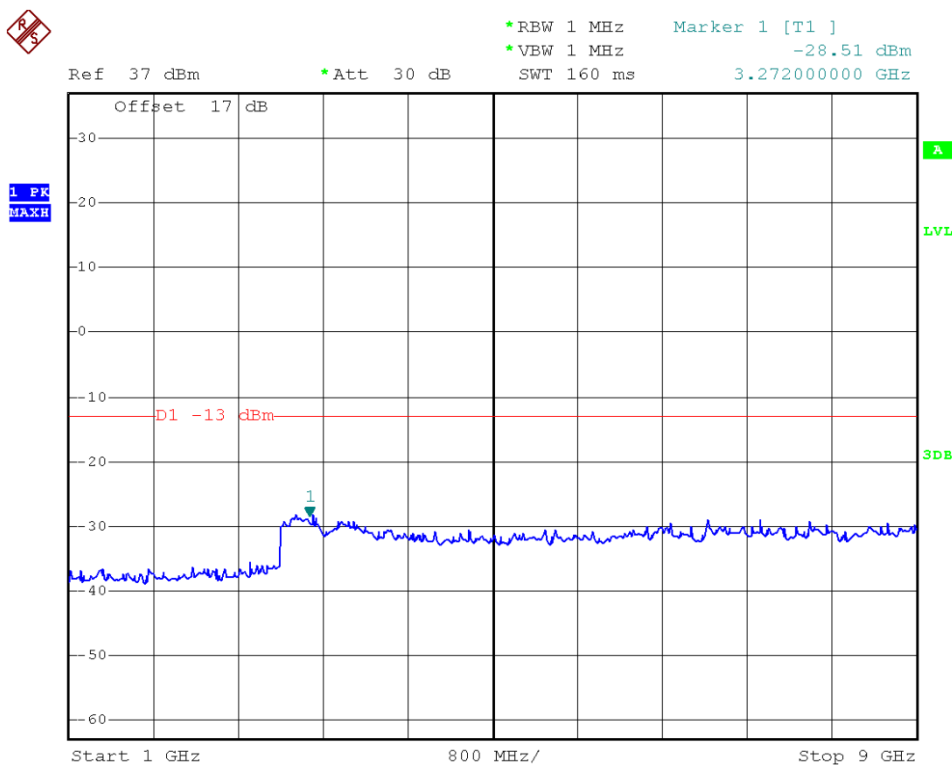
(Plot C1: EDGE 850MHz Channel = 128, 30MHz to 1GHz)



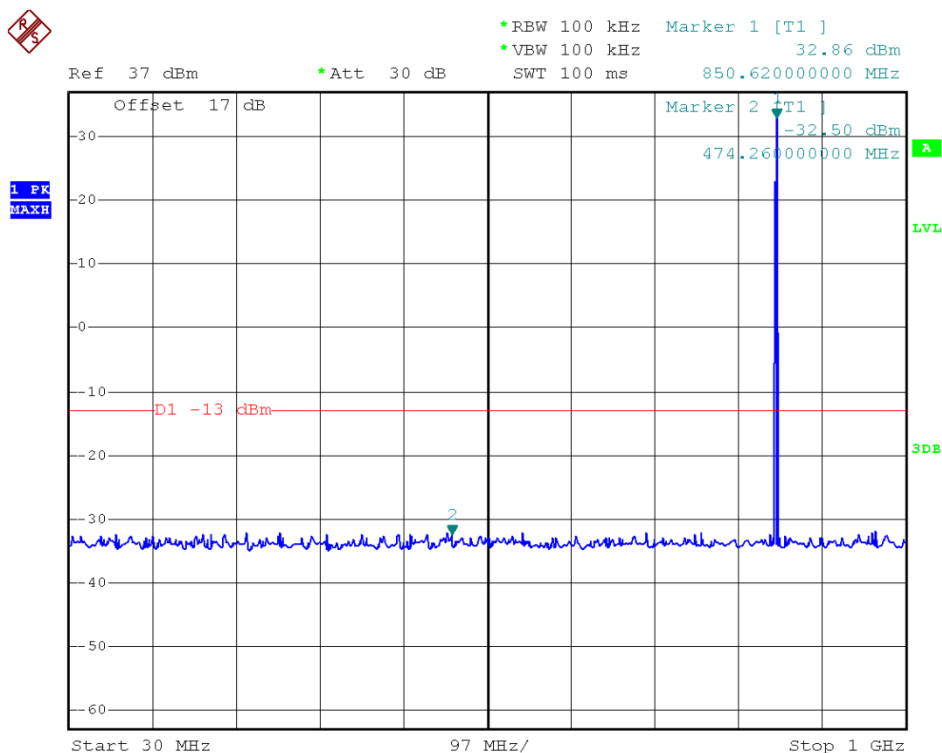
(Plot C1.1: EDGE 850MHz Channel = 128, 1GHz to 9GHz)



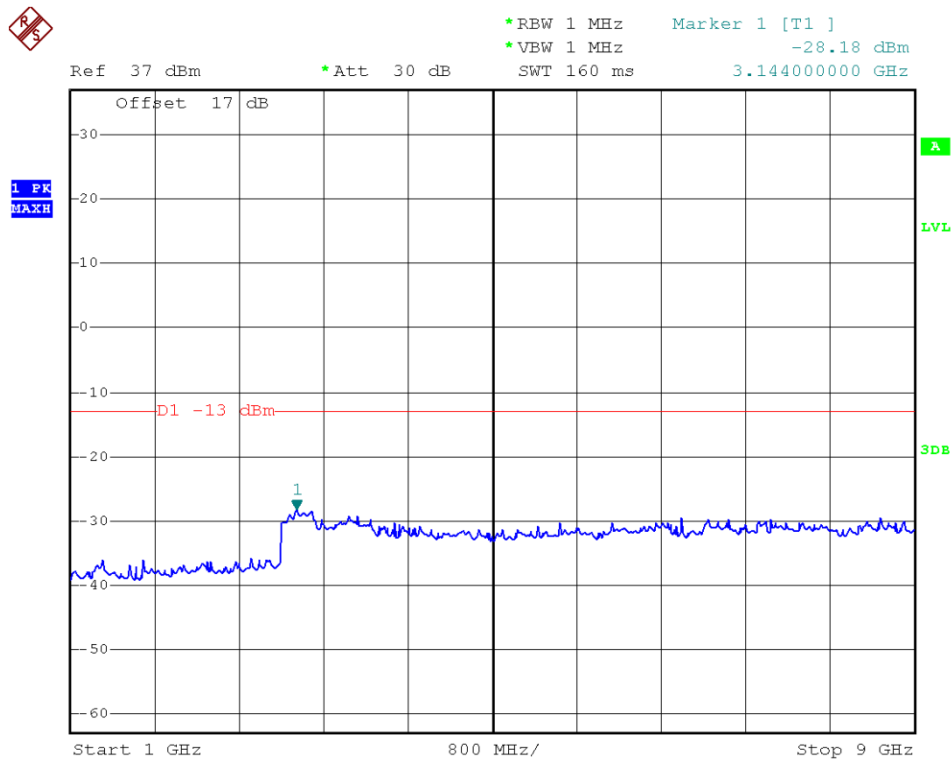
(Plot C2: EDGE 850MHz Channel = 190, 30MHz to 1GHz)



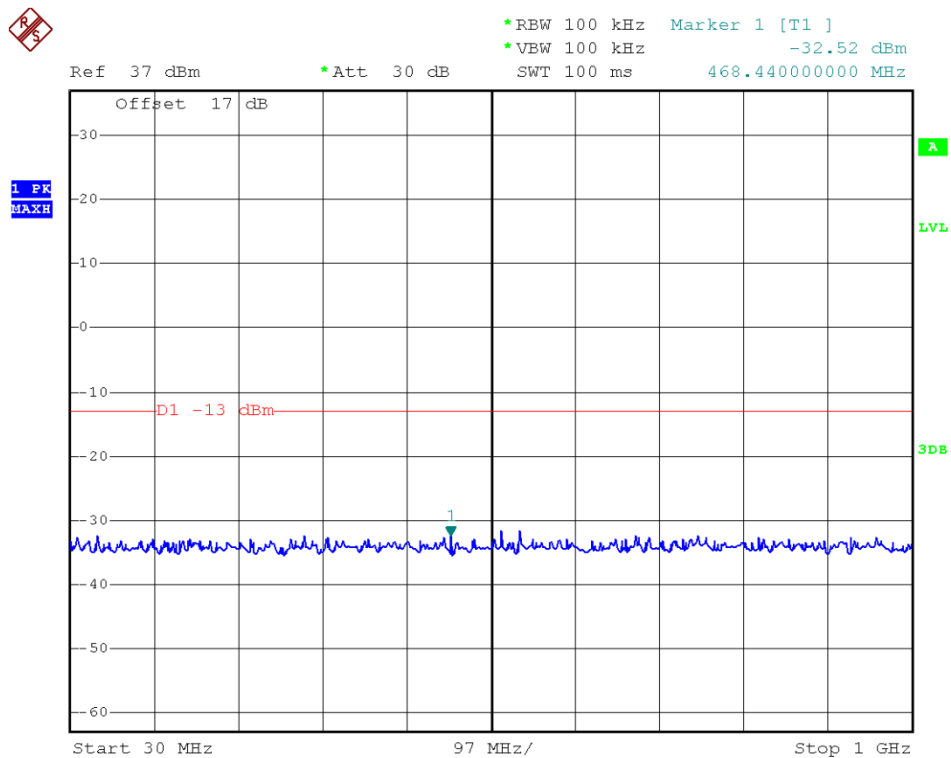
(Plot C2.1: EDGE 850MHz Channel = 190, 1GHz to 9GHz)



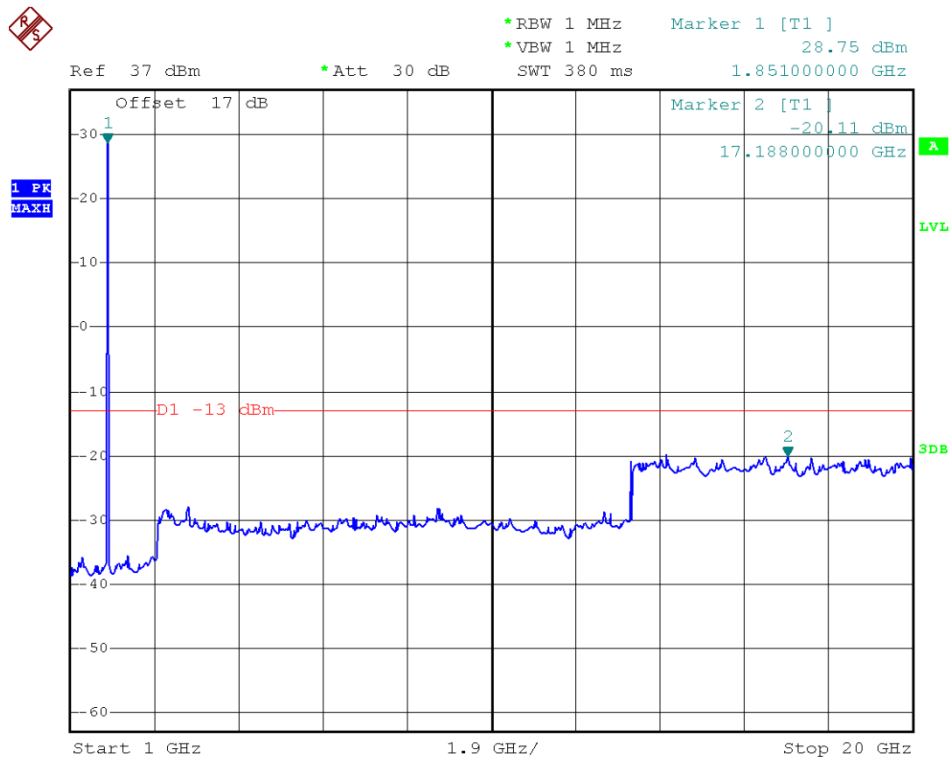
(Plot C3: EDGE 850MHz Channel = 251, 30MHz to 1GHz)



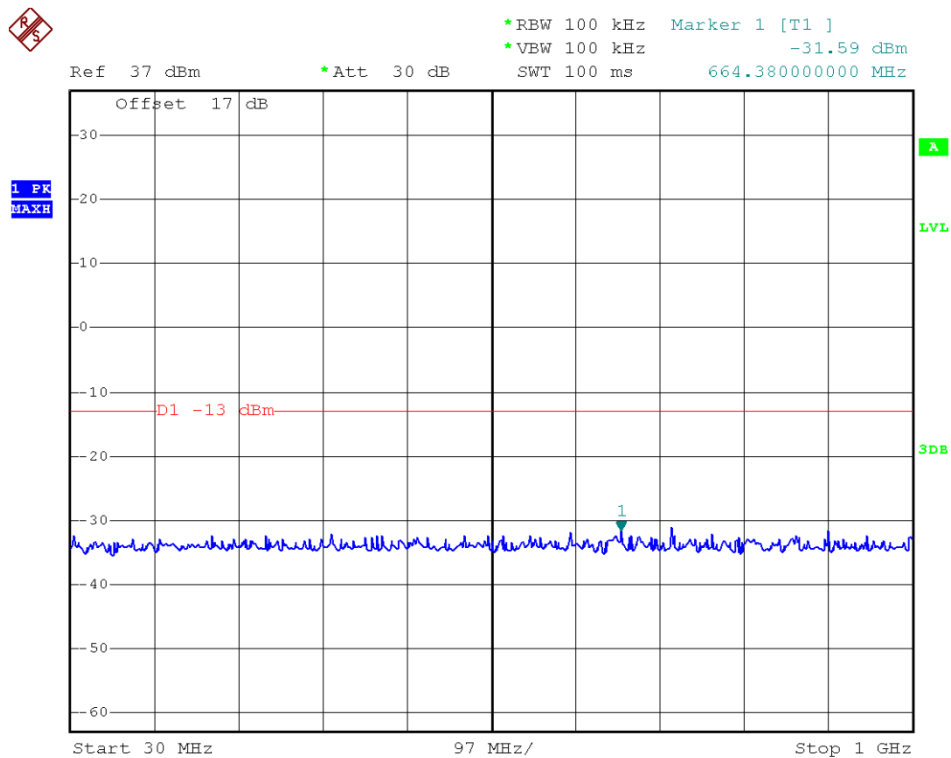
(Plot C3.1: EDGE 850MHz Channel = 251, 1GHz to 9GHz)



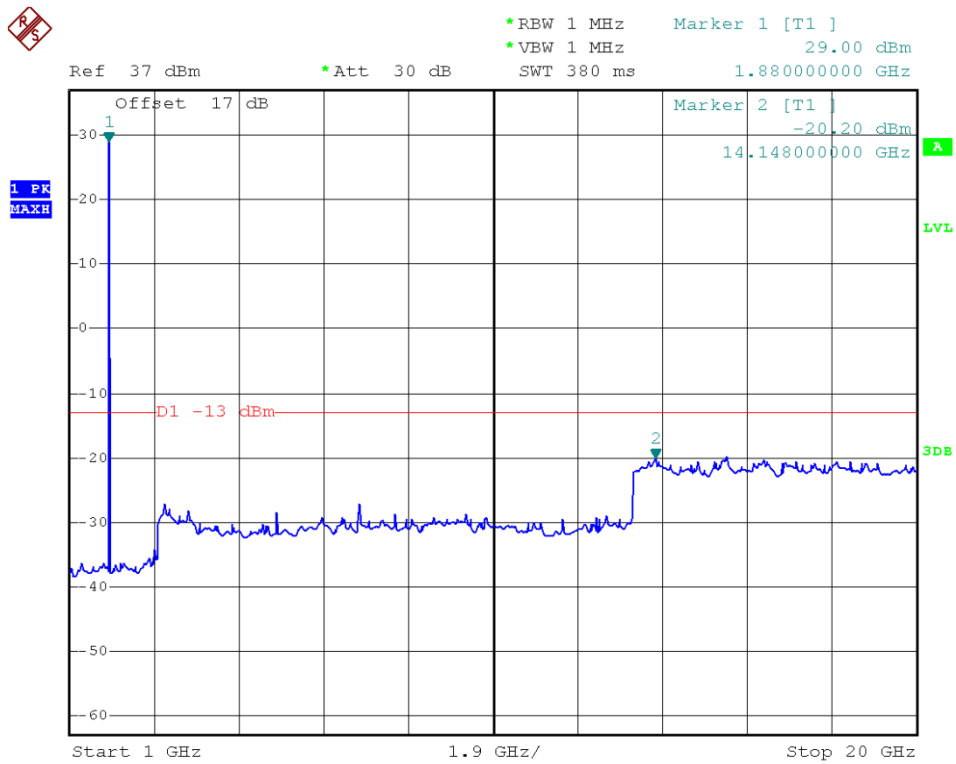
(Plot D1: EDGE 1900MHz Channel = 512, 30MHz to 1GHz)



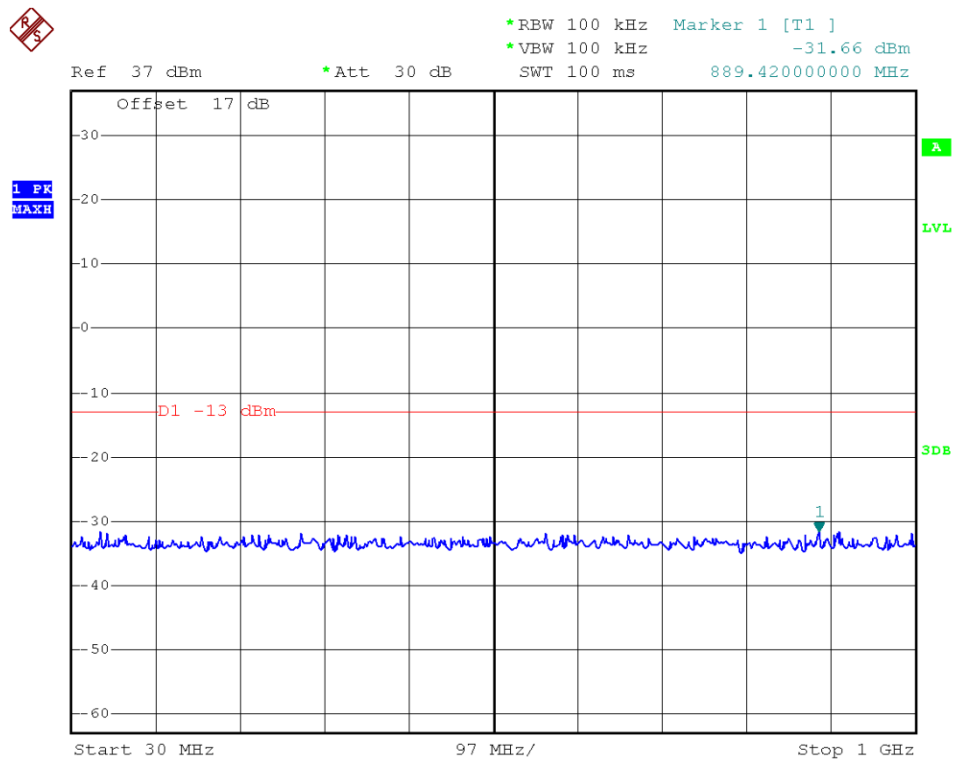
(Plot D1.1: EDGE 1900MHz Channel = 512, 1GHz to 20GHz)



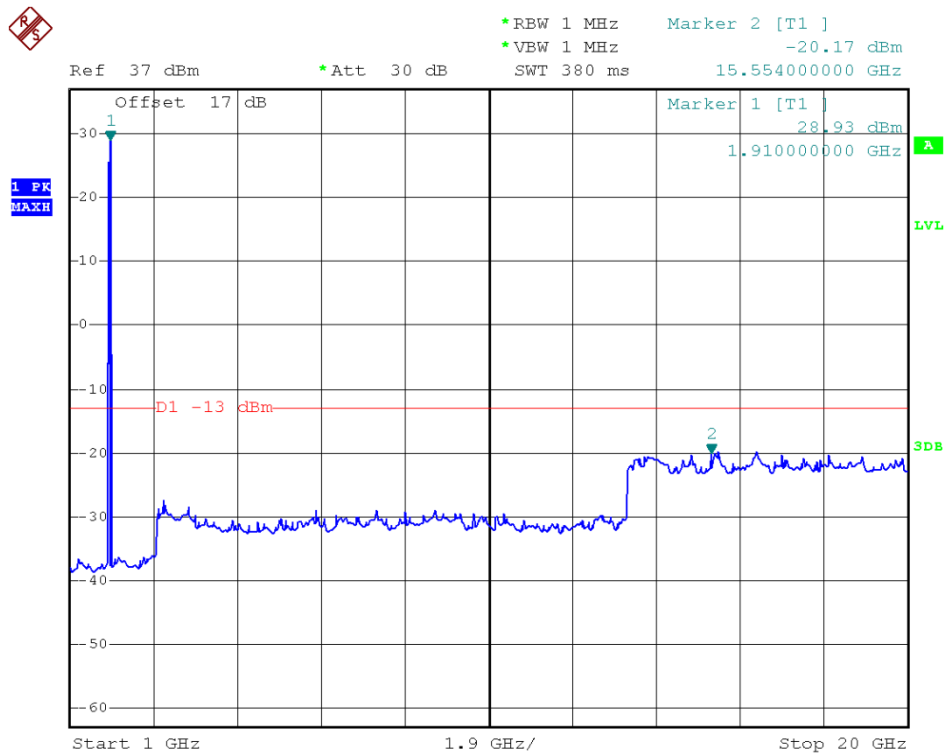
(Plot D2: EDGE 1900MHz Channel = 661, 30MHz to 1GHz)



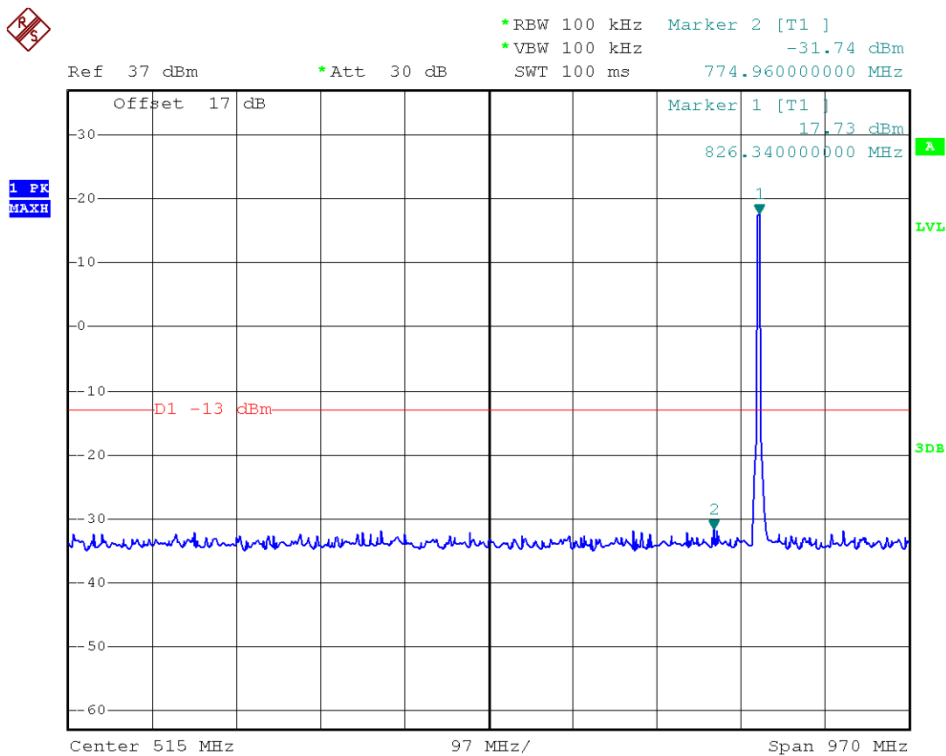
(Plot D2.1: EDGE 1900MHz Channel = 661, 1GHz to 20GHz)



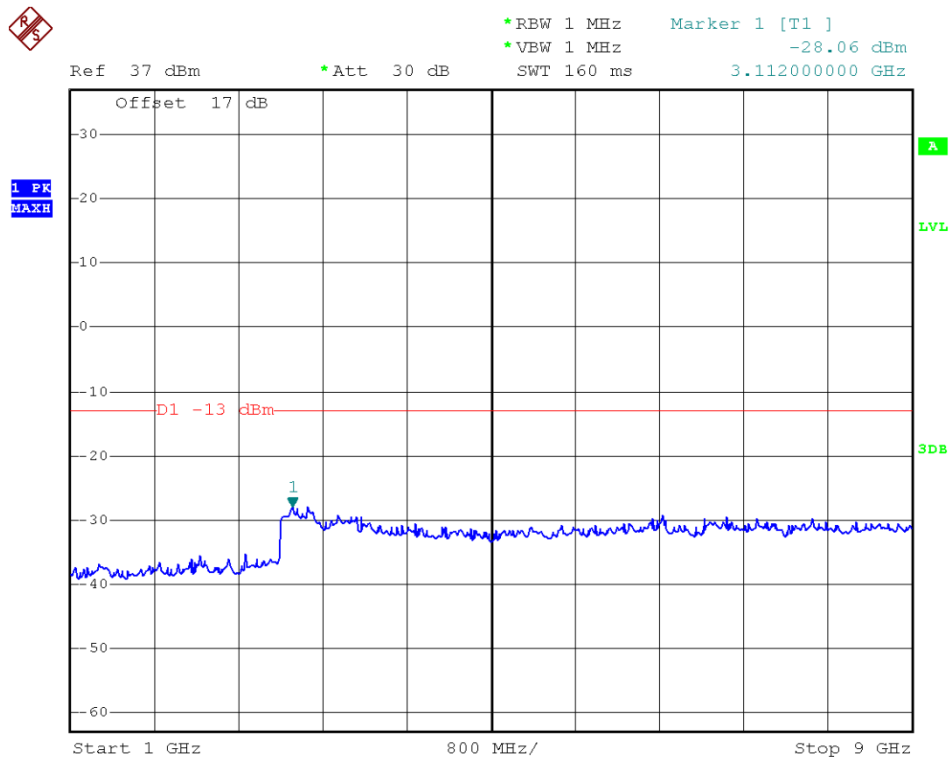
(Plot D3: EDGE 1900MHz Channel = 810, 30MHz to 1GHz)



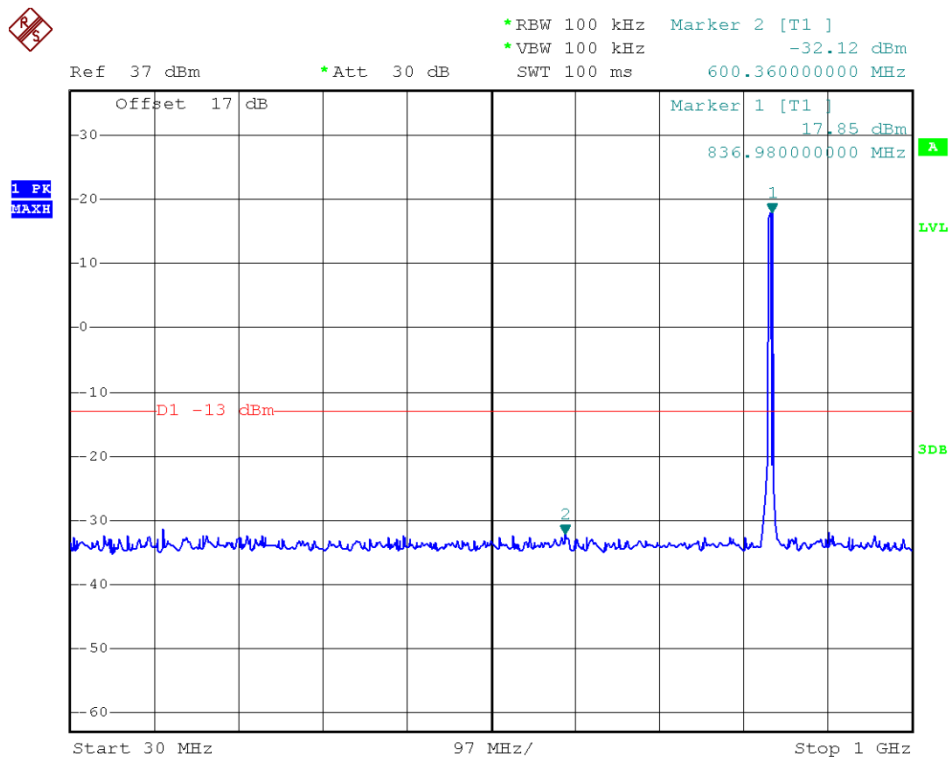
(Plot D3.1: EDGE 1900MHz Channel = 810, 1GHz to 20GHz)



(Plot E1: WCDMA850MHz Channel = 4132, 30MHz to 1GHz)

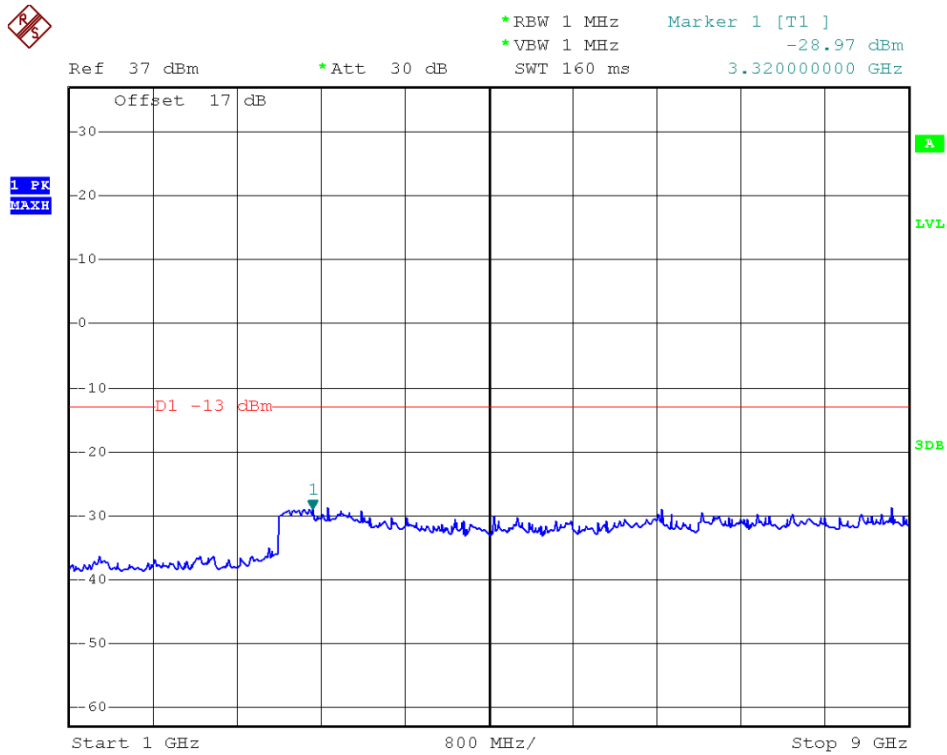


(Plot E1.1: WCDMA850MHz Channel = 4132, 1GHz to 9GHz)

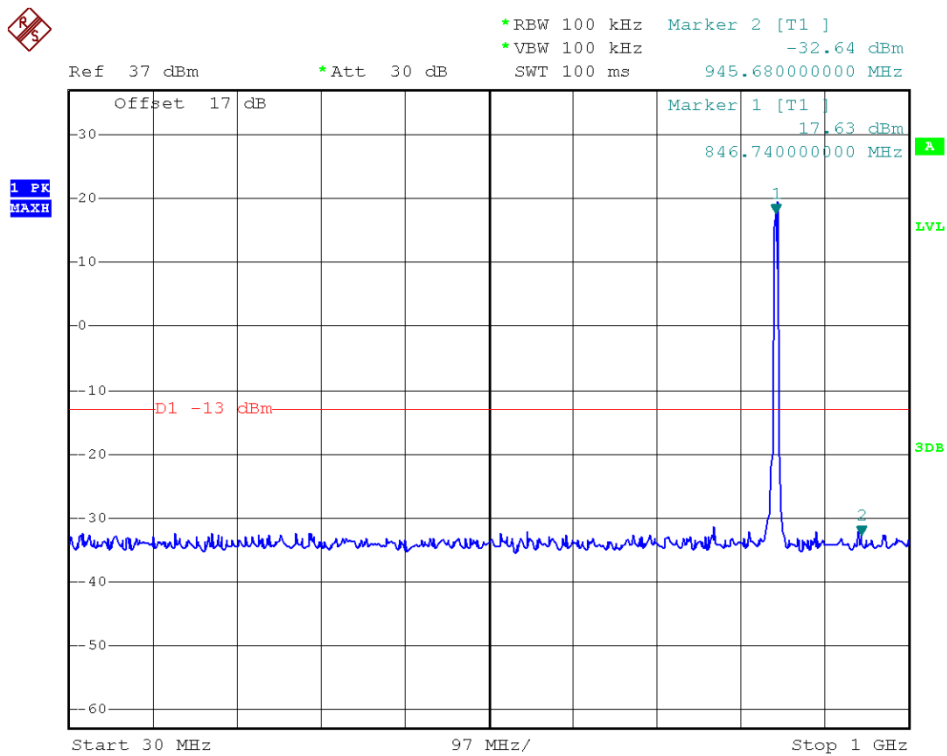


(Plot E2: WCDMA850MHz Channel = 4183, 30MHz to 1GHz)

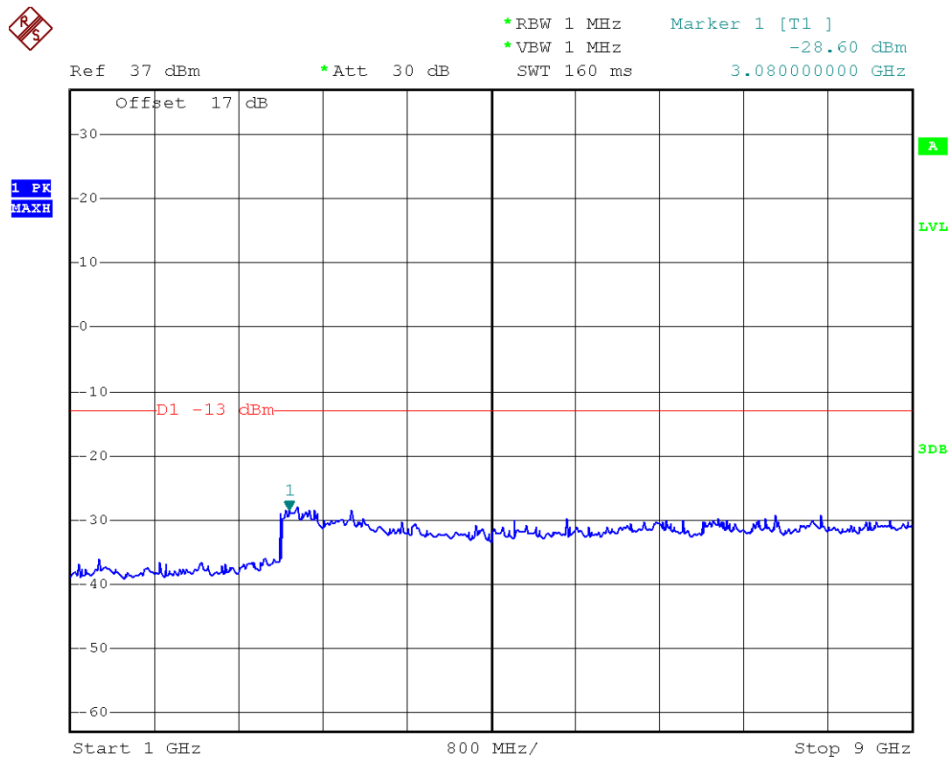




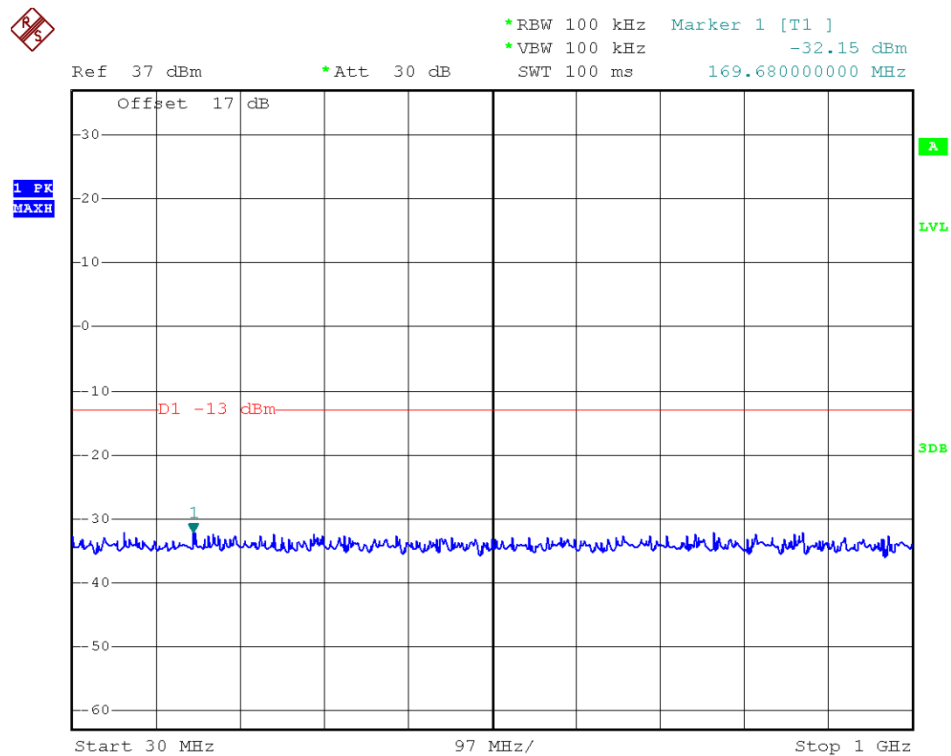
(Plot E2.1: WCDMA850MHz Channel = 4183, 1GHz to 9GHz)



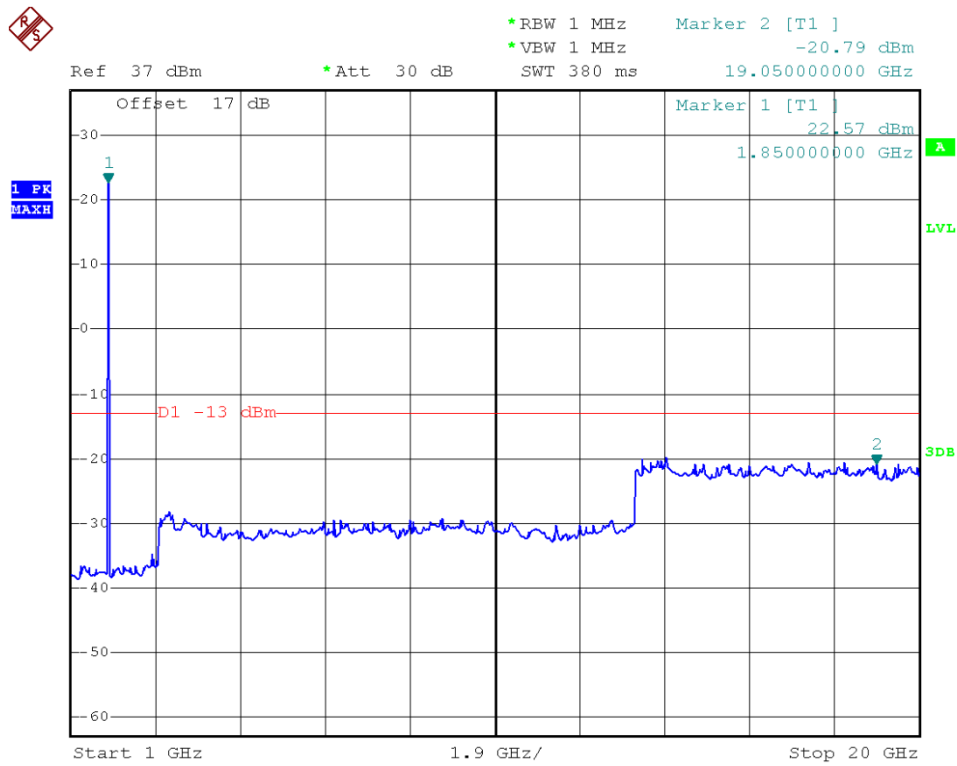
(Plot E3: WCDMA850MHz Channel = 4233, 30MHz to 1GHz)



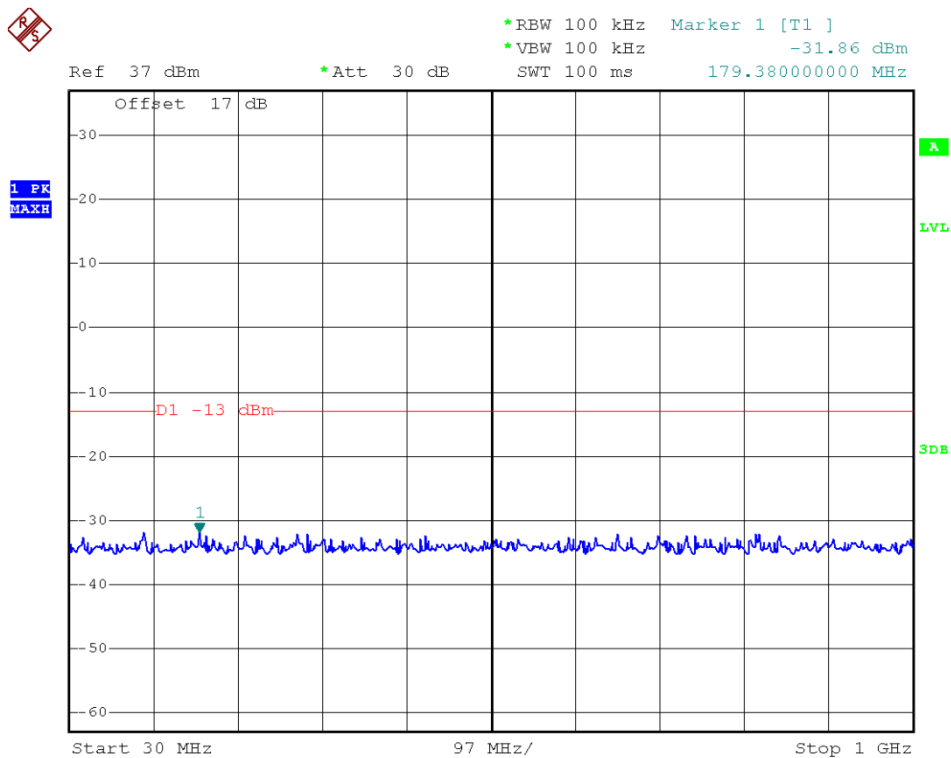
(Plot E3.1: WCDMA850MHz Channel = 4233, 1GHz to 9GHz)



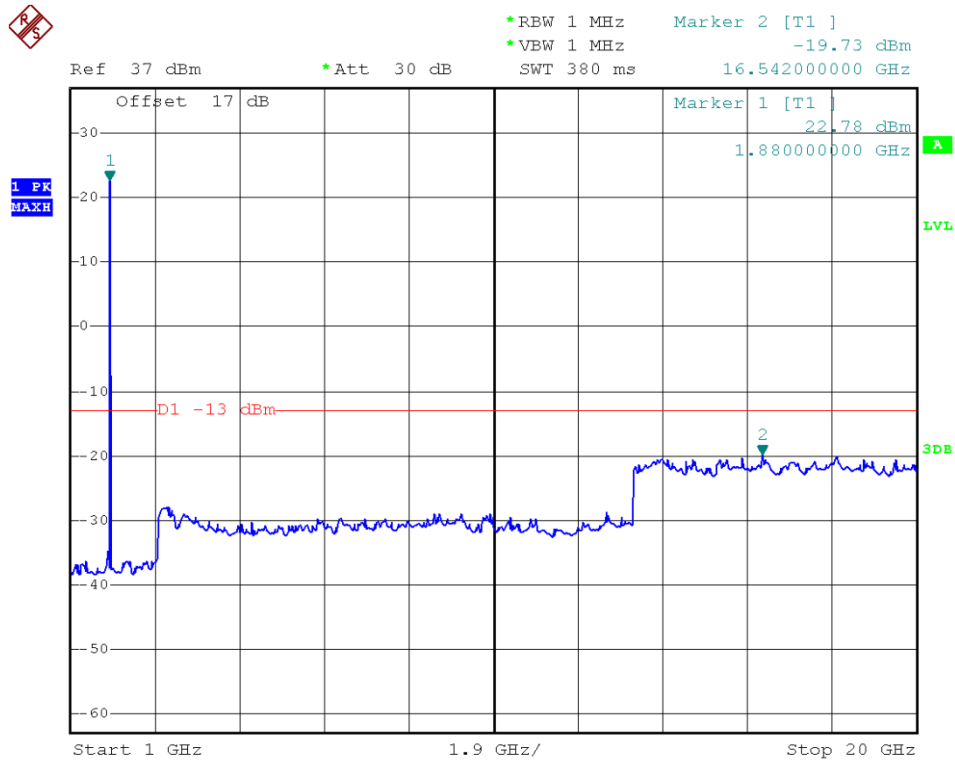
(Plot F1: WCDMA1900MHz Channel = 9262, 30MHz to 1GHz)



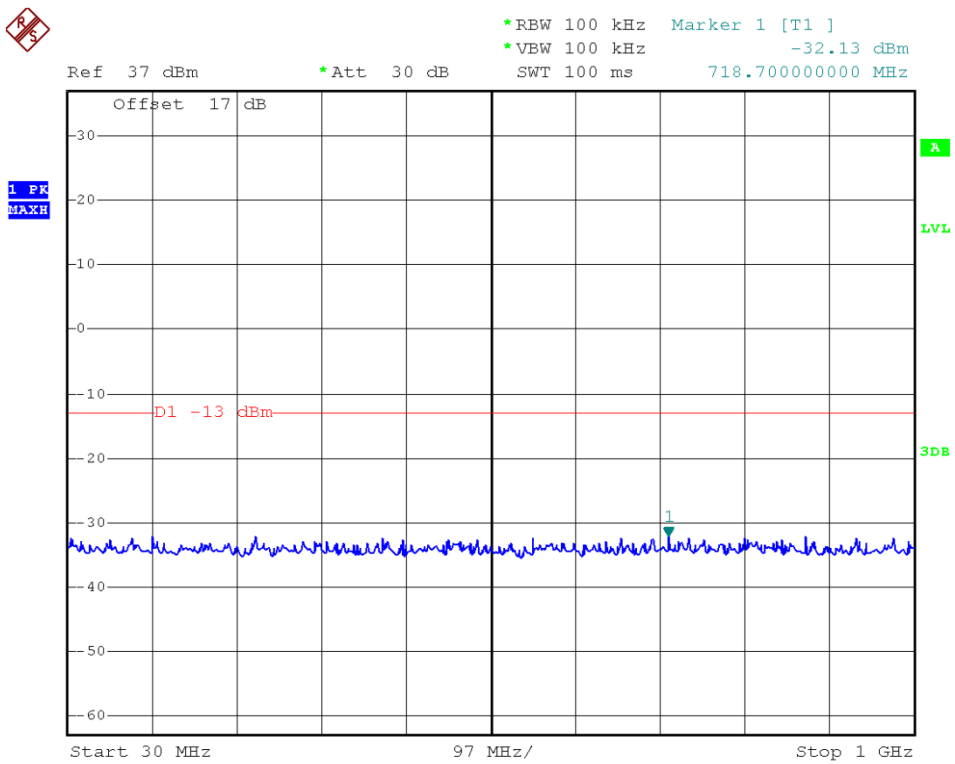
(Plot F1.1: WCDMA1900MHz Channel = 9262, 1GHz to 20GHz)



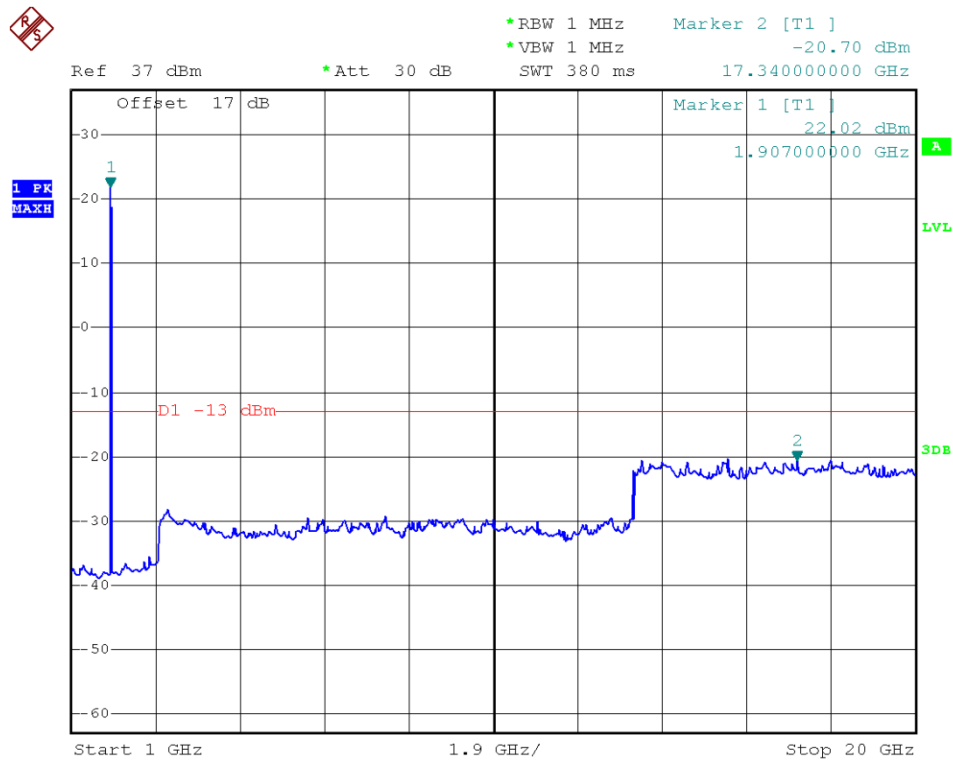
(Plot F2: WCDMA1900MHz Channel = 9400, 30MHz to 1GHz)



(Plot F2.1: WCDMA1900MHz Channel = 9400, 1GHz to 20GHz)



(Plot F3: WCDMA1900MHz Channel = 9538, 30MHz to 1GHz)



(Plot F3.1: WCDMA1900MHz Channel = 9538 1GHz to 20GHz)



## 2.6 Band Edge

### 2.6.1 Requirement

According to FCC section 22.917(b) and FCC section 24.238(b), in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

### 2.6.2 Test Description

See section 2.1.2 of this report.

### 2.6.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The band edges of low and high channels for the highest RF powers were measured.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from  $43 + 10\log(P)$  dB below the transmitter power P(Watts)
 
$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}.$$

### 2.6.4 Test Result

The lowest and highest channels are tested to verify the band edge emissions.

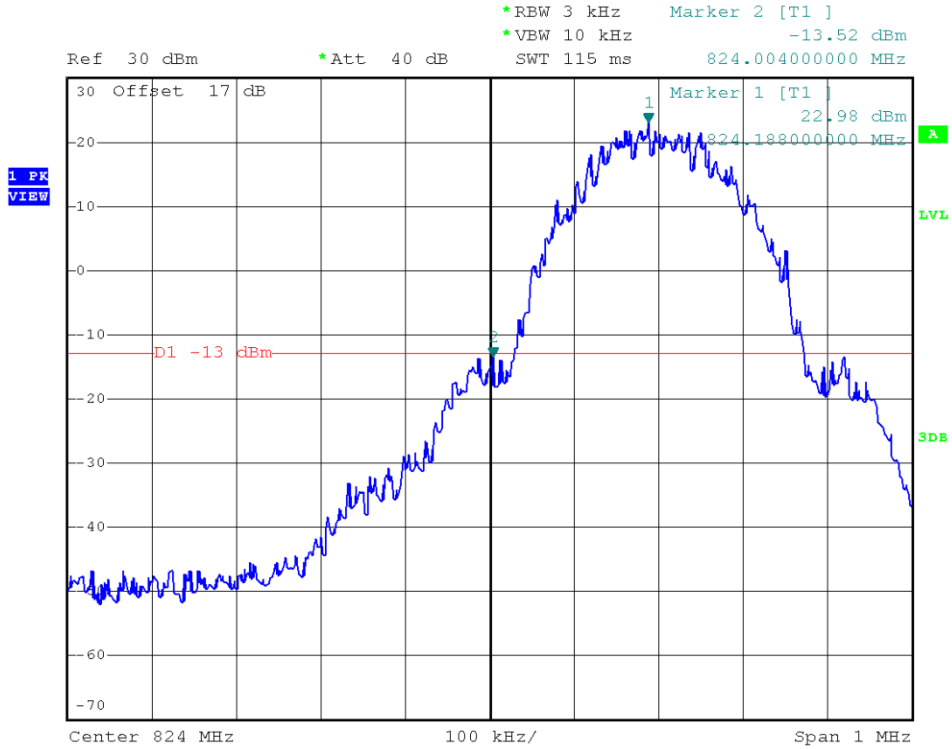
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Band Edge Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-13.52	Plat A	-13	PASS
	251	848.8	-13.47	Plot B		PASS
GSM 1900MHz	512	1850.2	-15.15	Plat C	-13	PASS
	810	1909.8	-14.33	Plot D		PASS
EDGE 850MHz	128	824.2	-13.42	Plat E	-13	PASS
	251	848.8	-13.33	Plot F		PASS
EDGE 1900MHz	512	1850.2	-15.00	Plat G	-13	PASS
	810	1909.8	-14.98	Plot H		PASS
WCDMA 850MHz	4132	826.4	-16.54	Plat I	-13	PASS
	4233	846.6	-14.75	Plot J		PASS

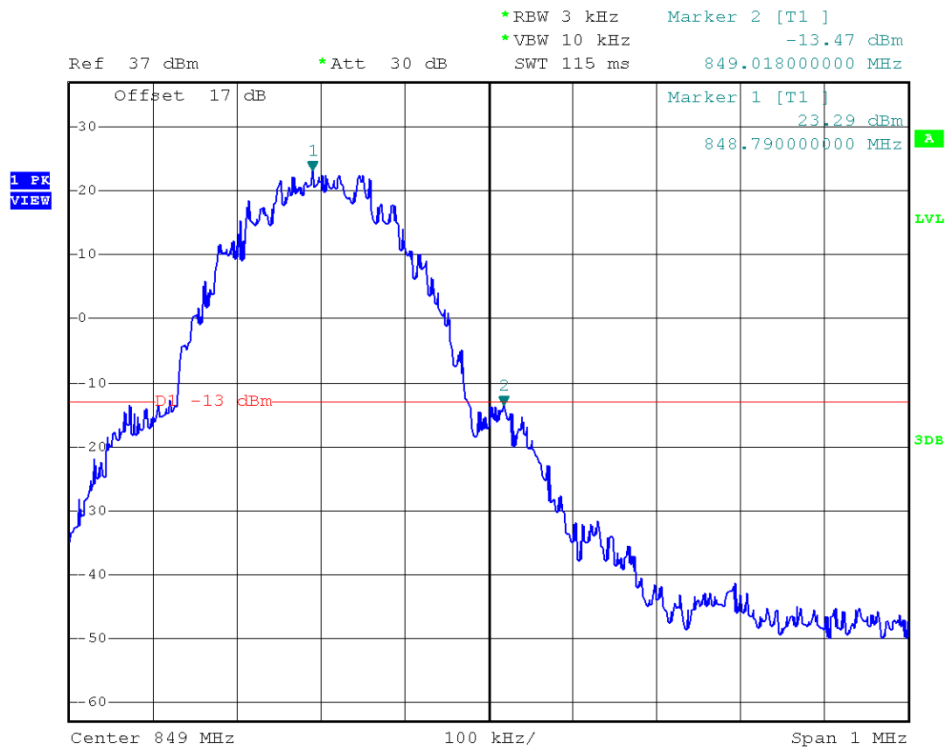


WCDMA	9262	1852.4	-16.99	Plat K	-13	PASS
1900MHz	9538	1907.6	-15.69	Plot L		PASS

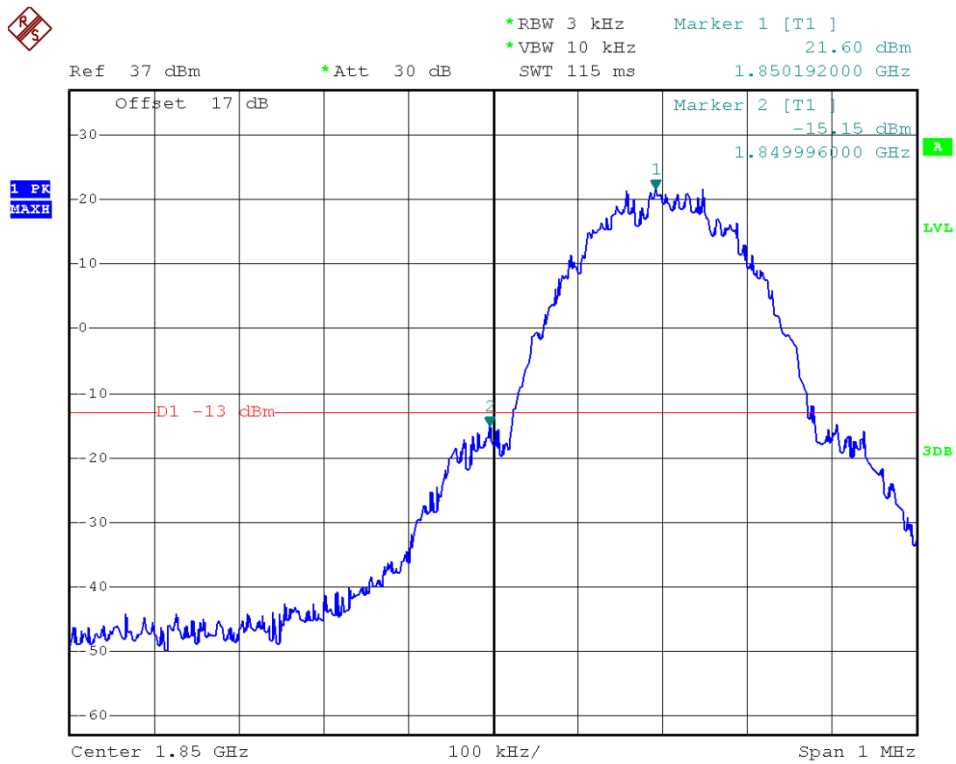
2. Test Plots:



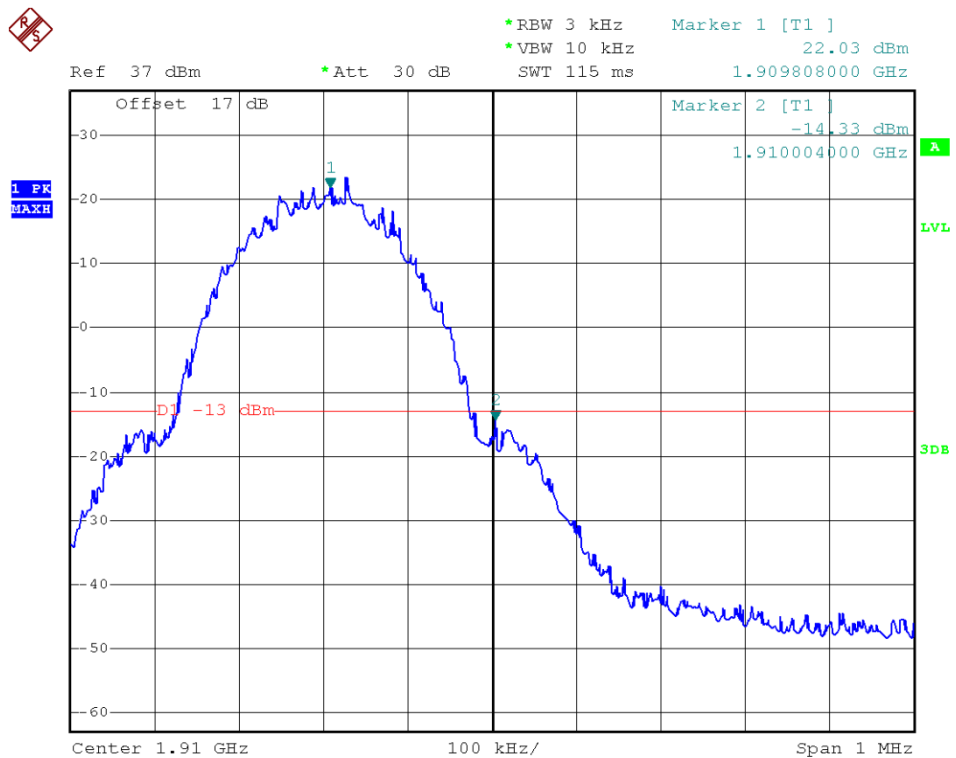
(Plot A: GSM 850 Channel = 128)



(Plot B: GSM 850 Channel = 251)

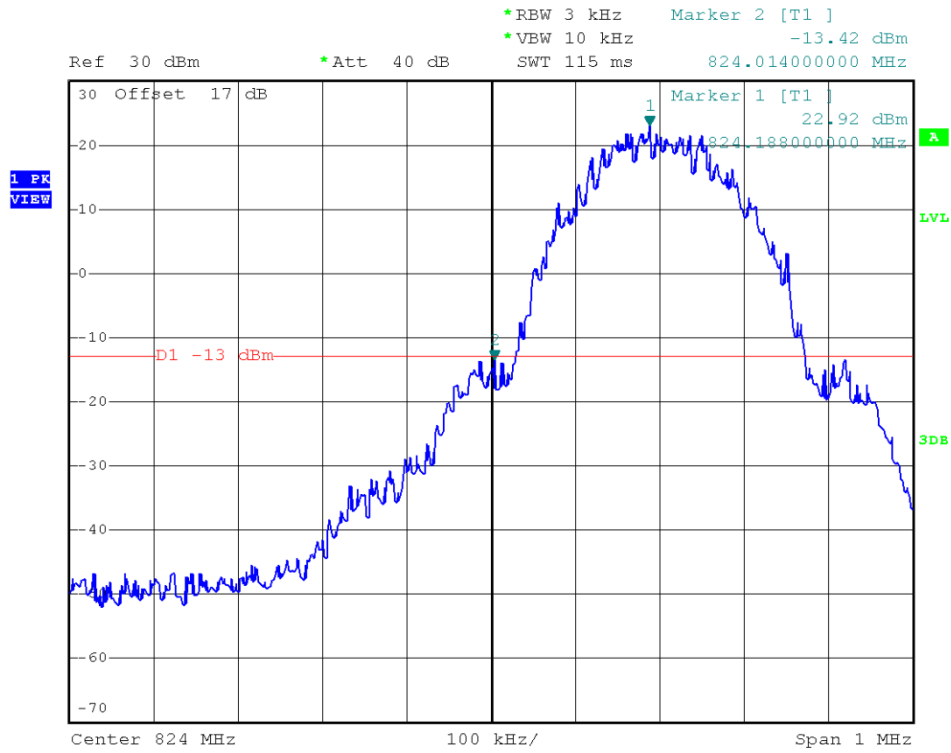


(Plot C: GSM 1900 Channel = 512)



(Plot D: GSM 1900 Channel = 810)

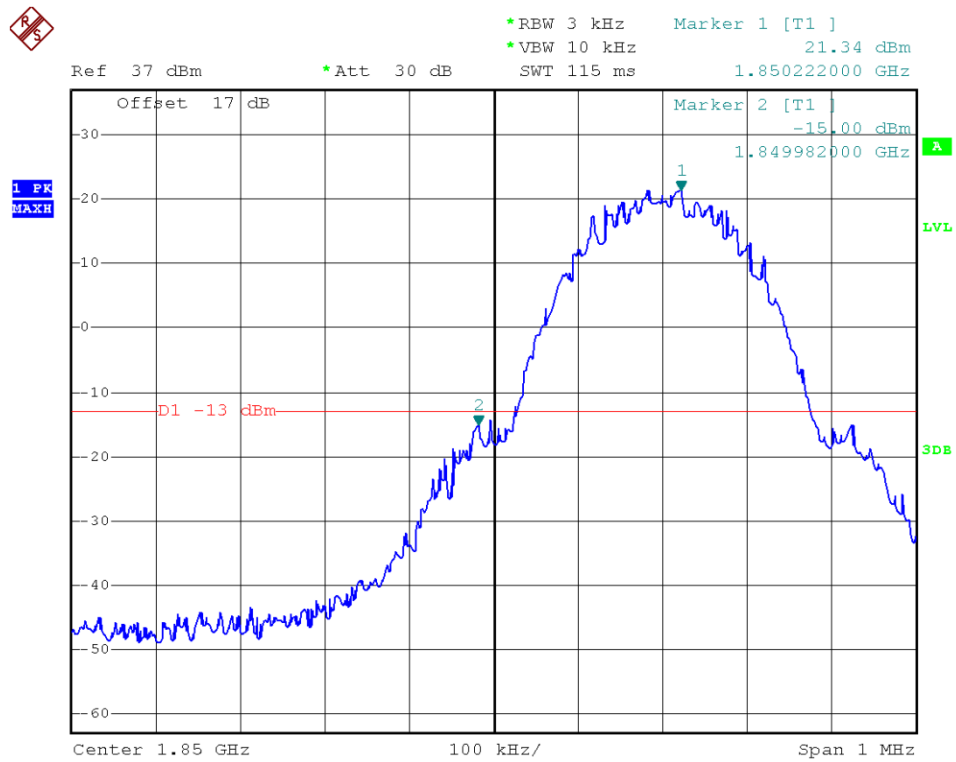




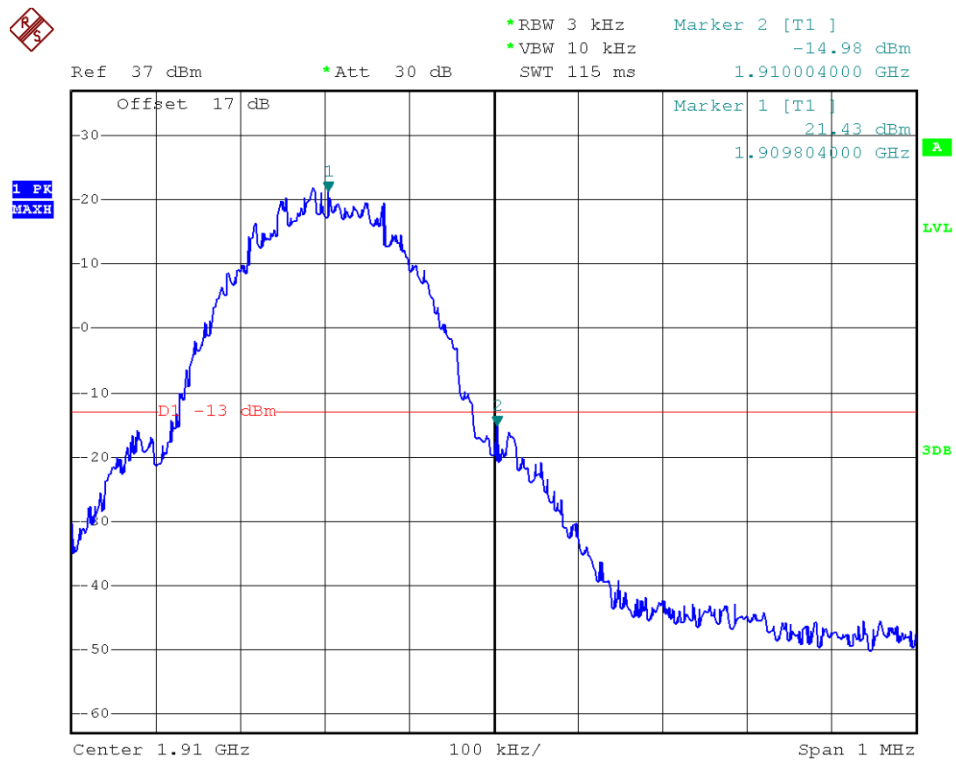
(Plot E: EDGE 850 Channel = 128)



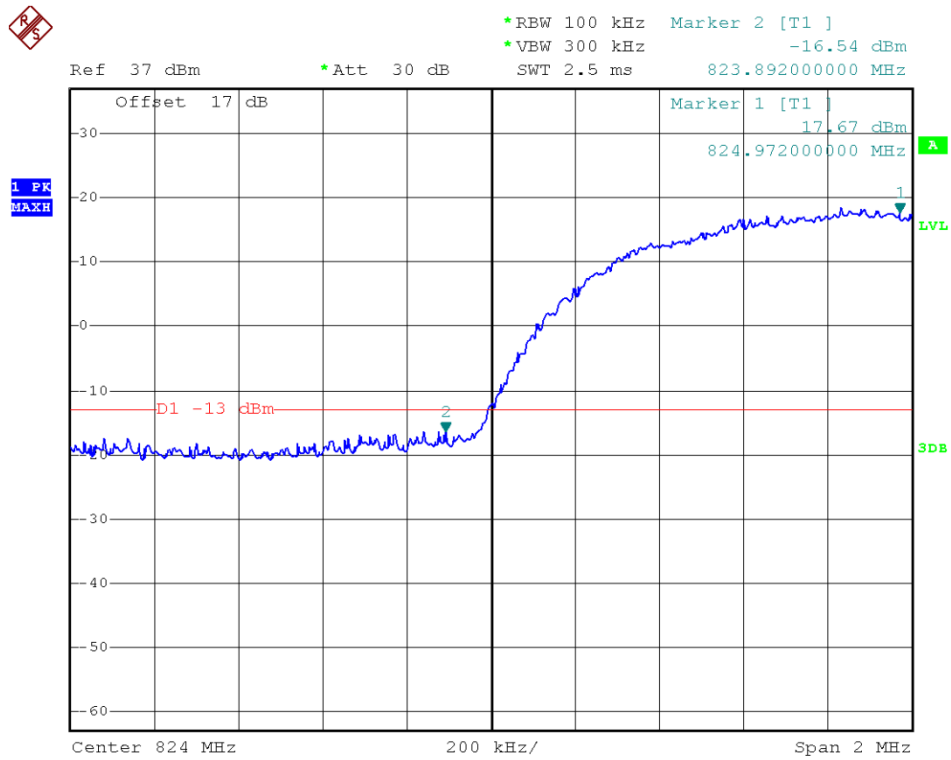
(Plot F: EDGE 850 Channel = 251)



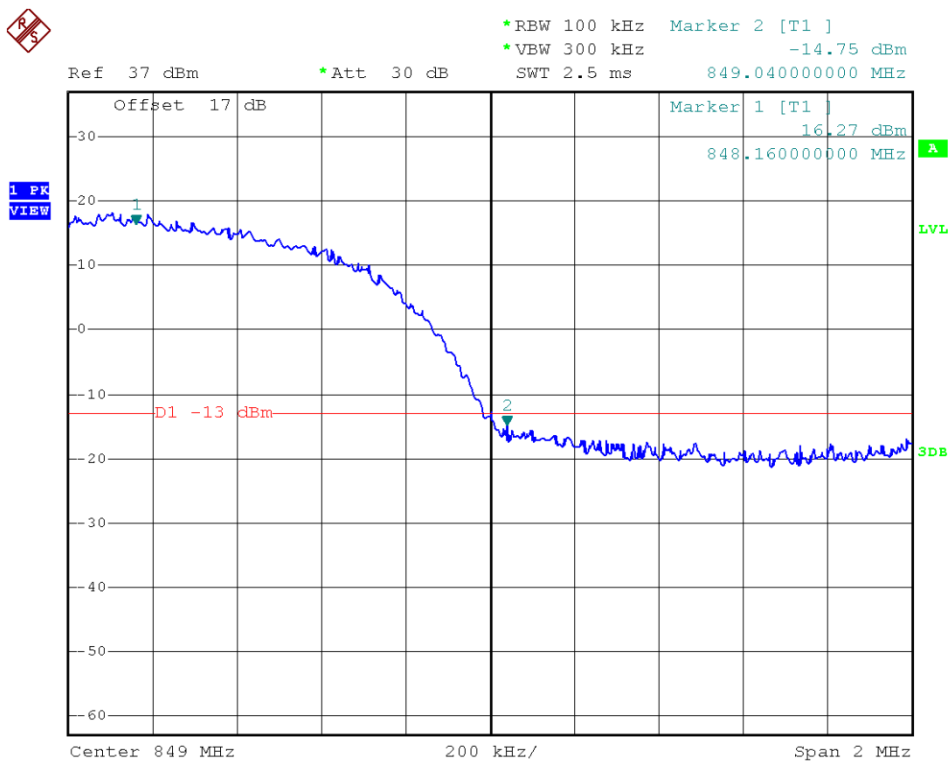
(Plot G: EDGE 1900 Channel = 512)



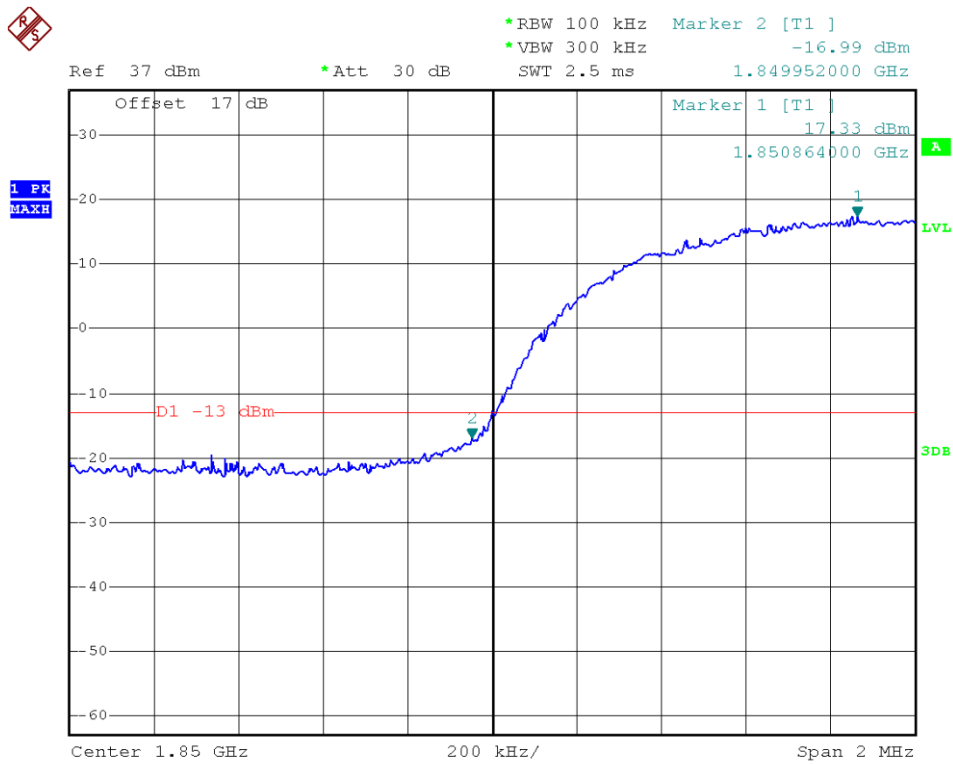
(Plot H: EDGE 1900 Channel = 810)



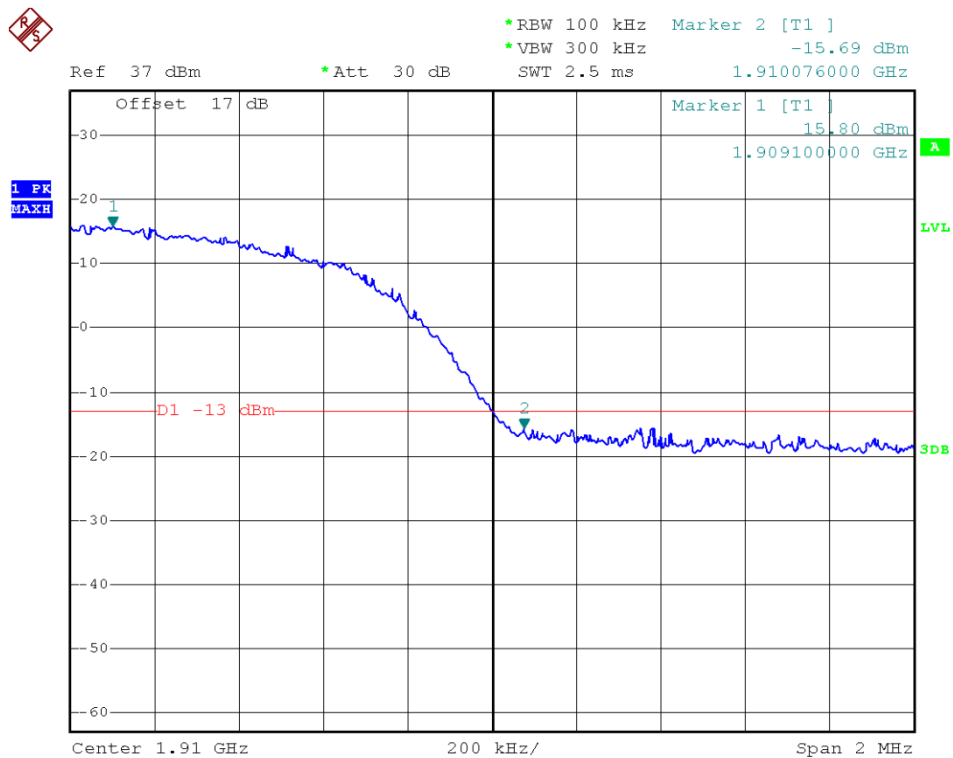
(Plot I: WCDMA 850 Channel = 4132)



(Plot J: WCDMA 850 Channel = 4233)



(Plot K: WCDMA 1900 Channel = 9262)



(Plot L: WCDMA 1900 Channel = 9538)

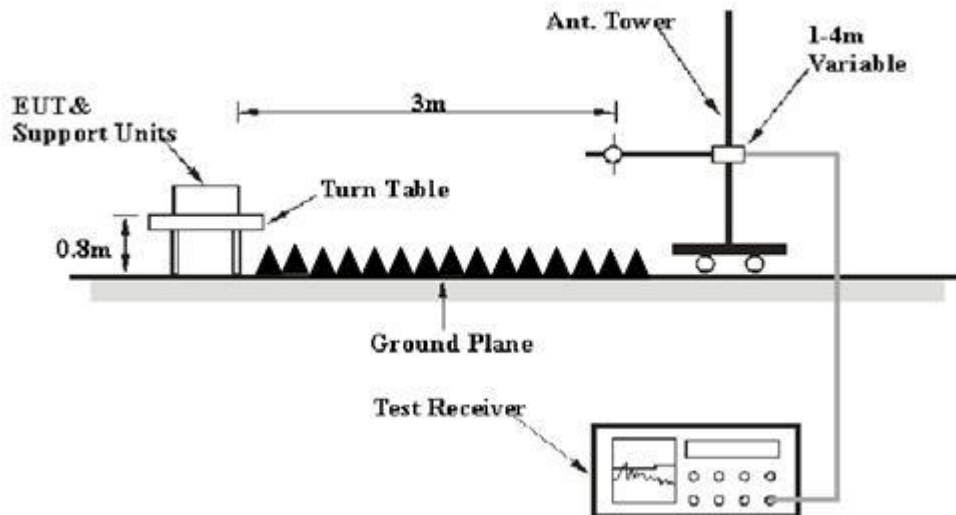
## 2.7 Transmitter Radiated Power (EIRP/ERP)

### 2.7.1 Requirement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and 1 Watts (AWS Band).

### 2.7.2 Test Description

#### 1. Test Setup:



The EUT, which is powered by the DC 3.8V Power Supply directly, 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.

#### 2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due Date
System Simulator	Agilent	E5515C	MY47510547	2014.06.11	2015.06.10
Spectrum Analyzer	R&S	FSP40	1164.4391.40	2014.07.07	2015.07.06
EMI Test Receiver	R&S	ESIB26	100130	2014.07.07	2015.07.06
Full-Anechoic	Albatross~	12.8m*6.8m	A0412372	2015.01.05	2016.01.04



Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due Date
System Simulator	Agilent	E5515C	MY47510547	2014.06.11	2015.06.10
Chamber	Projects	*6.4m			
Double ridge horn antenna	R&S	HF906	A0304225	2014.06.11	2015.06.10
Ultra-wideband antenna	R&S	HL562	A0304224	2014.06.11	2015.06.10
Loop antenna	R&S	HFH2-Z2	A0304226	2014.06.11	2015.06.10
Cable	SUNHNER	SUCOFLEX 100	/	2014.06.05	2015.06.04
Cable	SUNHNER	SUCOFLEX 104	/	2014.06.05	2015.06.04

**2.7.3 Test Procedures**

- The testing follows FCC KDB 971168 v02r01 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-C-2004 Section 2.2.17.
- The EUT was placed on a turntable 1.5 meters high in a fully anechoic chamber.
- The EUT was placed 3 meters from the receiving antenna, which was mounted on the antenna tower.
- GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;  
UMTS operating modes: Set RBW= 100 kHz, VBW= 300 kHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per KDB 971168 D01.
- The table was rotated 360 degrees to determine the position of the highest radiated power.
- The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
- Taking the record of maximum ERP/EIRP.
- A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
- The conducted power at the terminal of the dipole antenna is measured.
- Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
- $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$   
 $P_s$  (dBm): Input power to substitution antenna.  
 $G_s$  (dBi or dBd): Substitution antenna Gain.  
 $E_t = R_t + AF$        $E_s = R_s + AF$



AF (dB/m): Receive antenna factor

Rt: The highest received signal in spectrum analyzer for EUT.

Rs: The highest received signal in spectrum analyzer for substitution antenna.

### 2.7.4 Test Result

Test Notes:

1. This device employs GMSK technology with GSM and GPRS capabilities. All configurations were investigated and the worst case emissions were found in GSM mode.
2. This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA and HSUPA capabilities. All configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2Kbps.
3. This unit was tested with its standard battery.
4. The worst case test configuration was found in the vertical positioning where the EUT is laying on its side. The data reported in the tables below were measured in this test setup.

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured ERP dBm	Limit dBm	Verdict
GSM 850MHz	128	824.20	V	5	33.12	38.5	PASS
	190	836.60	V	5	33.26		PASS
	251	848.80	V	5	33.15		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured ERP dBm	Limit dBm	Verdict
GSM 850MHz	128	824.20	H	5	33.04	38.5	PASS
	190	836.60	H	5	33.14		PASS
	251	848.80	H	5	33.07		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured EIRP dBm	Limit dBm	Verdict
GSM 1900MHz	512	1850.2	V	0	30.12	33	PASS
	661	1880.0	V	0	30.35		PASS
	810	1909.8	V	0	30.13		PASS



Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured EIRP dBm	Limit dBm	Verdict
GSM 1900MHz	512	1850.2	H	0	30.07	33	PASS
	661	1880.0	H	0	30.19		PASS
	810	1909.8	H	0	30.06		PASS
Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured ERP dBm	Limit dBm	Verdict
EDGE 850MHz	128	824.20	V	5	33.05	38.5	PASS
	190	836.60	V	5	33.19		PASS
	251	848.80	V	5	33.11		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured ERP dBm	Limit dBm	Verdict
EDGE 850MHz	128	824.20	H	5	33.00	38.5	PASS
	190	836.60	H	5	33.09		PASS
	251	848.80	H	5	33.09		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured EIRP dBm	Limit dBm	Verdict
EDGE 1900MHz	512	1850.2	V	0	29.72	33	PASS
	661	1880.0	V	0	29.95		PASS
	810	1909.8	V	0	29.83		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	PCL	Measured EIRP dBm	Limit dBm	Verdict
EDGE 1900MHz	512	1850.2	H	0	29.62	33	PASS
	661	1880.0	H	0	29.87		PASS
	810	1909.8	H	0	29.72		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	Measured ERP dBm	Limit dBm	Verdict
WCDMA 850MHz	4132	826.4	V	25.42	38.5	PASS
	4175	835	V	25.68		PASS
	4233	846.6	V	25.79		PASS





Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	Measured ERP dBm	Limit dBm	Verdict
WCDMA 850MHz	4132	826.4	H	25.33	38.5	PASS
	4175	835	H	25.51		PASS
	4233	846.6	H	25.67		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	Measured EIRP dBm	Limit dBm	Verdict
WCDMA 1900MHz	9262	1852.4	V	25.51	33	PASS
	9400	1880	V	25.64		PASS
	9538	1907.6	V	25.38		PASS

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	Measured EIRP dBm	Limit dBm	Verdict
WCDMA 1900MHz	9262	1852.4	H	25.40	33	PASS
	9400	1880	H	25.63		PASS
	9538	1907.6	H	25.24		PASS



## 2.8 Radiated Out of Band Emissions

### 2.8.1 Requirement

According to FCC section 22.917(a) and section 24.238(a), 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. This calculated to be -13dBm.

### 2.8.2 Test Description

See section 0 of this report.

Equipment List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal.Due Date
System Simulator	Agilent	E5515C	MY47510547	2014.06.11	2015.06.10
Spectrum Analyzer	R&S	FSP40	1164.4391.40	2014.07.07	2015.07.06
Power Meter	R&S	NRV2	1020.1809.02	2014.06.08	2015.06.07
Power Sensor	R&S	NRV-Z4	823.3618.03	2014.06.08	2015.06.07
Full-Anechoic Chamber	Albatross~ Projects	12.8m*6.8m *6.4m	A0412372	2014.01.05	2015.01.04
Double ridge horn antenna	R&S	HF906	A0304225	2014.06.11	2015.06.10
Ultra-wideband antenna	R&S	HL562	A0304224	2014.06.11	2015.06.10
Loop antenna	R&S	HFH2-Z2	A0304226	2014.06.11	2015.06.10
Cable	SUNHNER	SUCOFLEX 100	/	2014.06.05	2015.06.04
Cable	SUNHNER	SUCOFLEX 104	/	2014.06.05	2015.06.04

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

### 2.8.3 Test Result

Test Notes:

1. This device employs GMSK technology with GSM and GPRS capabilities. All configurations were investigated and the worst case emissions were found in GSM mode.
2. This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA and HSUPA capabilities. All configurations were investigated and the worst case UMTS emissions were found in



RMC WCDMA mode at 12.2Kbps.

3. This unit was tested with its standard battery.

4. The worst case test configuration was found in the vertical positioning where the EUT is laying on its side. The data reported in the tables below were measured in this test setup.

5. The spectrum is measured from 30MHz to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. The worst case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.

6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

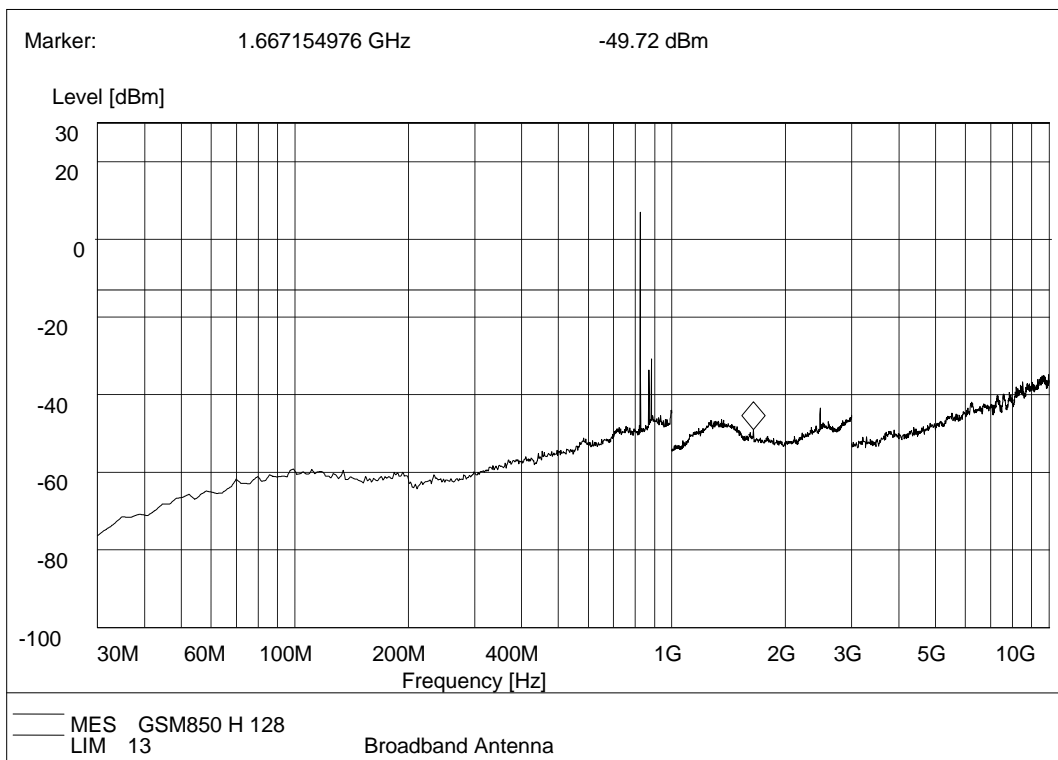
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical			
GSM 850MHz	128	824.2	< -25	< -25	Plot A.1/A.2	-13	PASS
	190	836.6	< -25	< -25	Plot A.3/A.4		PASS
	251	848.8	< -25	< -25	Plot A.5/A.6		PASS
GSM 1900MHz	512	1850.2	< -25	< -25	Plot B.1/B.2	-13	PASS
	661	1880.0	< -25	< -25	Plot B.3/B.4		PASS
	810	1909.8	< -25	< -25	Plot B.5/B.6		PASS
EDGE 850MHz	128	824.2	< -25	< -25	Plot C.1/C.2	-13	PASS
	190	836.6	< -25	< -25	Plot C.3/C.4		PASS
	251	848.8	< -25	< -25	Plot C.5/C.6		PASS
EDGE 1900MHz	512	1850.2	< -25	< -25	Plot D.1/D.2	-13	PASS
	661	1880.0	< -25	< -25	Plot D.3/D.4		PASS
	810	1909.8	< -25	< -25	Plot D.5/D.6		PASS
WCDMA 850MHz	4132	826.4	< -25	< -25	Plot E.1/E.2	-13	PASS
	4183	836.6	< -25	< -25	Plot E.3/E.4		PASS
	4233	846.6	< -25	< -25	Plot E.5/E.6		PASS
WCDMA 1900MHz	9262	1852.4	< -25	< -25	Plot F.1/F.2	-13	PASS
	9400	1880	< -25	< -25	Plot F.3/F.4		PASS
	9538	1907.6	< -25	< -25	Plot F.5/F.6		PASS

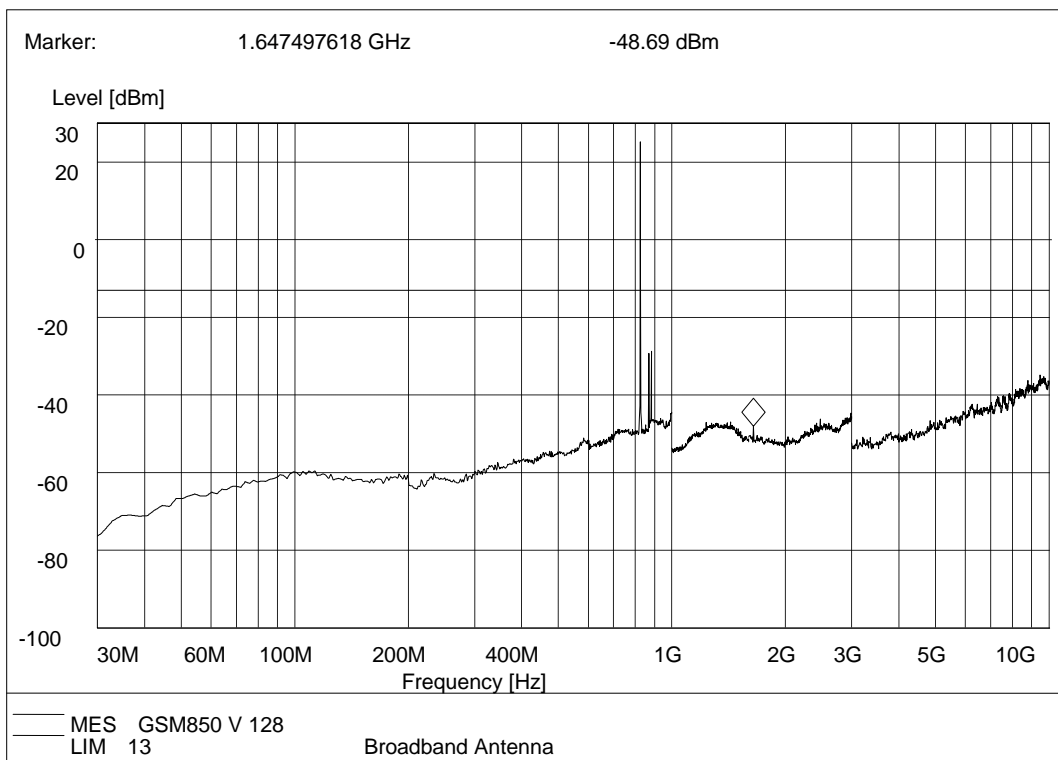
2. Test Plots for the Whole Measurement Frequency Range:

Note1: the power of the EUT transmitting frequency should be ignored.

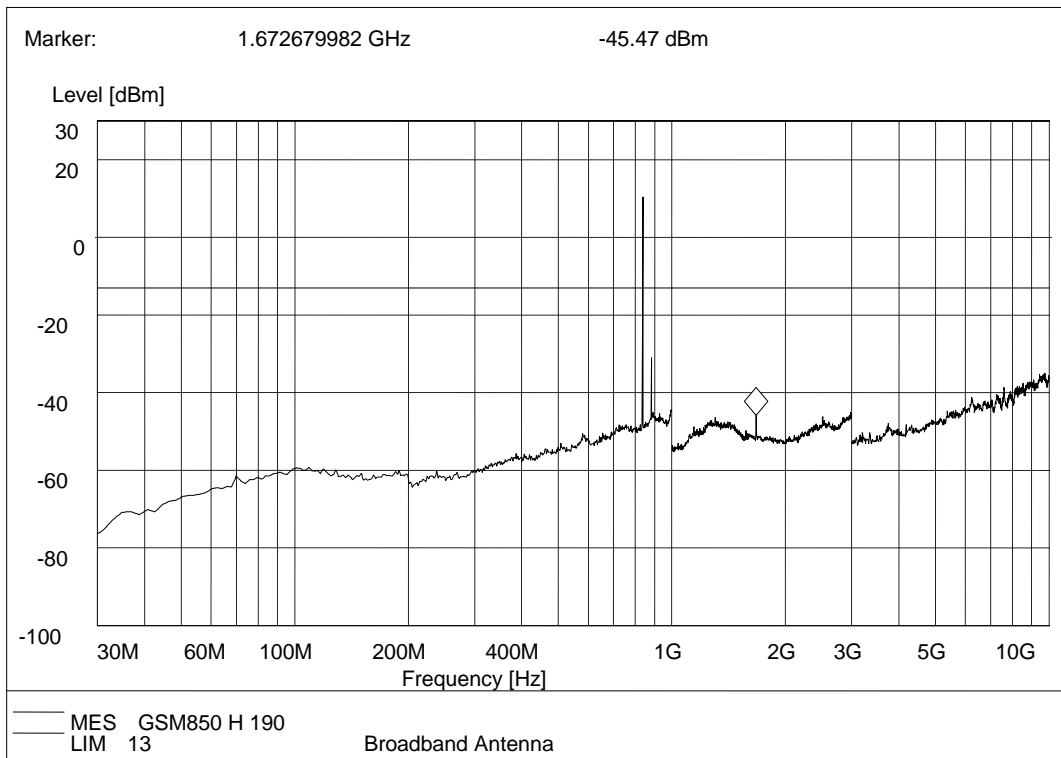
Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.



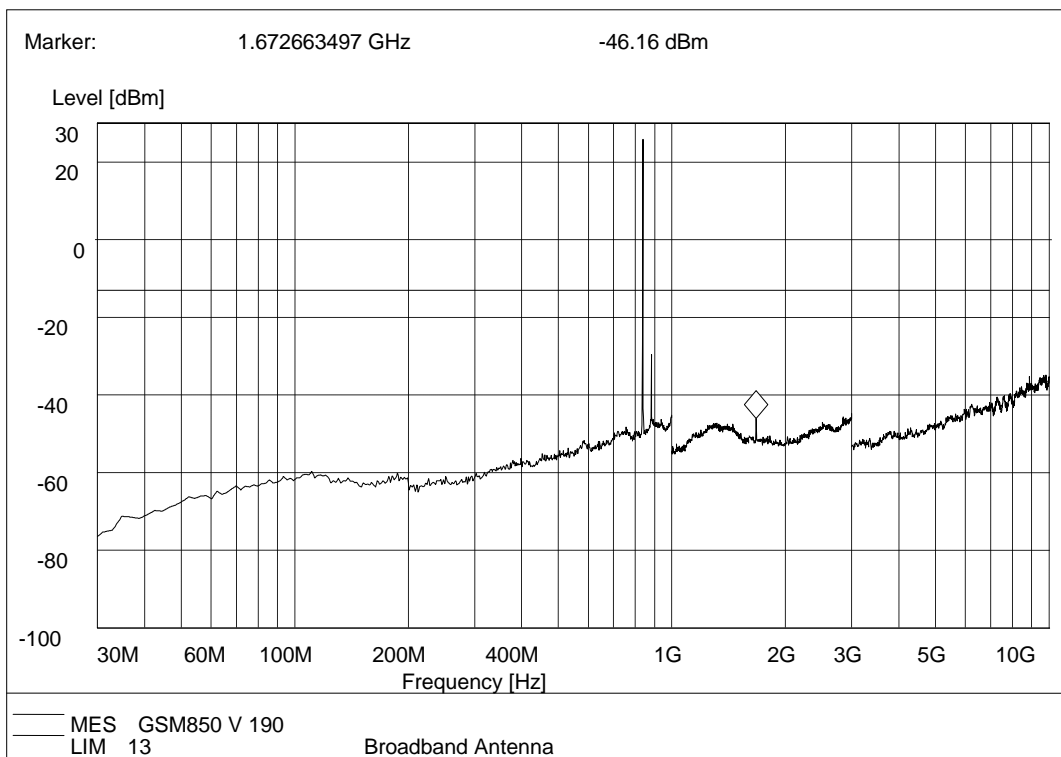
(Plot A.1: GSM 850MHz Channel = 128, Test Antenna Horizontal)



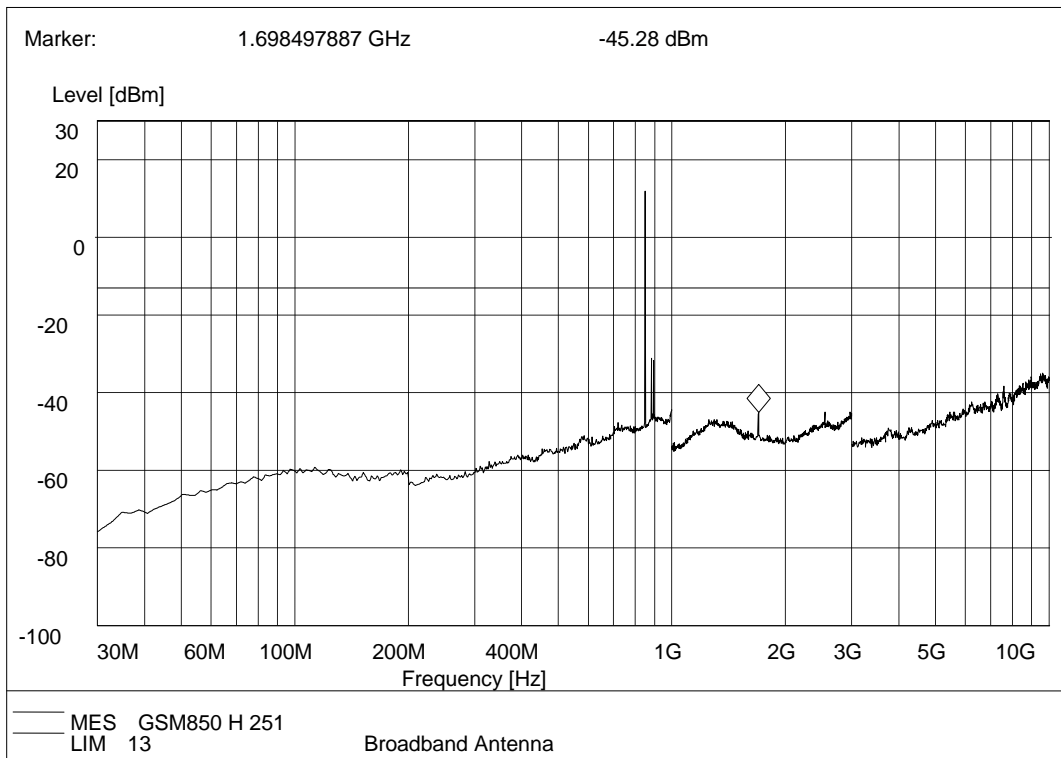
(Plot A.2: GSM 850MHz Channel = 128, Test Antenna Vertical)



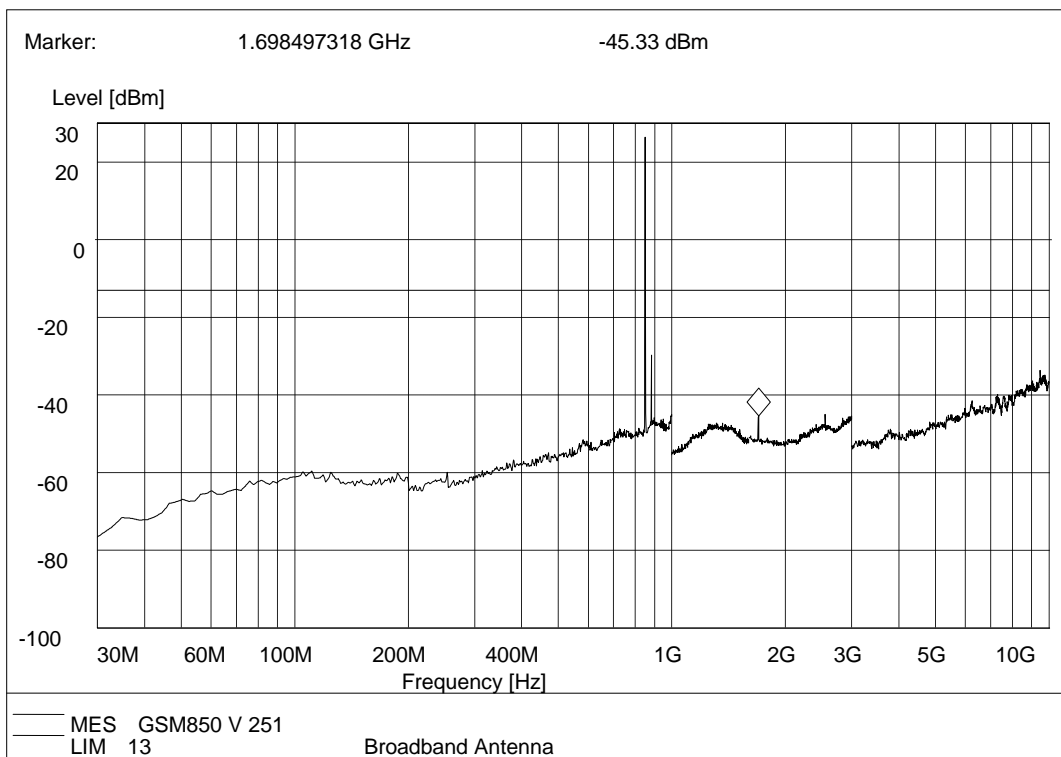
(Plot A.3: GSM 850MHz Channel = 190, Test Antenna Horizontal)



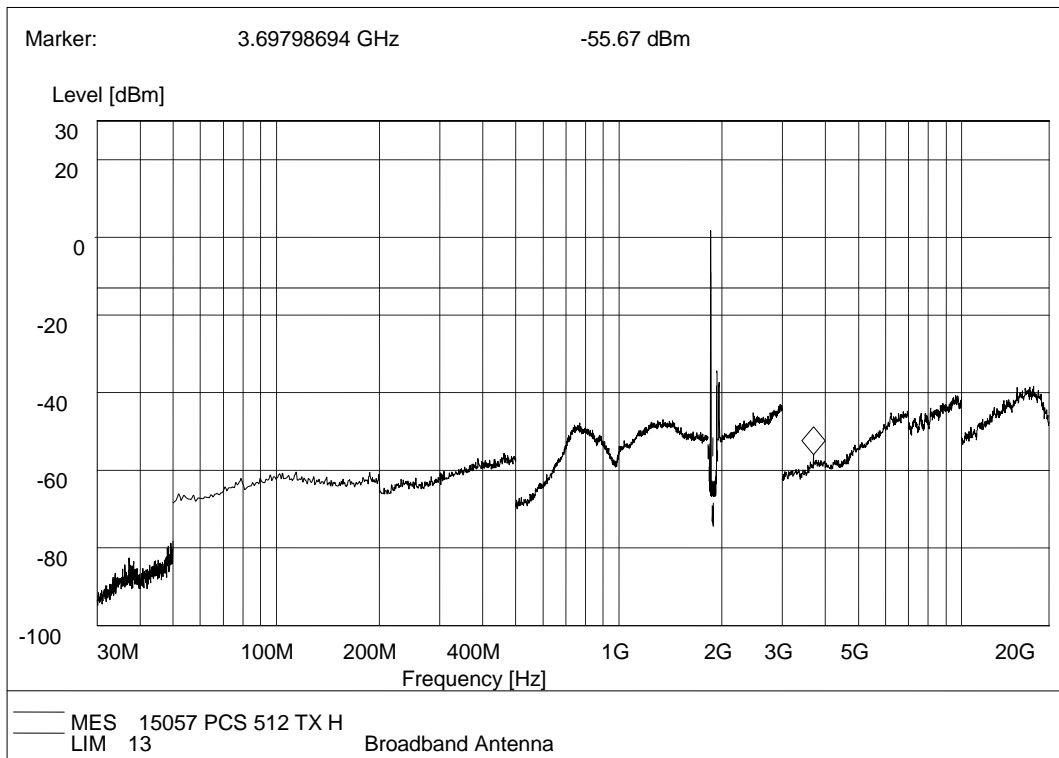
(Plot A.4: GSM 850MHz Channel = 190, Test Antenna Vertical)



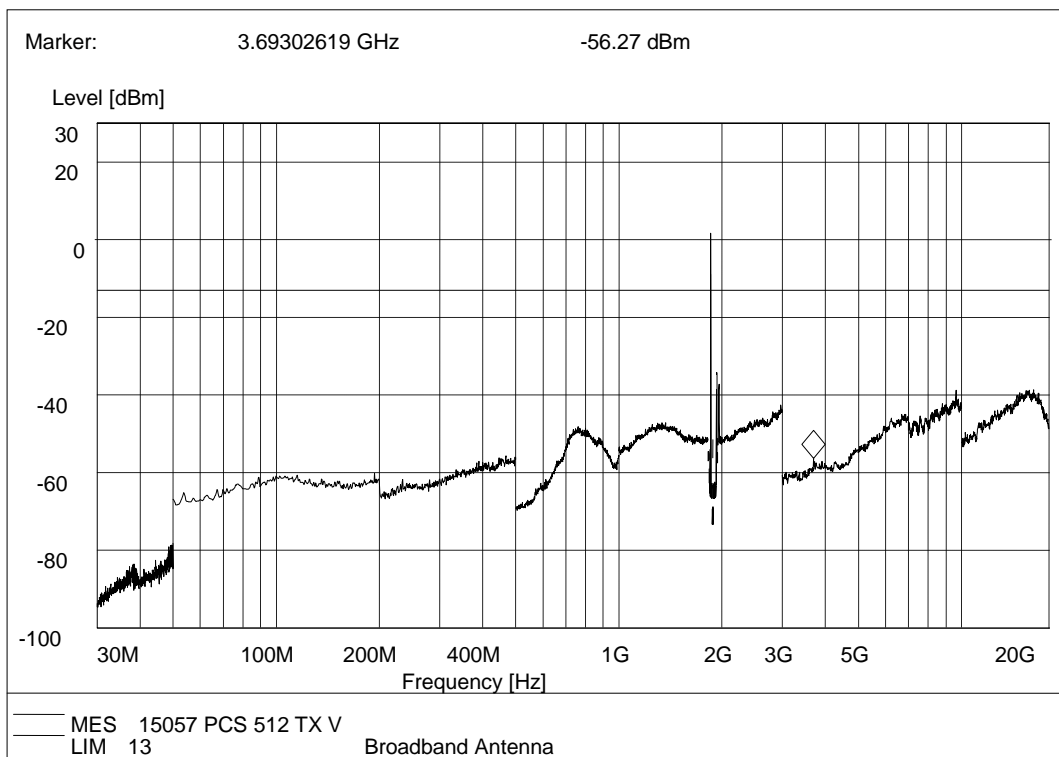
(Plot A.5: GSM 850MHz Channel = 251, Test Antenna Horizontal)



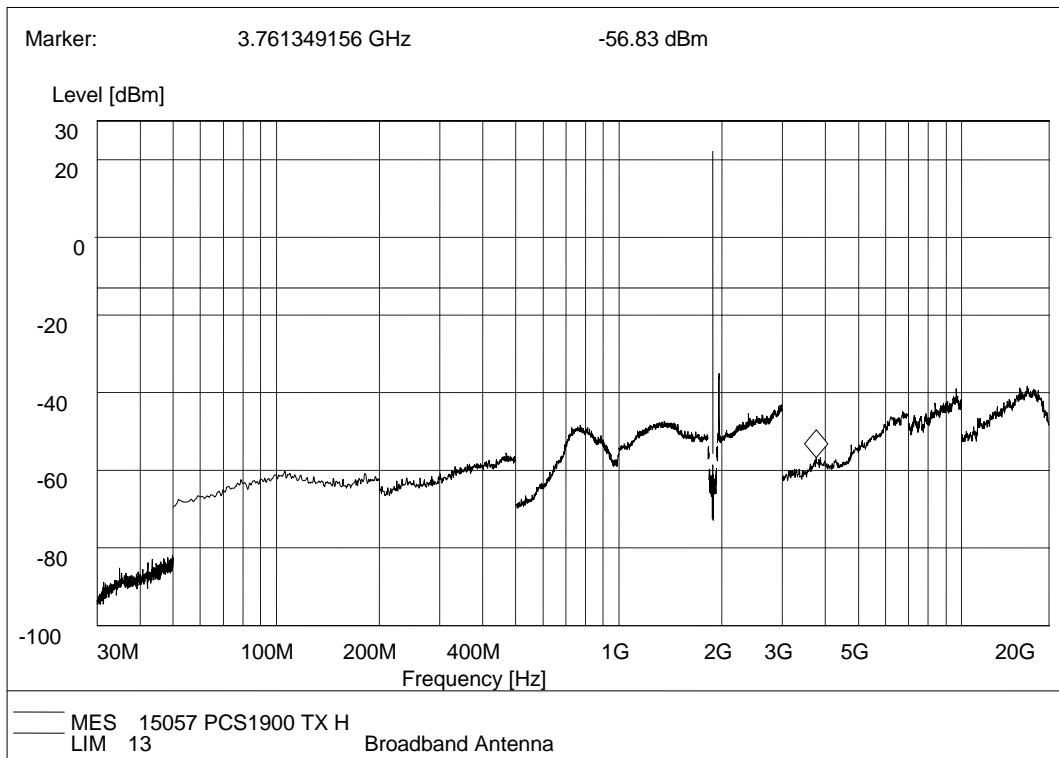
(Plot A.6: GSM 850MHz Channel = 251, Test Antenna Vertical)



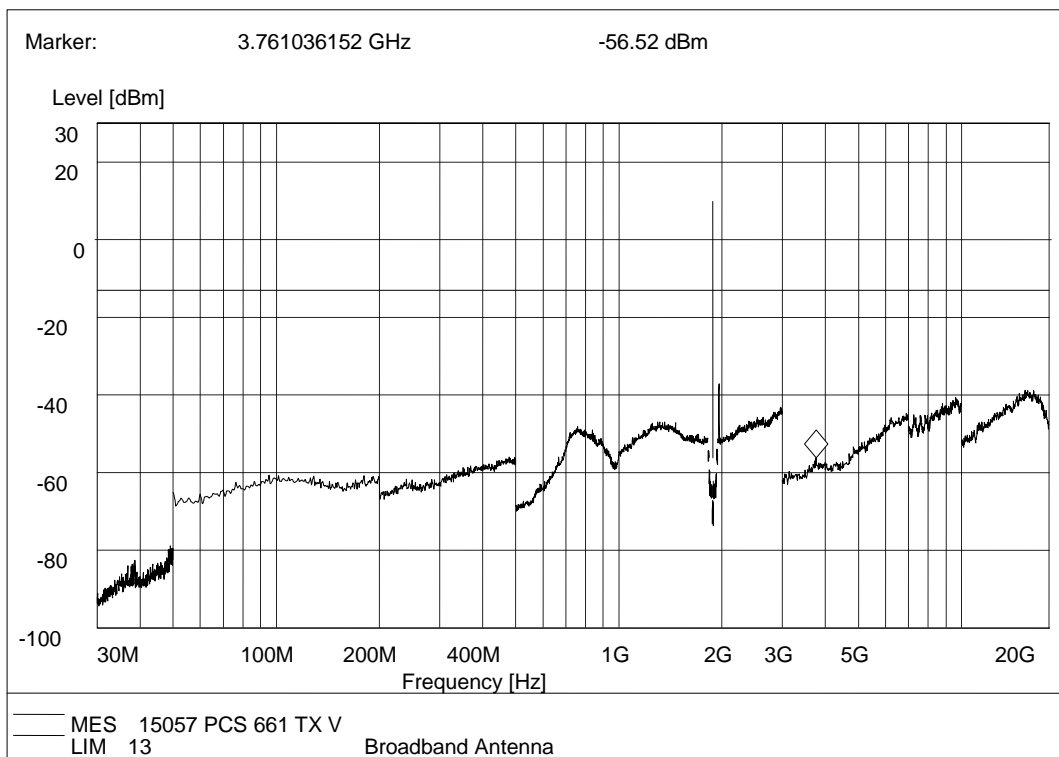
(Plot B.1: GSM 1900MHz Channel = 512, Test Antenna Horizontal)



(Plot B.2: GSM 1900MHz Channel = 512, Test Antenna Vertical)

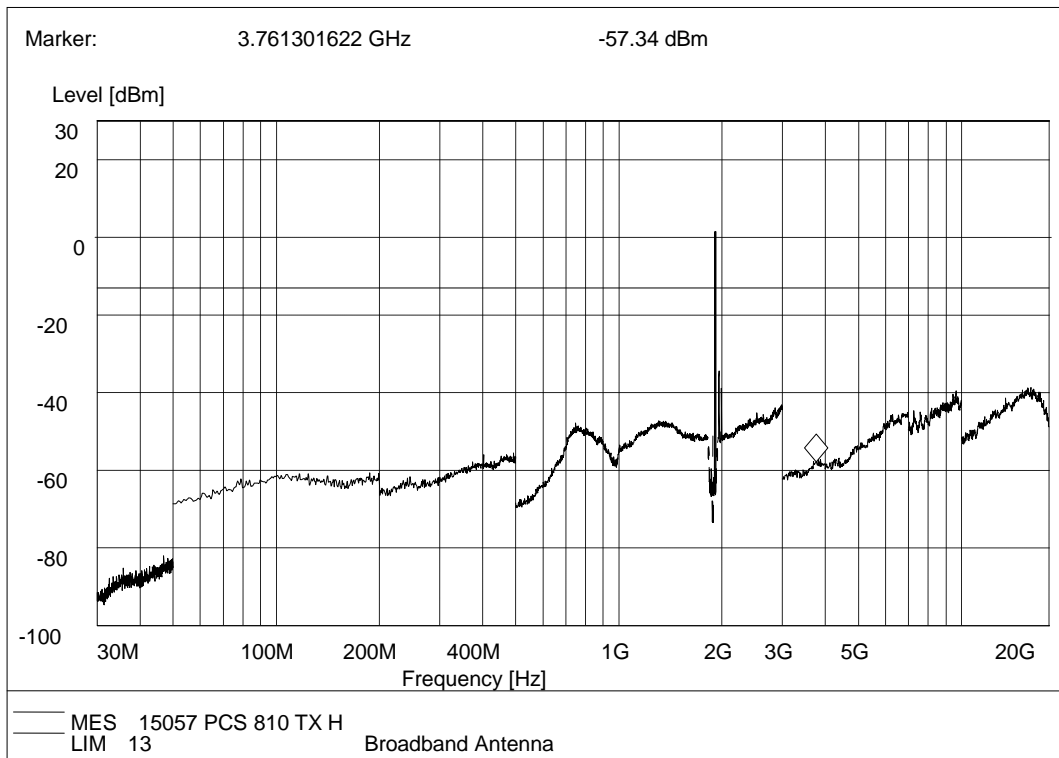


(Plot B.3: GSM 1900MHz Channel = 661, Test Antenna Horizontal)

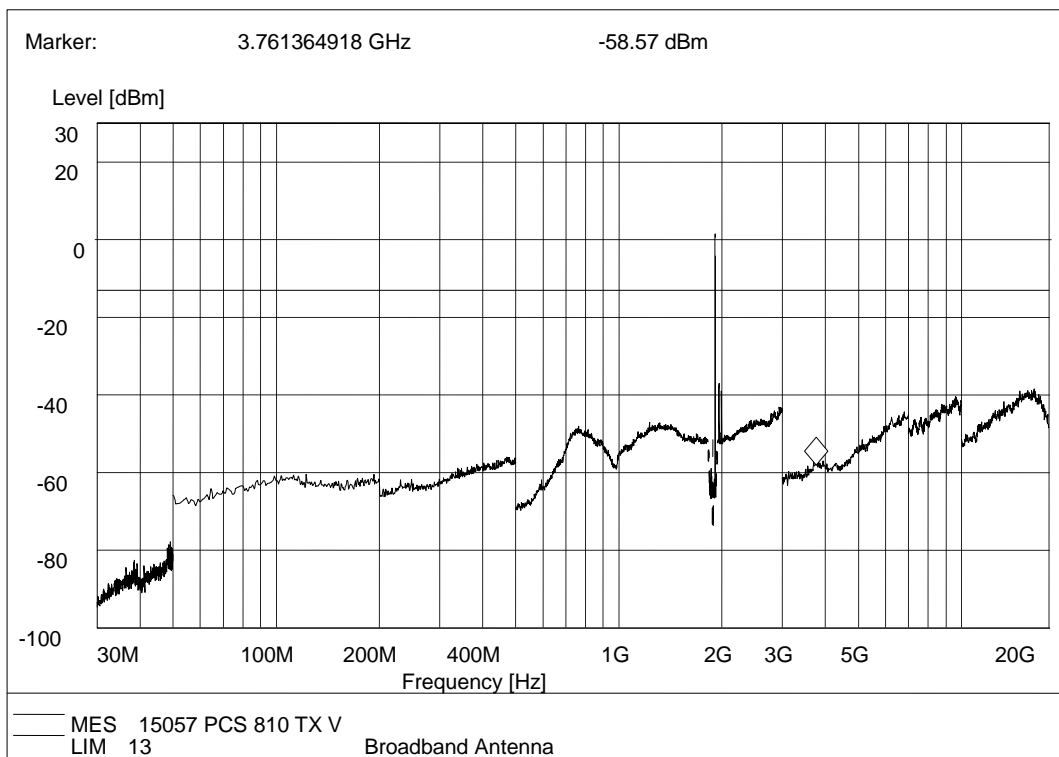


(Plot B.4: GSM 1900MHz Channel = 661, Test Antenna Vertical)

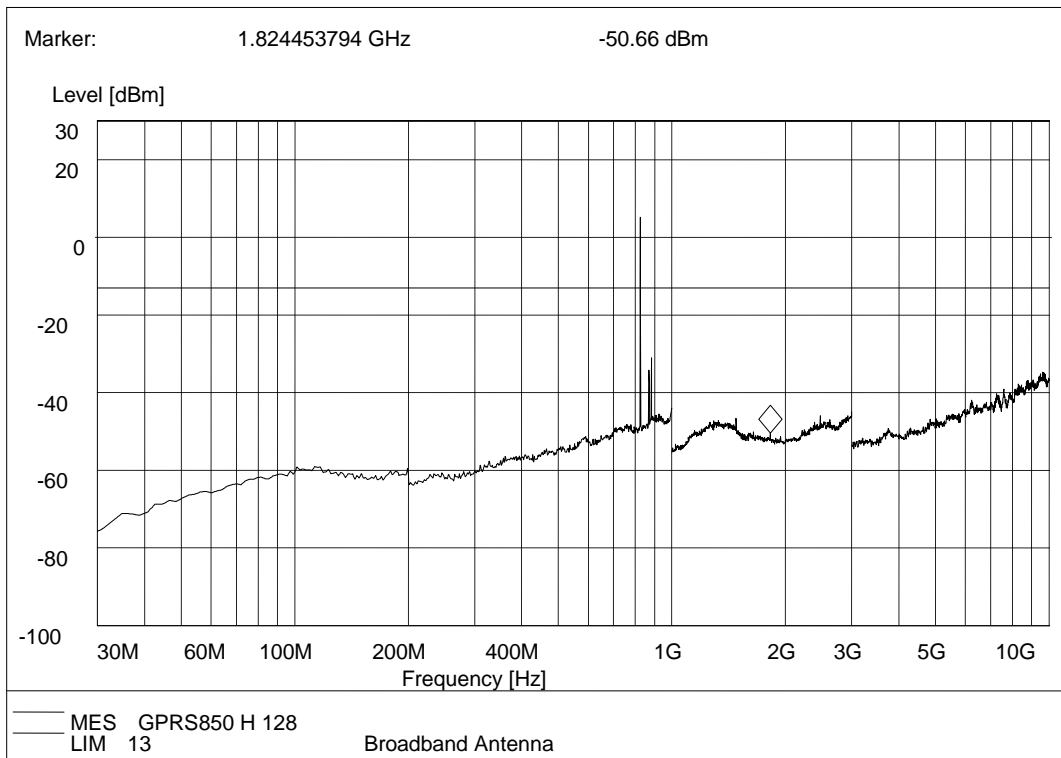




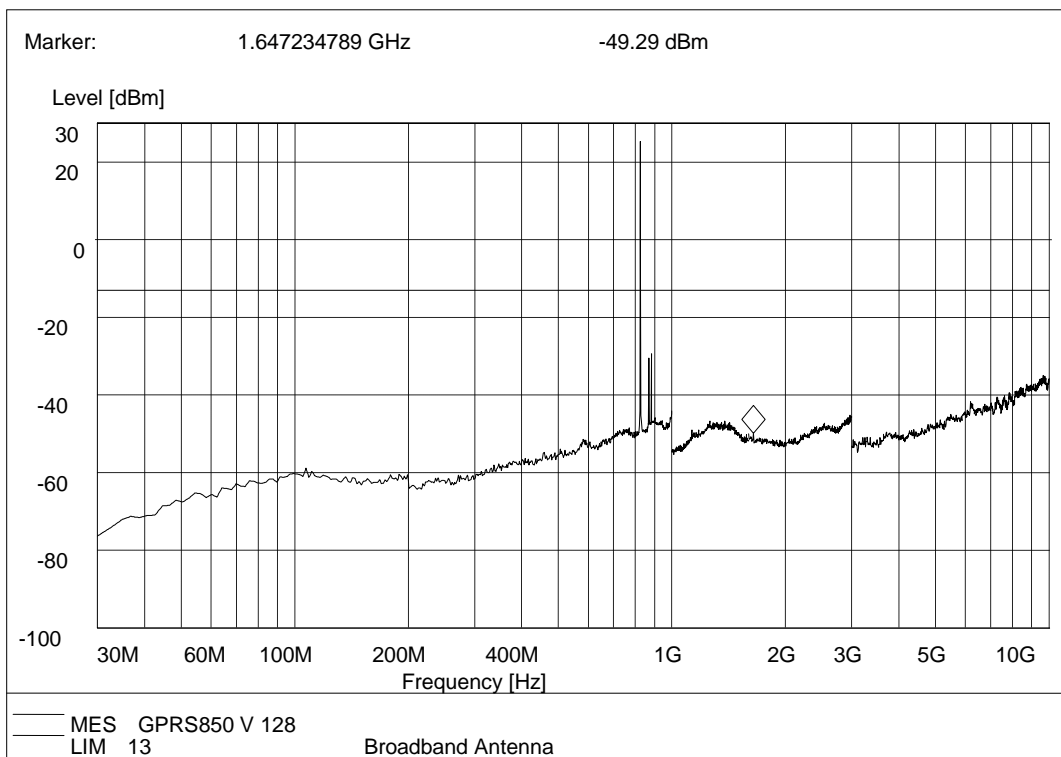
(Plot B.5: GSM 1900MHz Channel = 810, Test Antenna Horizontal)



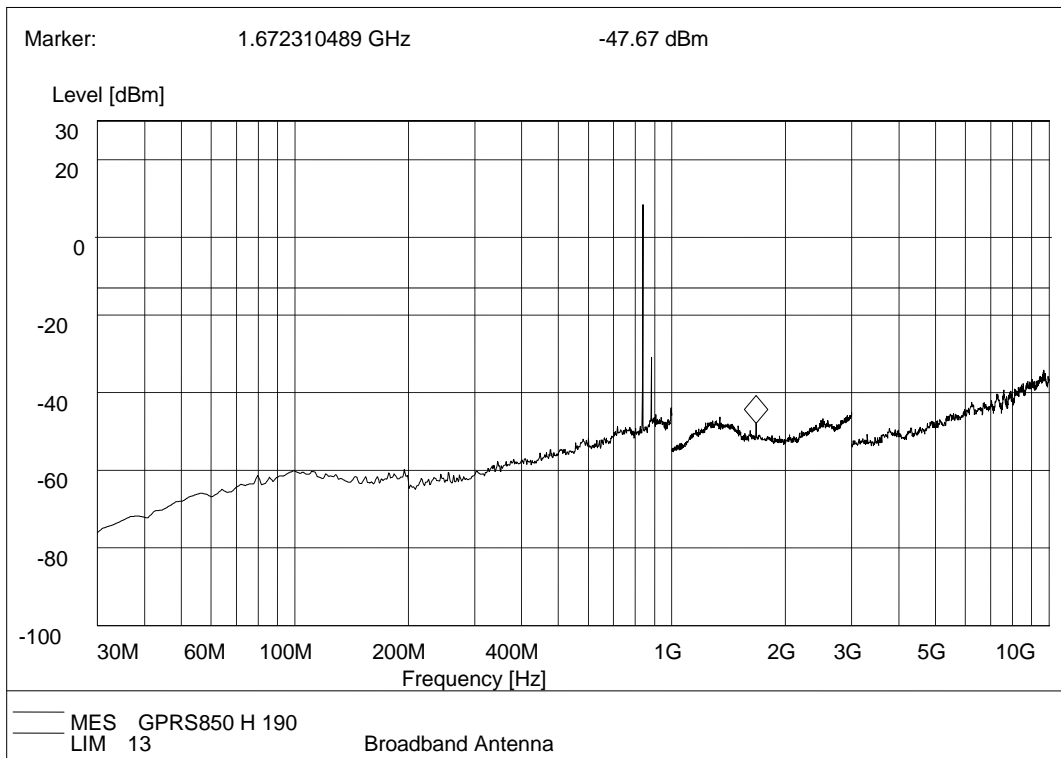
(Plot B.6: GSM 1900MHz Channel = 810, Test Antenna Vertical)



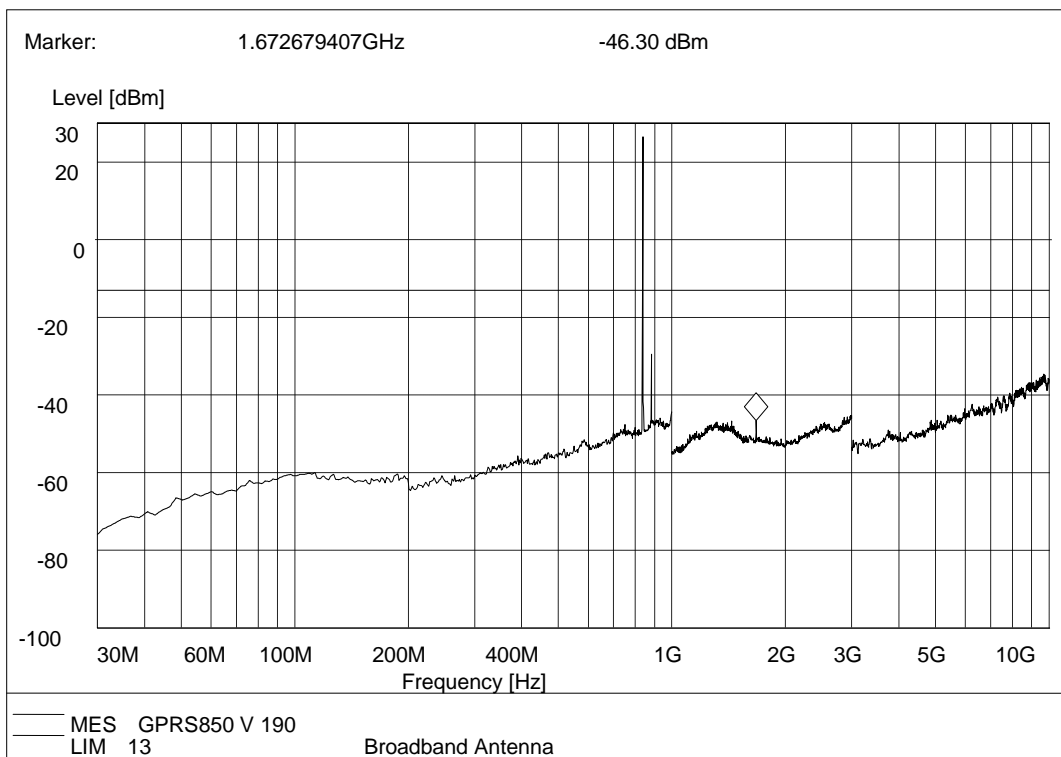
(Plot C.1: EDGE 850MHz Channel = 128, Test Antenna Horizontal)



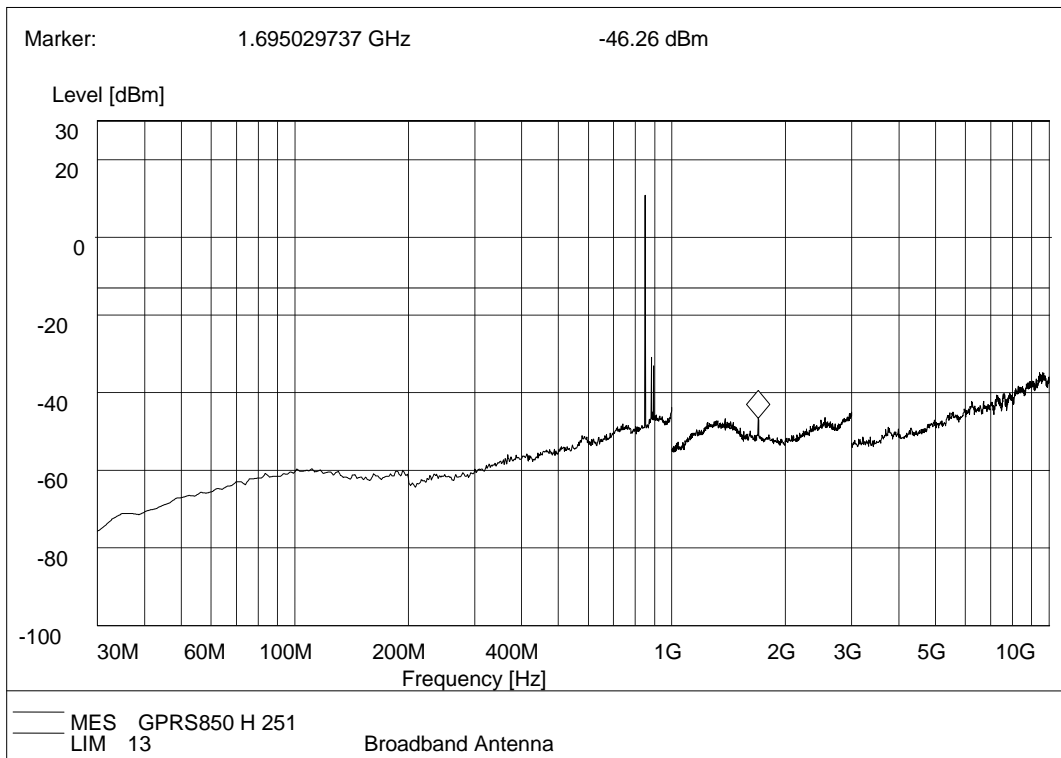
(Plot C.2: EDGE 850MHz Channel = 128, Test Antenna Vertical)



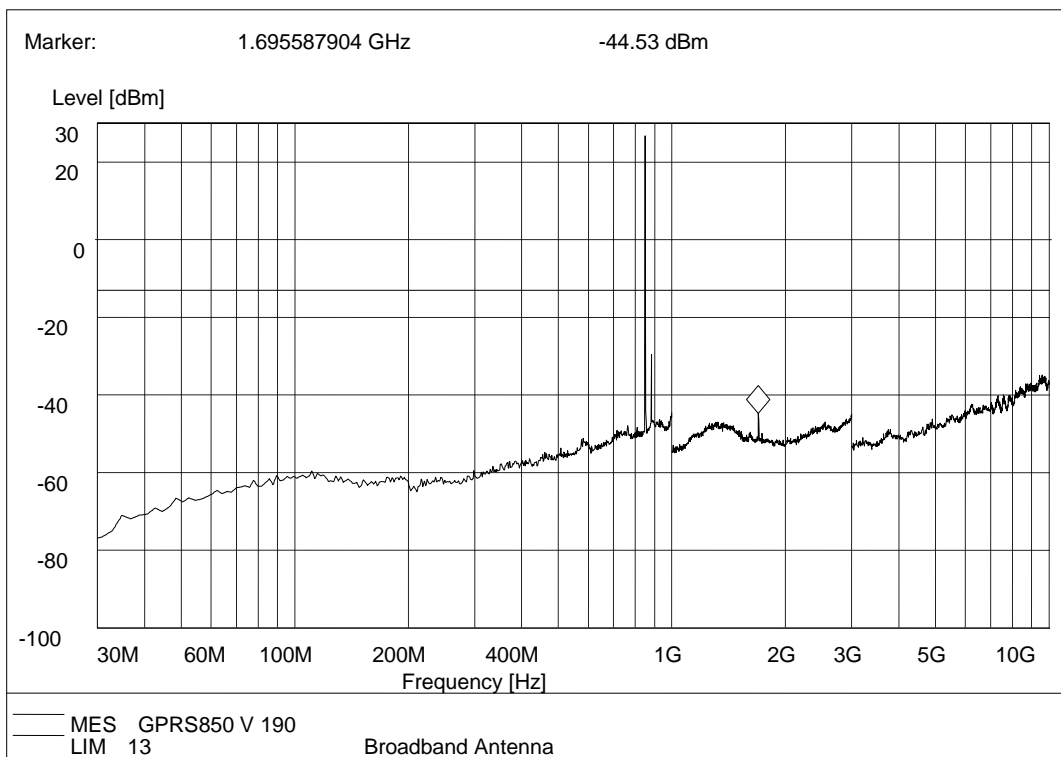
(Plot C.3: EDGE 850MHz Channel = 190, Test Antenna Horizontal)



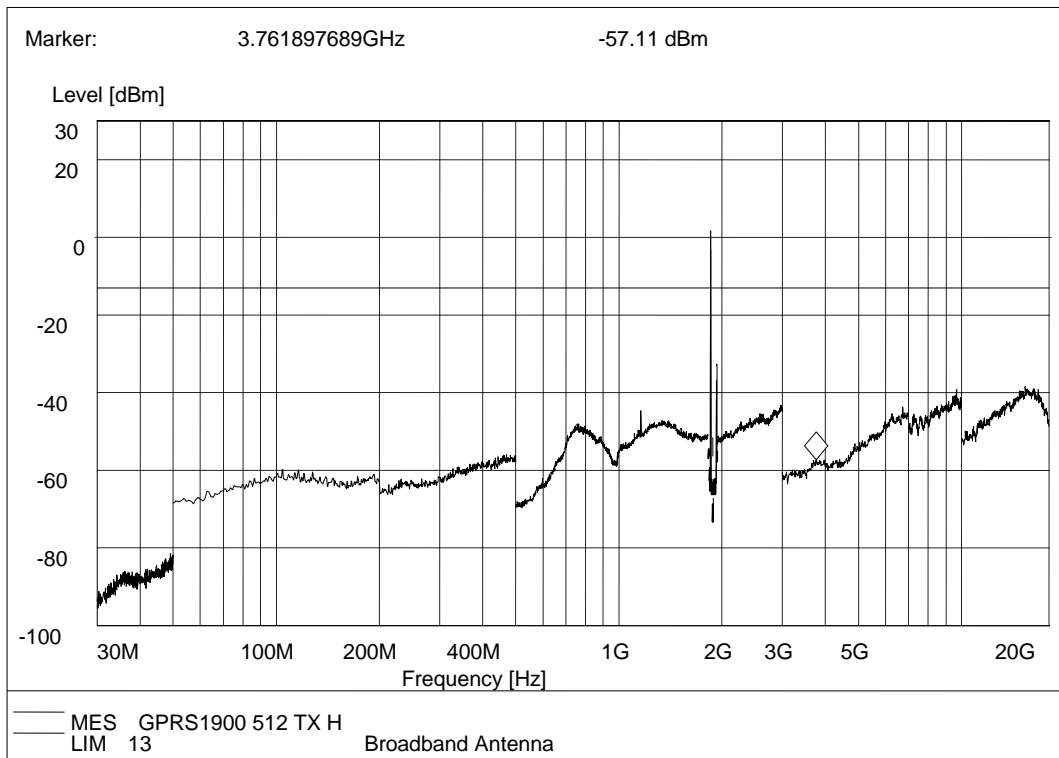
(Plot C.4: EDGE 850MHz Channel = 190, Test Antenna Vertical)



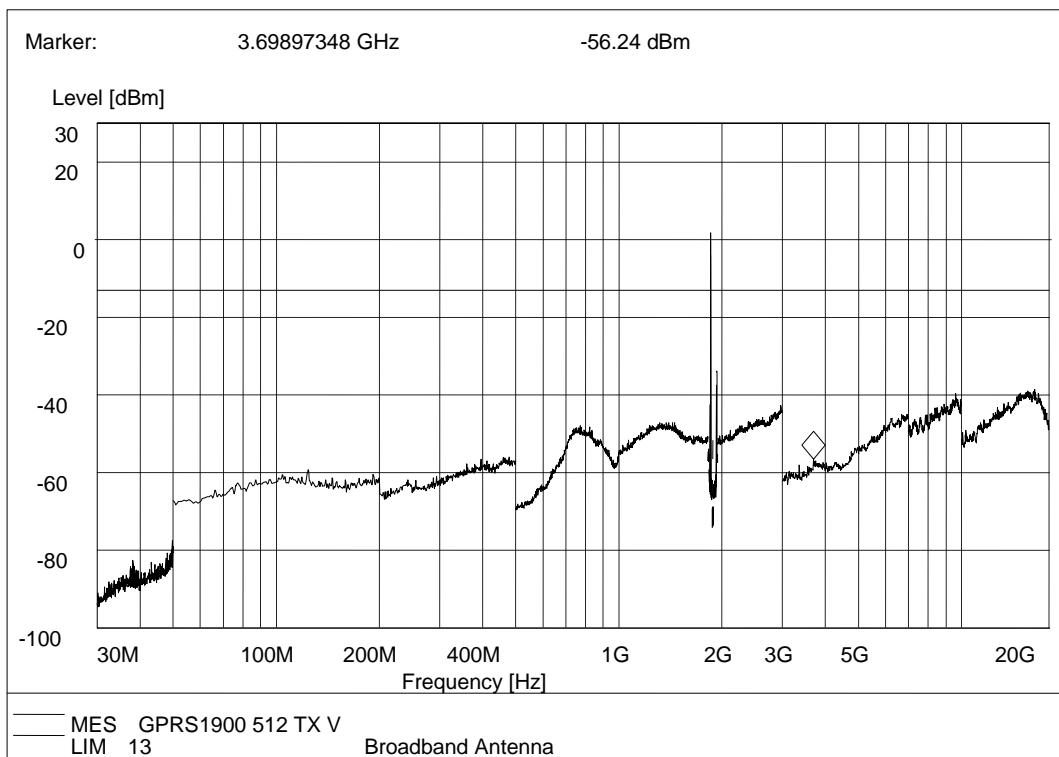
(Plot C.5: EDGE 850MHz Channel = 251, Test Antenna Horizontal)



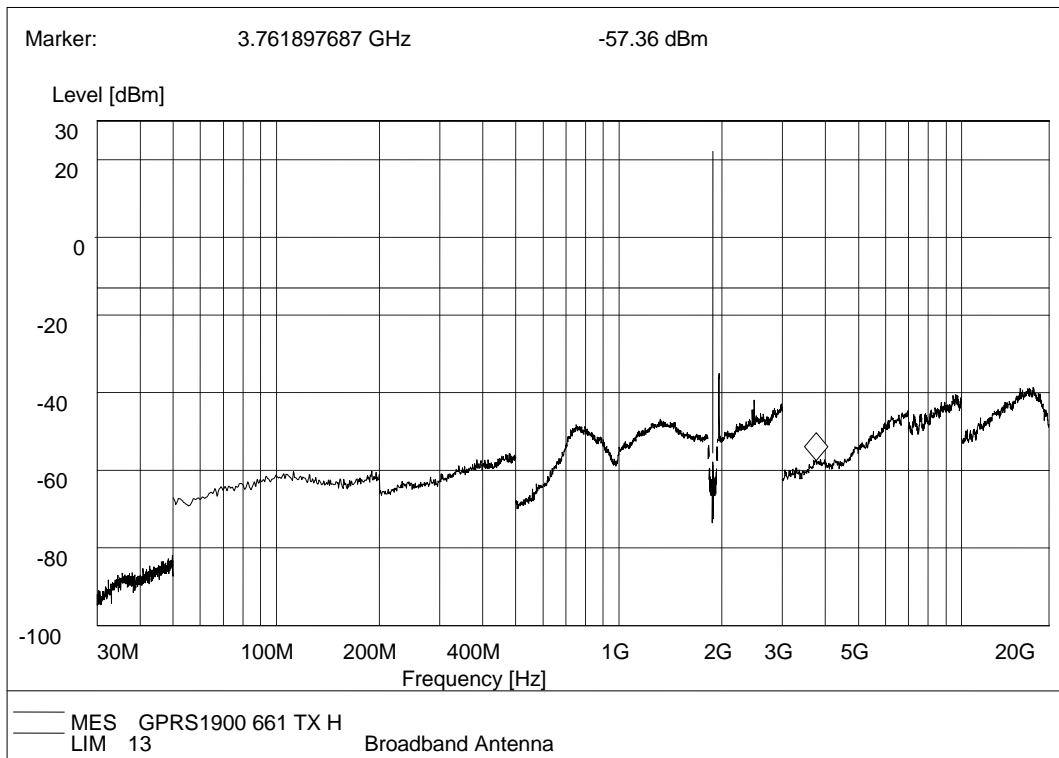
(Plot C.6: EDGE 850MHz Channel = 251, Test Antenna Vertical)



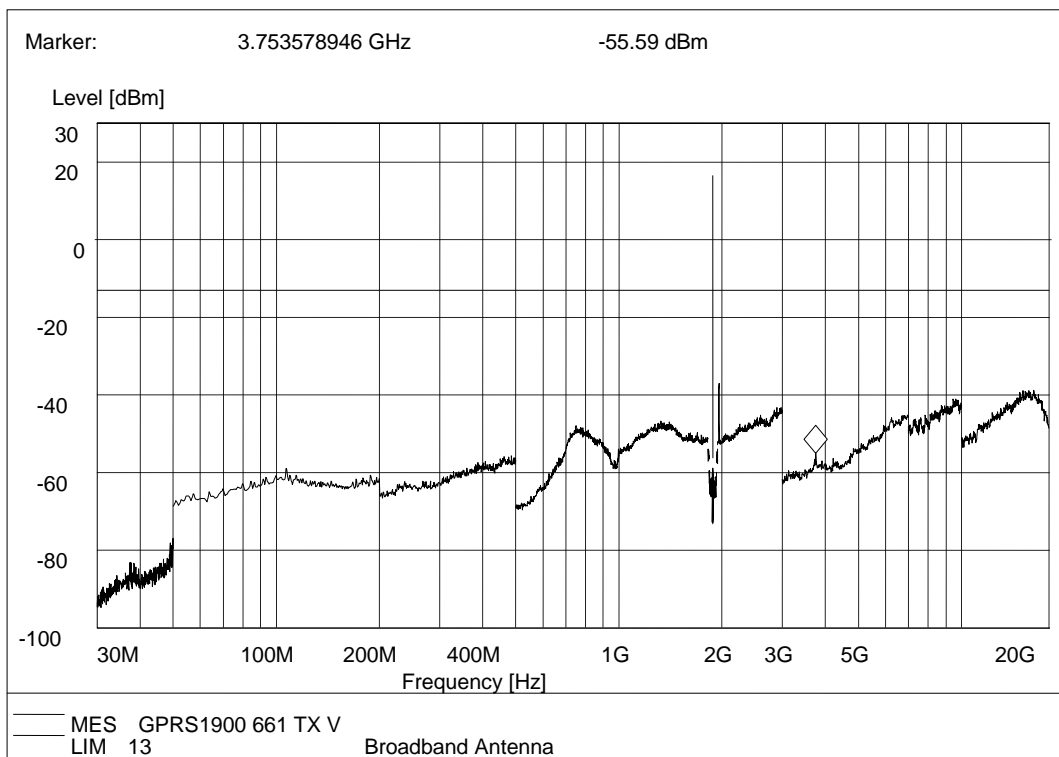
(Plot D.1: EDGE 1900MHz Channel = 512, Test Antenna Horizontal)



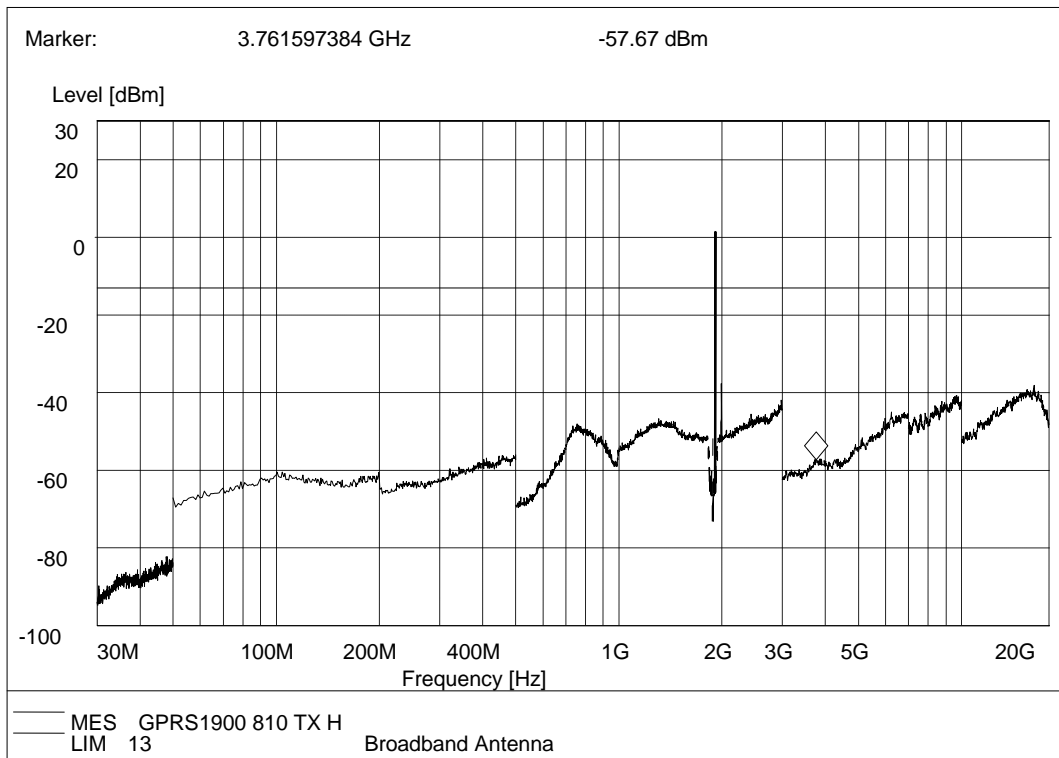
(Plot D.2: EDGE 1900MHz Channel = 512, Test Antenna Vertical)



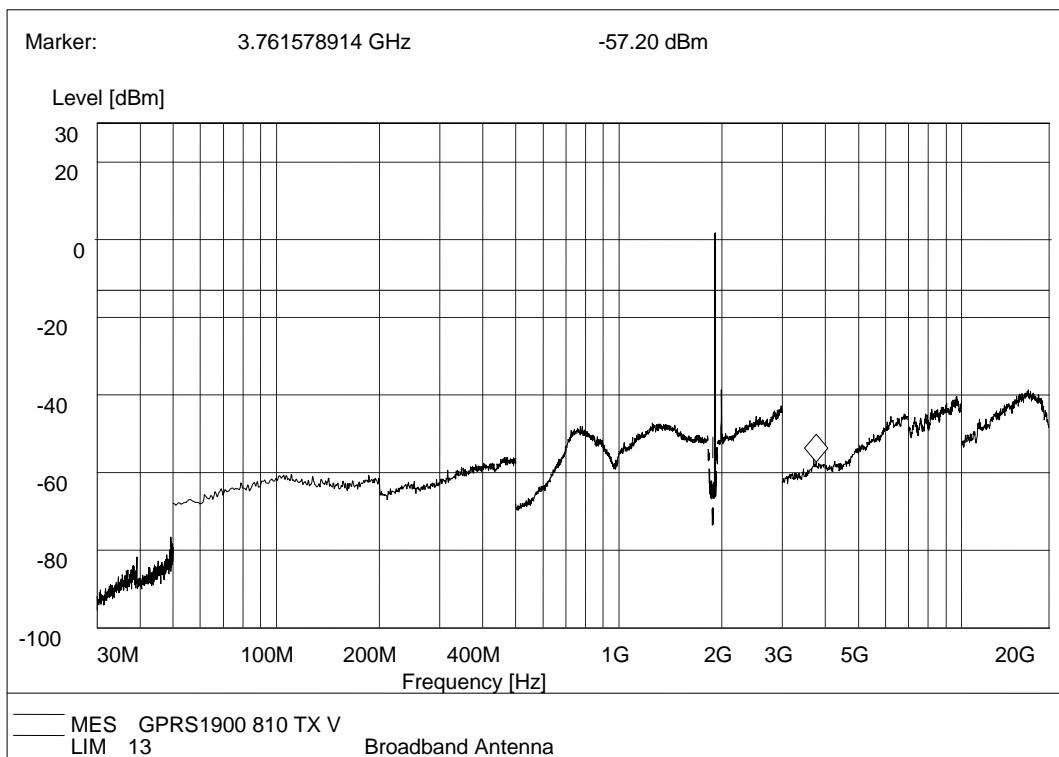
(Plot D.3: EDGE 1900MHz Channel = 661, Test Antenna Horizontal)



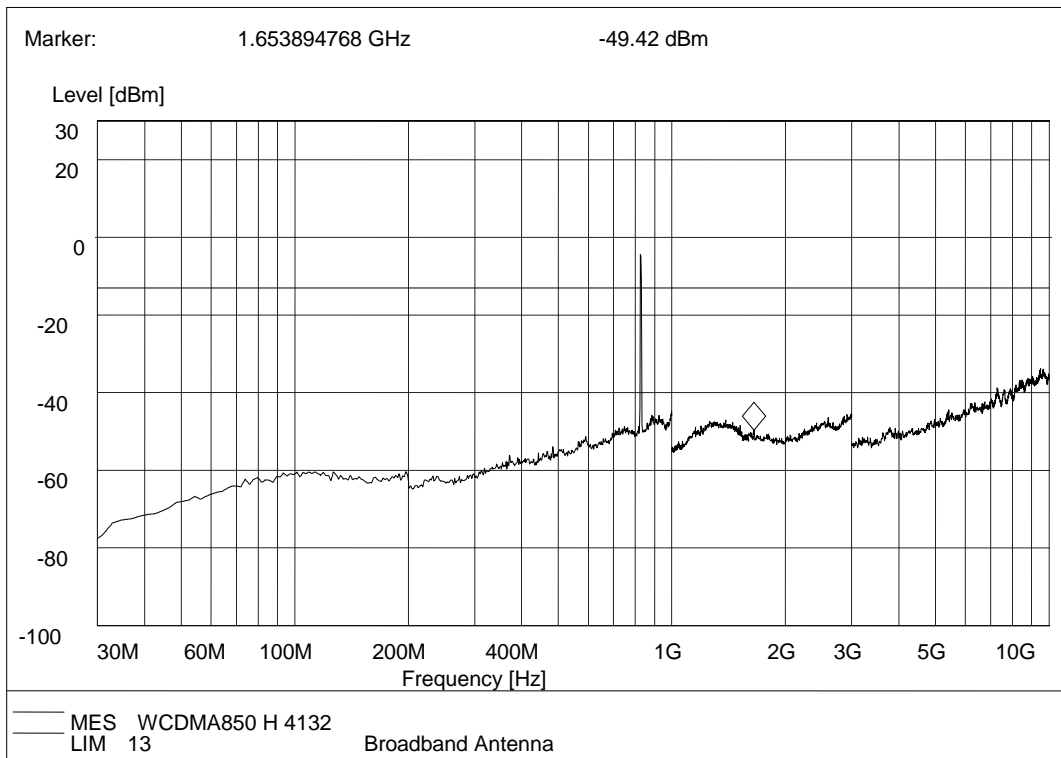
(Plot D.4: EDGE 1900MHz Channel = 661, Test Antenna Vertical)



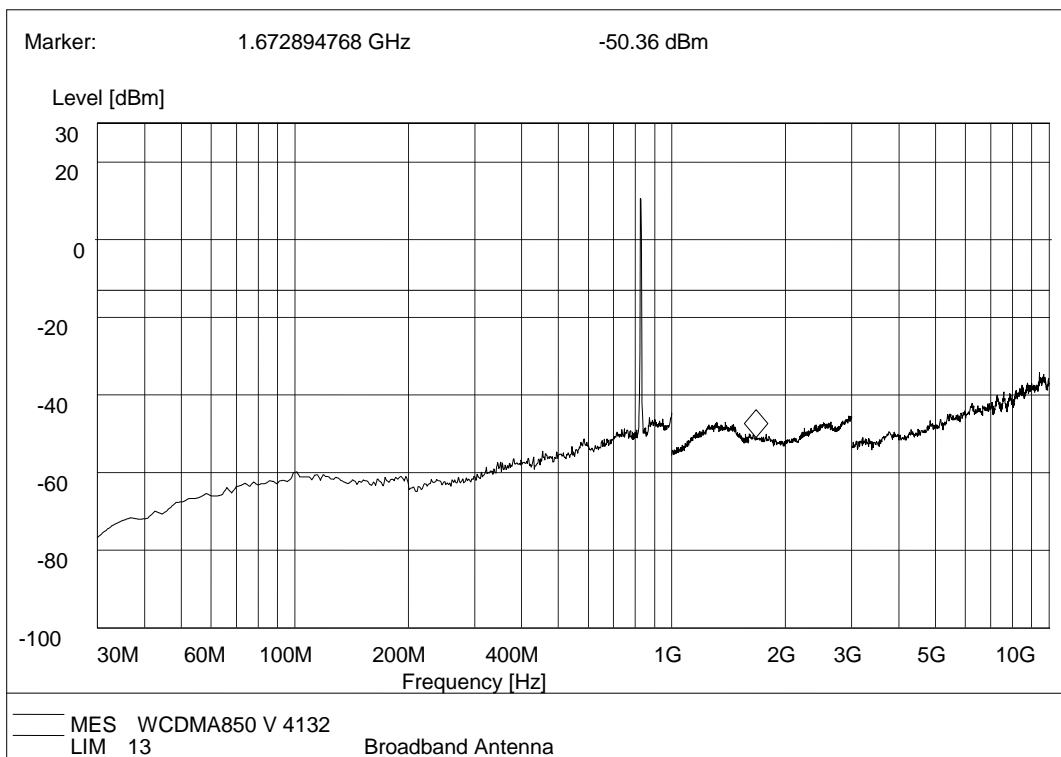
(Plot D.5: EDGE 1900MHz Channel = 810, Test Antenna Horizontal)



(Plot D.6: EDGE 1900MHz Channel = 810, Test Antenna Vertical)

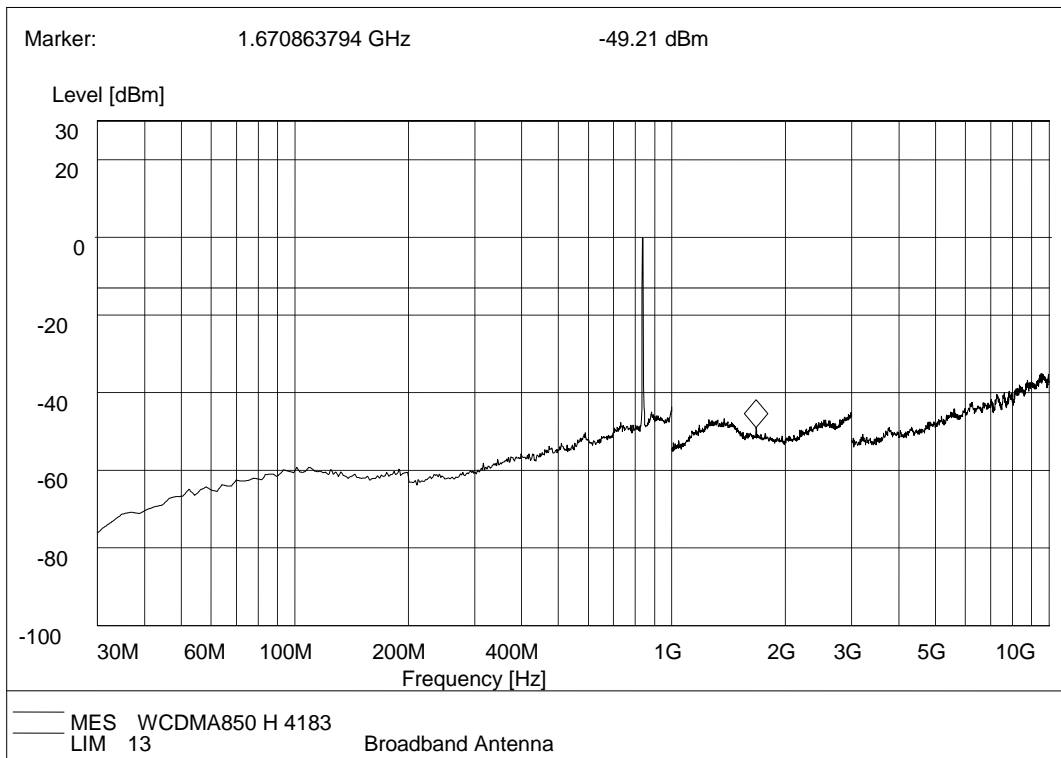


(Plot C.1: WCDMA 850MHz Channel = 4132, Test Antenna Horizontal)

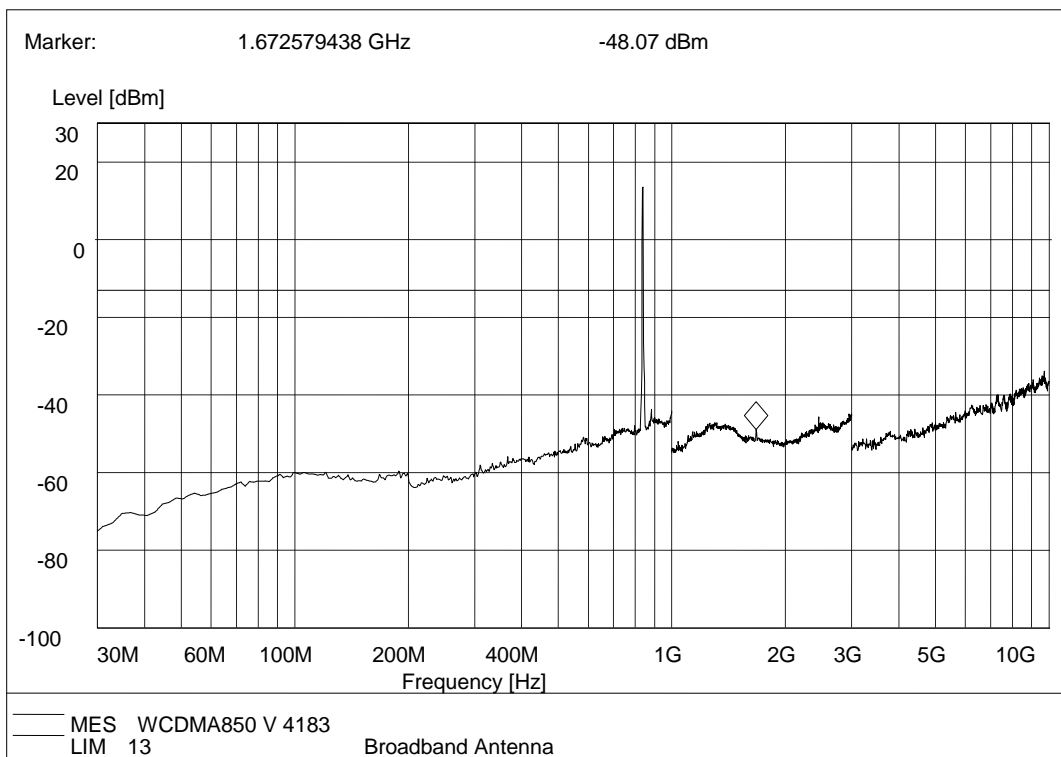


(Plot C.2: WCDMA 850MHz Channel = 4132, Test Antenna Vertical)

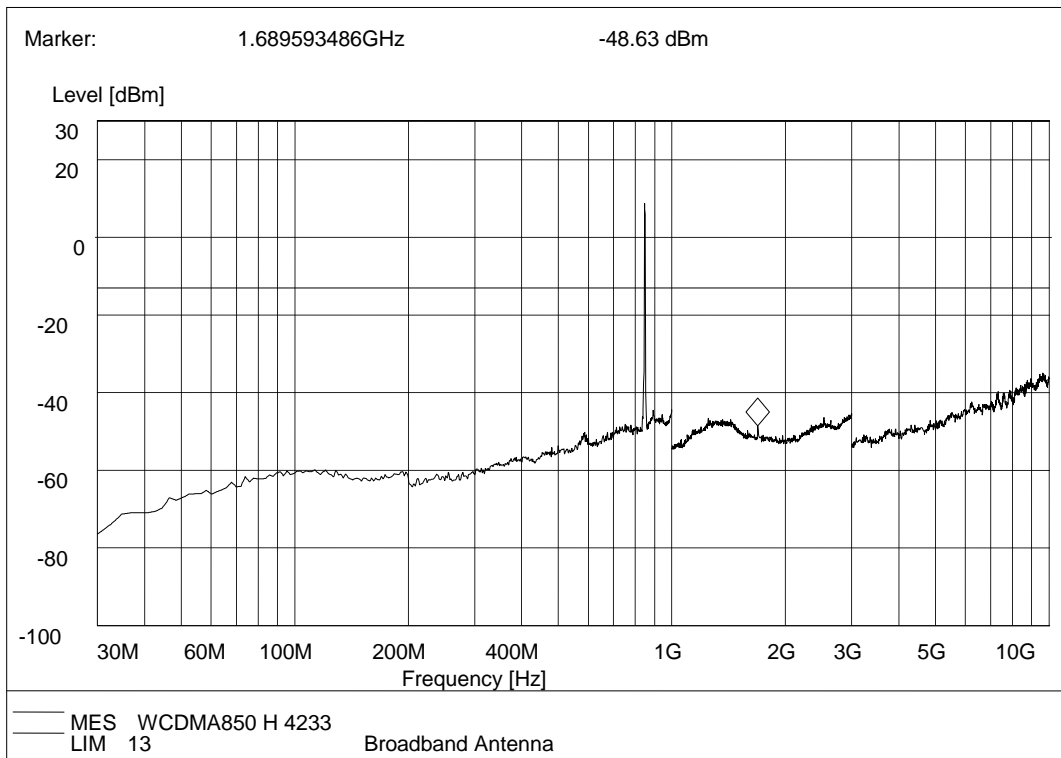




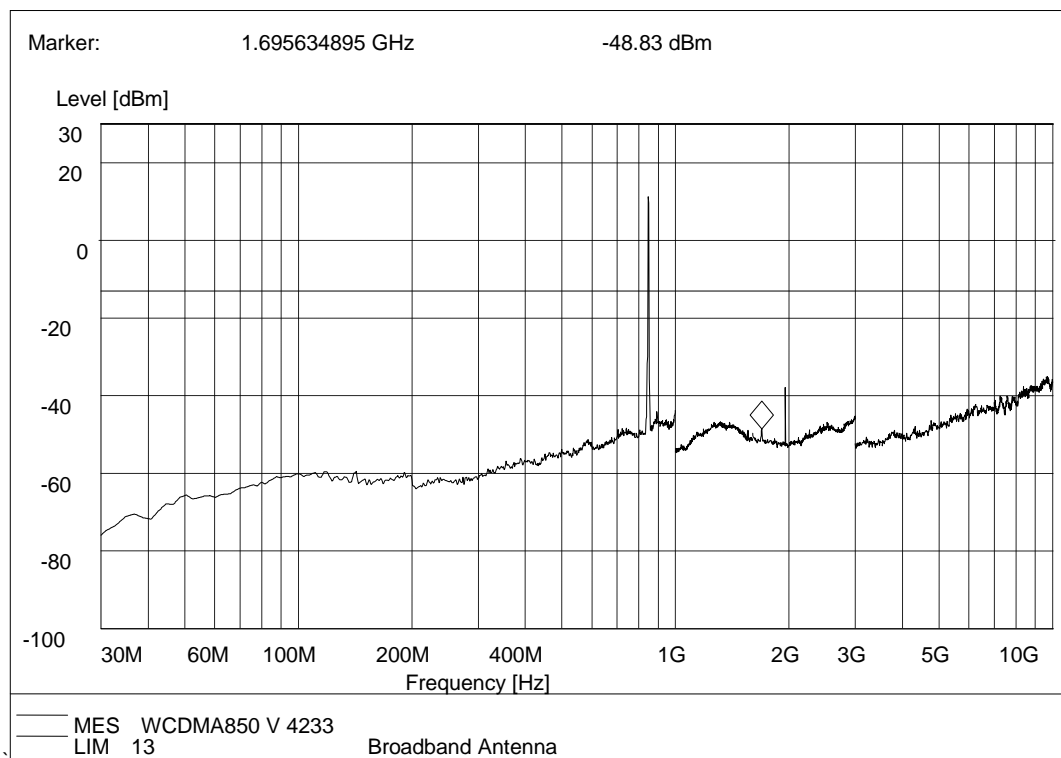
(Plot C.3: WCDMA 850MHz Channel = 4183, Test Antenna Horizontal)



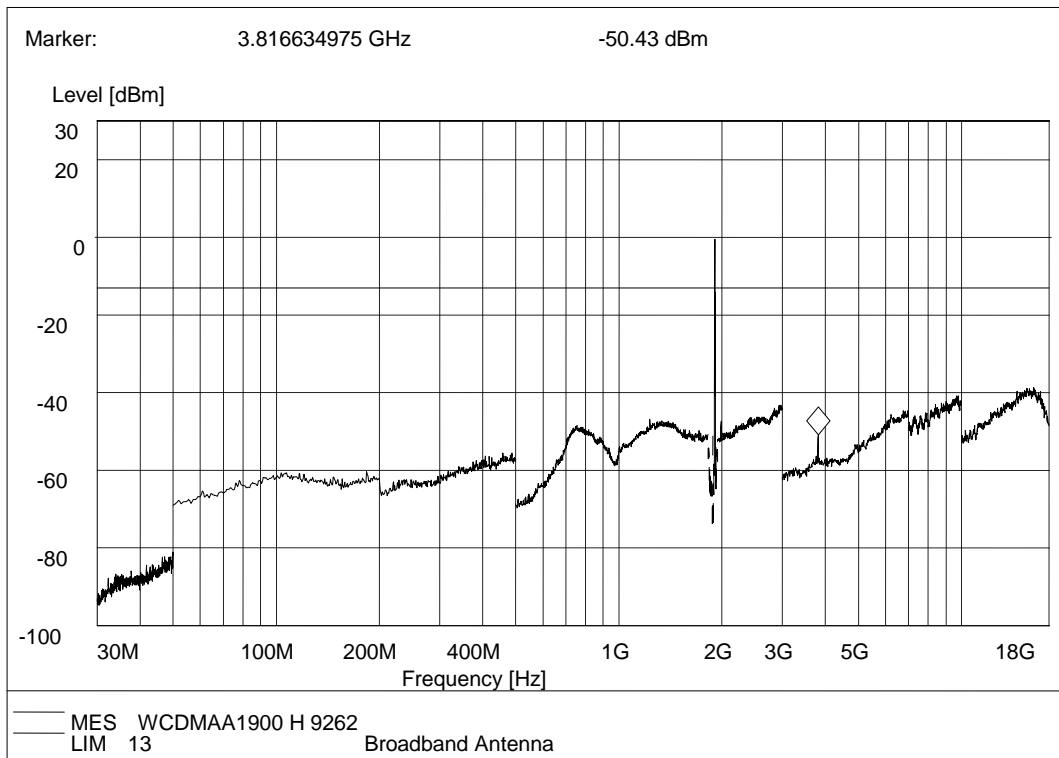
(Plot C.4: WCDMA 850MHz Channel = 4183, Test Antenna Vertical)



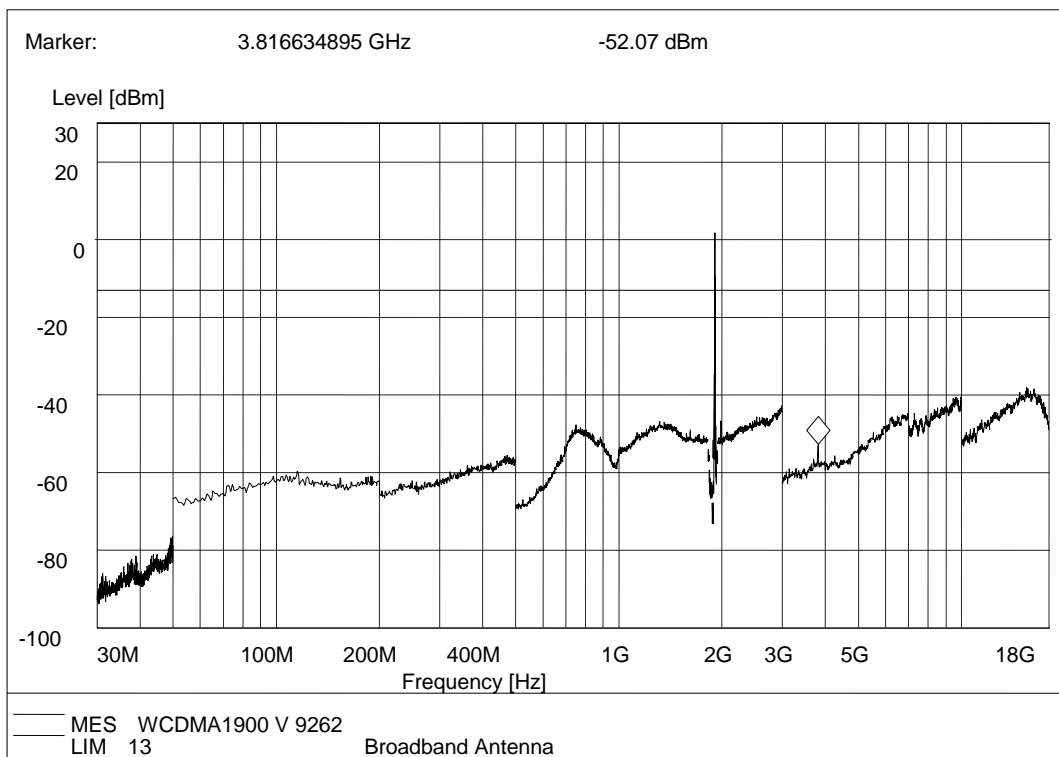
(Plot C.5: WCDMA 850MHz Channel = 4233, Test Antenna Horizontal)



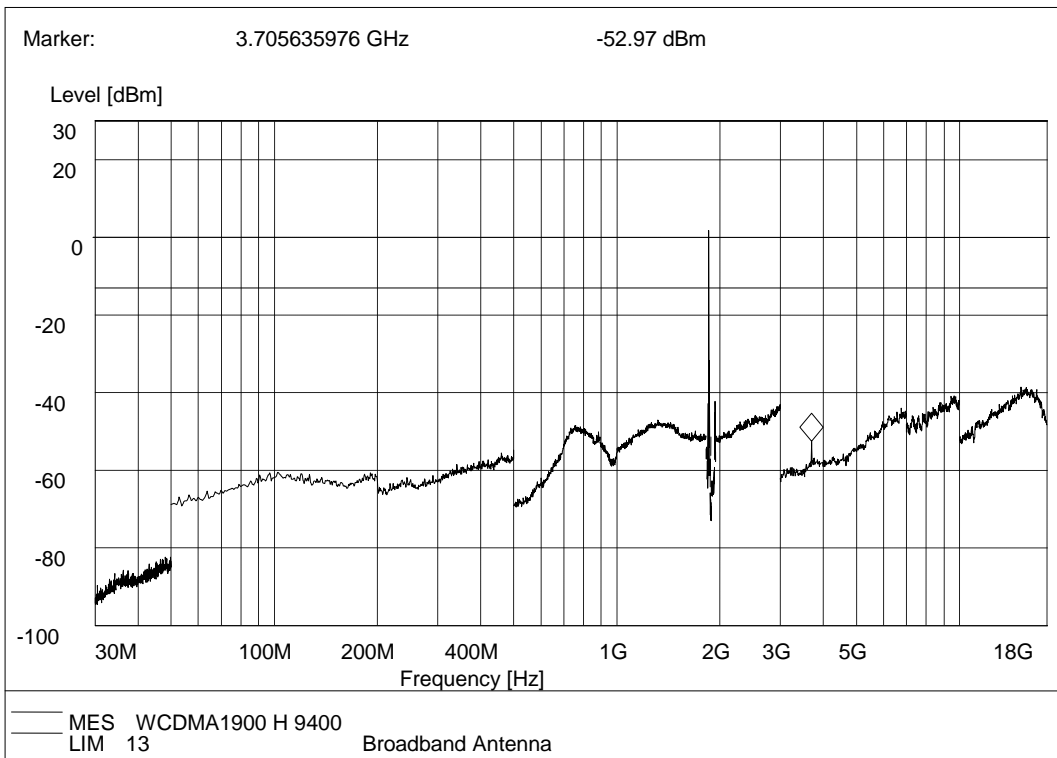
(Plot C.6: WCDMA 850MHz Channel = 4233, Test Antenna Vertical)



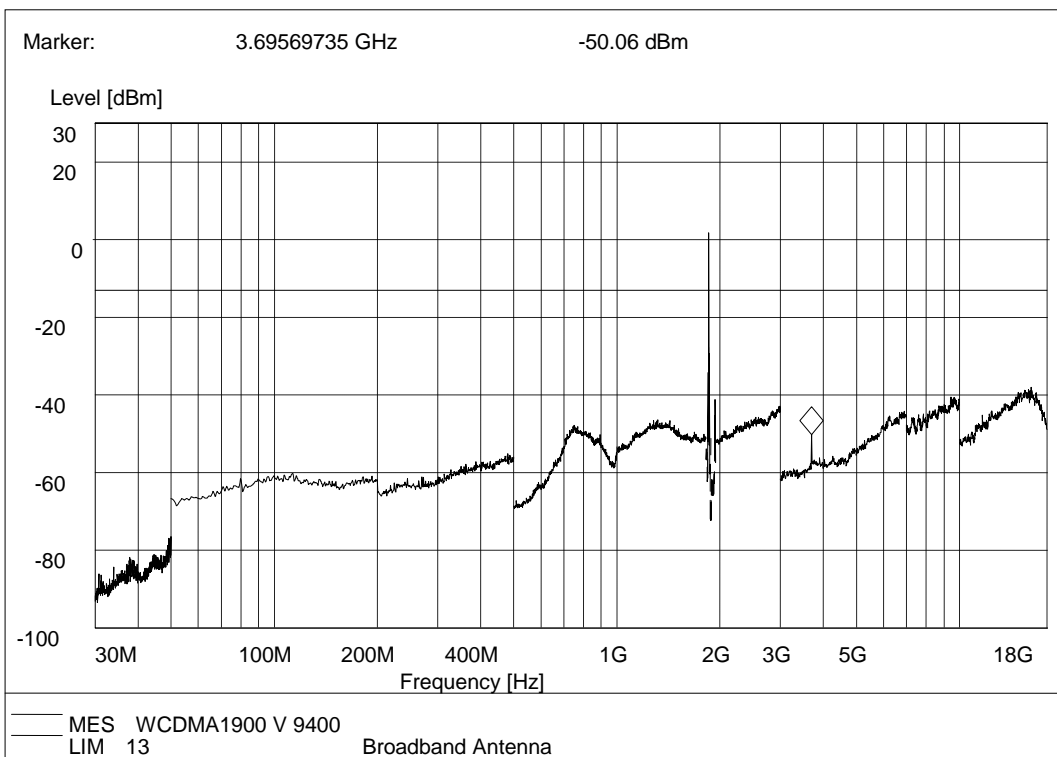
(Plot D.1: WCDMA 1900MHz Channel = 9262, Test Antenna Horizontal)



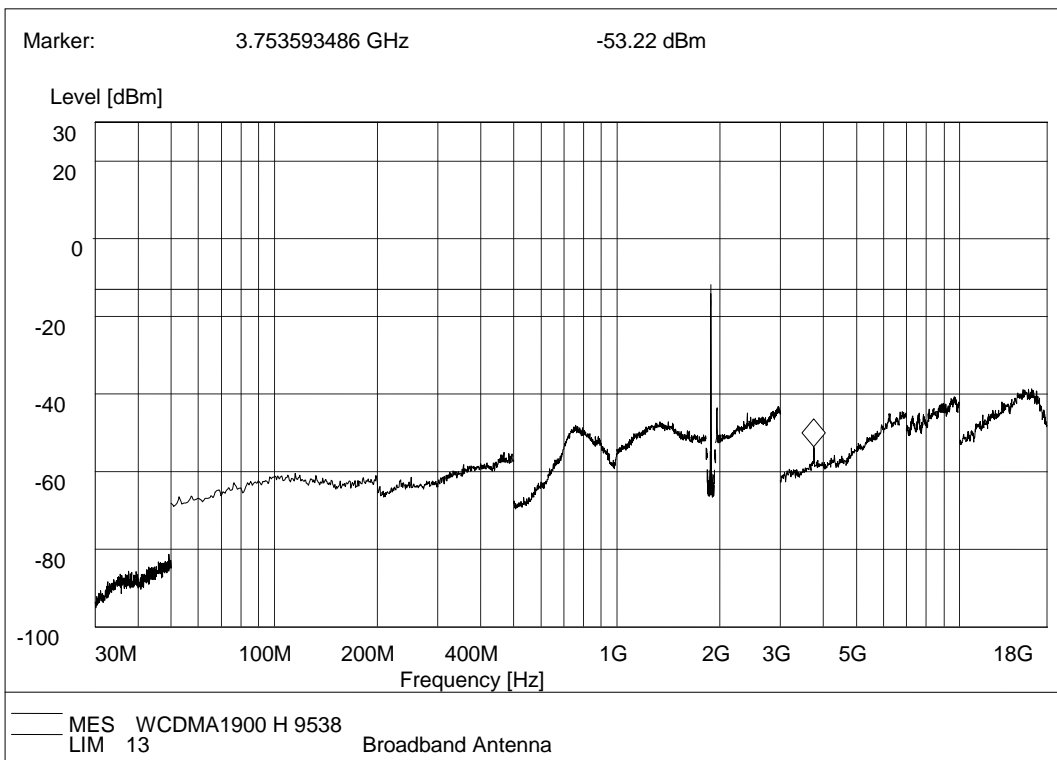
(Plot D.2: WCDMA 1900MHz Channel = 9262, Test Antenna Vertical)



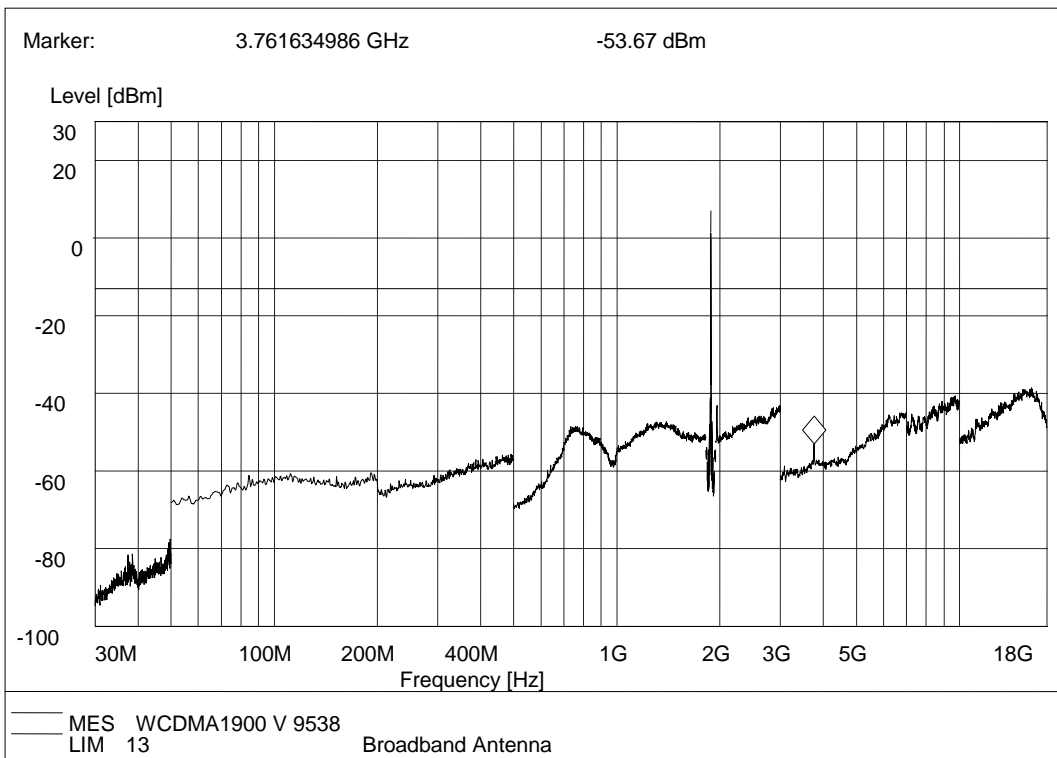
(Plot D.3: WCDMA 1900MHz Channel = 9400, Test Antenna Horizontal)



(Plot D.4: WCDMA 1900MHz Channel = 9400, Test Antenna Vertical)



(Plot D.5: WCDMA 1900MHz Channel = 9538, Test Antenna Horizontal)



(Plot D.6: WCDMA 1900MHz Channel = 9538, Test Antenna Vertical)

\*\* END OF REPORT \*\*