FCC RADIO TEST REPORT
FCC ID: RHFDWNMOKABLUE

Product： Bluetooth phone companion

Trade Name： N/A

Model Name： MokaBlue

Serial Model： MokaBlue2,MokaBlue3,MokaBlue4, MokaBlue5, MokaBlue6,D4-S2,D4-C,D5-C,D5-C2

Report No.： NTEK-2013NT0118569F1

Prepared for

Shenzhen Di Weinuo Technology Co., Ltd.

O-P Room,31Floor,Modern Window Huaqiang North ,Futian District, Shenzhen, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ....: Shenzhen Di Weinuo Technology Co., Ltd.

Address ....: O-P Room,31Floor,Modern Window Huaqiang North ,Futian District, Shenzhen, China

Manufacture's Name............: Shenzhen Di Weinuo Technology Co., Ltd.

Address ....: O-P Room,31Floor,Modern Window Huaqiang North ,Futian District, Shenzhen, China

Product description

Product name..........................: Bluetooth phone companion

Model and/or type reference : MokaBlue

Serial Model： MokaBlue2,MokaBlue3,MokaBlue4, MokaBlue5, MokaBlue6,D4-S2,D4-C,D5-C,D5-C2

Standards ....: FCC Part 22H and 24E

Test procedure............................ ANSI C63.4-2003

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test...:

Date (s) of performance of tests............: 27 Dec. 2012 ~04 Jan. 2013

Date of Issue...: 05 Jan. 2013

Test Result..: **Pass**

Testing Engineer : Apple Huang

(Apple Huang)

Technical Manager : Tom Zhang

(Tom Zhang)

Authorized Signatory : Bovey Yang

(Bovey Yang)

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1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao’an District, Shenzhen P.R. China.
FCC FRN Registration Nombre:238937; IC Registration Nombre:9270A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	Radiated Emission Test	±3.17dB
3	RF power,conducted	±0.16dB
4	Spurious emissions,conducted	±0.21dB
5	All emissions,radiated(<1G)	±4.68dB
6	All emissions,radiated(>1G)	±4.89dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth phone companion
Trade Name	N/A
Model Name	MokaBlue, MokaBlue2,MokaBlue3,MokaBlue4, MokaBlue5, MokaBlue6,D4-S2,D4-C,D5-C,D5-C2
Model Difference	All model are the same circuit and RF module, except the model name. All test base on MokaBlue
Frequency:	GSM 850 MHz; PCS 1900 MHz
Output Power:	GSM850(Class 4) : 1.702 W (32.31dBm) GSM1900 (Class 1) : 1.044 W (30.19dBm)
SIM card:	Onlyone card
Type of Modulation	GMSK
Antenna Type	PCB Antenna
Power Source	DC Voltage supplied from battery
Power Rating	DC 3.7V -4.2V
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	N/A
EUT Modification(s)	N/A

Note:

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

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2.2 DESCRIPTION OF TEST MODES

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

For Radiated Emission	
Final Test Mode	Description
GSM850	TX1
PCS1900	TX2

Note:
(1)During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both GSM and PCS frequency band.
(2) The EUT use new battery.

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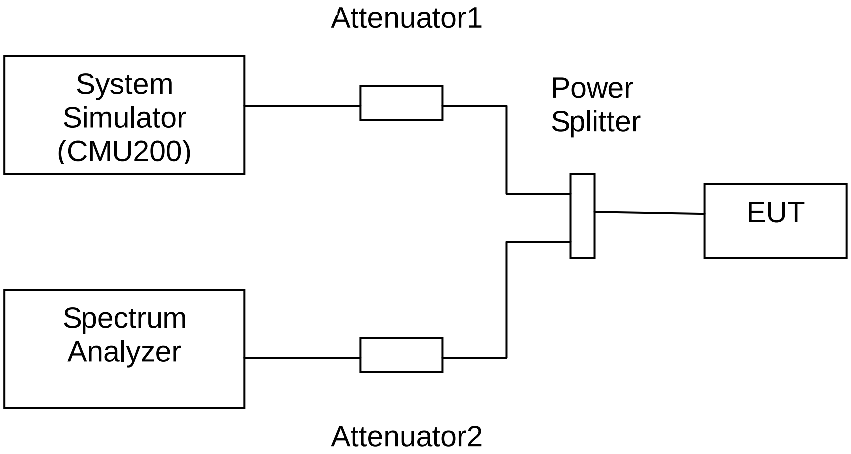
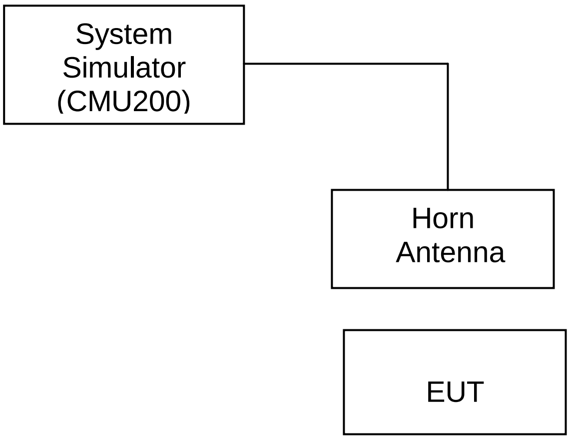
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

CONDUCTED METHOD:



RADIATED METHOD:



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2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Bluetooth phone companion	N/A	MokaBlue	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

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

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2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	E4407B	160400005	Jul. 06. 2013
2	Test Receiver	R&S	ESPI	101318	Jul. 06. 2013
3	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06. 2013
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	Jul. 06. 2013
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	Jul. 06. 2013
6	Horn Antenna	EM	EM-AH-10180	2011071402	Jul. 06. 2013
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	Jul. 06. 2013
8	Amplifier	EM	EM-30180	060538	Jul. 06. 2013
9	Loop Antenna	ARA	PLA-1030/B	1029	Jul. 06. 2013
10	Power Meter	R&S	NRVS	100696	Jul. 06. 2013
11	Communication Tester	R&S	CMU200	A0304247	Jul. 06. 2013
12	Power Splitter	Agilent	11636A	N/A	Jul. 06. 2013

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Test Receiver	R&S	ESCI	101160	Jul. 06. 2013
2	LISN	R&S	ENV216	101313	Jul. 06. 2013
3	LISN	EMCO	3816/2	00042990	Jul. 06. 2013
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	Jul. 06. 2013
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	Jul. 06. 2013
6	Absorbing clamp	R&S	MOS-21	100423	Jul. 06. 2013

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3. TEST RESULT

3.1 OUTPUT POWER

3.1.1 CONDUCTED OUTPUT POWER

MEASUREMENT METHOD

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes(GSM, GPRS) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for both GSM band and PCS band

PROVISIONS APPLICABLE

Conducted Output Power Limits for GSM 850 MHZ		
Mode	**Power Step**	**Nominal Peak Power**
GSM	5	33 dBm (2W)
GPRS	3	33 dBm (2W)

Conducted Output Power Limits for PCS 1900 MHZ		
Mode	**Power Step**	**Nominal Peak Power**
GSM	0	30 dBm (1W)
GPRS	3	30 dBm (1W)

MEASUREMENT RESULT

Conducted Output Power for GSM 850 MHZ					
Mode	**Frequency**	**Power Step**	**Result**		**Conclusion**
			Peak Power (dBM)	**Tolerance (dB)**	
GSM	824.2	5	32.15	-0.85	Pass
	836.6	5	32.31	-0.69	Pass
	848.8	5	32.31	-0.69	Pass

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Conducted Output Power for PCS 1900 MHZ					
Mode	Frequency	Power Step	Result		Conclusion
			Peak Power (dBM)	Tolerance (dB)	
GSM	1850.2	0	29.39	-0.61	Pass
	1880.0	0	30.19	0.19	Pass
	1909.8	0	29.29	-0.71	Pass

3.1.2 RADIATED OUTPUT POWER

MEASUREMENT METHOD

The measurements procedures specified in TIA-603C-2004 were applied.

1 In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.

2 The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established as ARpl=Pin + 2.15 - Pr. The ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl

3 The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.

4 From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.

5 The EUT is then put into continuously transmitting mode at its maximum power level.

6 Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.

7 This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).

ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

PROVISIONS APPLICABLE

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This is the test for the maximum radiated power from the EUT. Rule Part 24.232(b) specifies, “Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power” and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.” Rule Part 22.913(a) specifies “Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.”

Radiated Power Limits for GSM 850 MHZ (ERP)		
Mode	**Power Step**	**Nominal Peak Power**
GSM	5	<=38.45 dBm (7W)
GPRS	3	<=38.45 dBm (7W)

Radiated Power Limits for PCS 1900 MHZ (E.I.R.P.)		
Mode	**Power Step**	**Nominal Peak Power**
GSM	0	<=33 dBm (2W)
GPRS	3	<=33 dBm (2W)

MEASUREMENT RESULT

Radiated Power (ERP) for GSM 850 MHZ					
Mode	**Frequency**	**Power Step**	**Result**		**Conclusion**
			Max. Peak ERP (dBm)	**Polarization Of Max. ERP**	
GSM	824.2	5	27.45	Horizontal	Pass
	836.6	5	27.67	Horizontal	Pass
	848.8	5	28.12	Horizontal	Pass

Radiated Power (E.I.R.P) for PCS 1900 MHZ					
Mode	**Frequency**	**Power Step**	**Result**		**Conclusion**
			Max. Peak E.I.R.P.(dBm)	**Polarization Of Max. E.I.R.P.**	
GSM	1850.2	0	27.41	Horizontal	Pass
	1880.0	0	28.45	Horizontal	Pass
	1909.8	0	27.01	Horizontal	Pass

3.2 SPURIOUS EMISSION

3.2.1 CONDUCTED SPURIOUS EMISSION

MEASUREMENT METHOD

The following steps outline the procedure used to measure the conducted emissions from the EUT.

1, Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of PCS1900 band, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz. For GSM850, data taken from 30 MHz to 9 GHz.

2, Determine EUT transmit frequencies: the following typical channels were chosen to conducted emissions testing.

Typical Channels for testing of GSM 850 MHz	
Channel	Frequency (MHz)
128	824.2
190	836.6
251	848.8

Typical Channels for testing of PCS 1900 MHz	
Channel	Frequency (MHz)
512	1850.2
661	1880.0
810	1909.8

PROVISIONS APPLICABLE

On any frequency outside frequency band of the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

MEASUREMENT RESULT

Conducted Spurious Emission for GSM 850 MHz						
Harmonic	Tx ch. 128 Freq. (MHz)	Level (dBm)	Tx ch. 190 Freq. (MHz)	Level (dBm)	Tx ch. Freq. (MHz) 251	Level (dBm)
2	1648.4	B.I.N.F	1673.2	nf	1697.6	B.I.N.F
3	2472.6	B.I.N.F	2509.8	nf	2546.4	B.I.N.F
4	3296.8	B.I.N.F	3346.4	nf	3395.2	B.I.N.F
5	4121	B.I.N.F	4183	nf	4244	B.I.N.F
6	4945.2	B.I.N.F	5019.6	nf	5092.8	B.I.N.F
7	5769.4	B.I.N.F	5856.2	nf	5941.6	B.I.N.F
8	6593.6	B.I.N.F	6692.8	nf	6790.4	B.I.N.F
9	7417.8	B.I.N.F	7529.4	nf	7639.2	B.I.N.F
10	8242	B.I.N.F	8366	nf	8488	B.I.N.F
● **B.I.N.F: Below Instruments Noise floor**						

Conducted Spurious Emission for PCS 1900 MHz						
Harmonic	Tx ch. 512 Freq. (MHz)	Level (dBm)	Tx ch. 661 Freq. (MHz)	Level (dBm)	Tx ch. 810 Freq. (MHz)	Level (dBm)
2	3700.4	B.I.N.F	3760	nf	3819.6	B.I.N.F
3	5550.6	B.I.N.F	5640	nf	5729.4	B.I.N.F
4	7400.8	B.I.N.F	7520	nf	7639.2	B.I.N.F
5	9251.0	B.I.N.F	9400	nf	9549.0	B.I.N.F
6	11101.2	B.I.N.F	11280	nf	11458.8	B.I.N.F
7	12951.4	B.I.N.F	13160	nf	13368.6	B.I.N.F
8	14801.6	B.I.N.F	15040	nf	15278.4	B.I.N.F
9	16651.8	B.I.N.F	16920	nf	17188.2	B.I.N.F
10	18502.0	B.I.N.F	18800	nf	19098.0	B.I.N.F
B.I.N.F: Below Instruments Noise floor						

Please refers to Appendix Ⅰ for compliance test plots for Conducted Spurious Emission

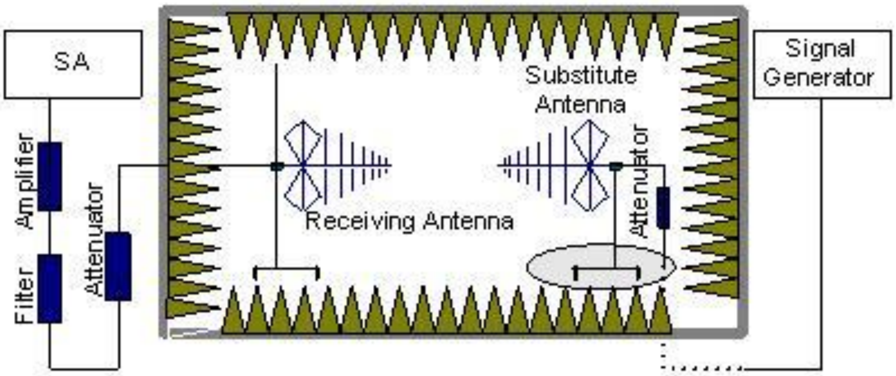
3.2.2 RADIATED SPURIOUS EMISSION

MEASUREMENT METHOD

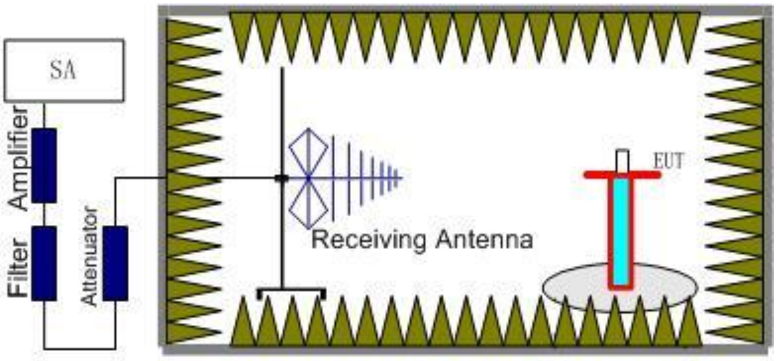
The measurements procedures specified in TIA-603C-2004 were used for testing. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set 1MHz as outlined in Part 24.238. The measurements were performed on all modes(GSM, GPRS,) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for both GSM band and PCS band.

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx（dBuV）+CL（dB）+SA（dB）+Gain（dBi）-107（dBuV to dBm）The SA is calibrated using following setup.



b) EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS band (1850.2 MHz, 1880 MHz and 1909.8 MHz) ,GSM850 band (824.2MHz, 836.6MHz, 848.8MHz) . It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the PCS1900 ,GSM850 into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=P_{Mea}+A_{Rpl}

PROVISIONS APPLICABLE

(a) On any frequency outside a licensee’s frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

MEASUREMENT RESULT

The Worst Test Results for Channel 128 / 824.2 MHz					
Frequency (MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
1648	-40.09	-2.95	-37.14	-13	Horizontal
1752	-24.44	-0.35	-24.09	-13	Vertical
2472	-40.01	0.12	-40.13	-13	Horizontal
9086	-37.22	8.45	-45.67	-13	Horizontal

The Worst Test Results for Channel 190/836.6 MHz					
Frequency (MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
1673	-39.22	-2.09	-37.13	-13	Horizontal
1903	-27.34	-0.25	-27.09	-13	Vertical
9089	-40.08	8.52	-48.6	-13	Horizontal

The Worst Test Results for Channel 251/848.8 MHz					
Frequency (MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
1698	-40.11	-2.25	-37.86	-13	Horizontal
1888.5	-28.15	-0.29	-27.86	-13	Vertical
2131	-40.22	-0.87	-39.35	-13	Horizontal
9089	-39.9	8.52	-48.42	-13	Horizontal

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The Worst Test Results for Channel 512/1850.2 MHz					
Frequency (MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
1999	-41.22	9.6	-50.82	-13	Horizontal
3700	-38.56	10.5	-49.06	-13	Vertical
12950.4	-43.08	12.3	-55.38	-13	Horizontal
17919.6	-40.15	18.7	-58.85	-13	Horizontal

The Worst Test Results for Channel 661/1880.0 MHz					
Frequency (MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
2000.5	-44.31	9.8	-54.11	-13	Horizontal
9399	-39.77	11.8	-51.57	-13	Vertical
13160.4	-42.44	14.4	-56.84	-13	Horizontal
15039.6	-40.15	14.9	-55.05	-13	Horizontal

The Worst Test Results for Channel 810/1909.8 MHz					
Frequency (MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
2000	-41.22	9.8	-51.02	-13	Horizontal
9548.5	-38.56	11.3	-49.86	-13	Vertical
13367.4	-43.08	12.4	-55.48	-13	Horizontal
15277.8	-40.15	14.8	-54.95	-13	Horizontal

3.3 FREQUENCY STABILITY

3.3.1 MEASUREMENT METHOD

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMU200 DIGITAL RADIO COMMUNICATION TESTER.

(1)Measure the carrier frequency at room temperature.

(2) Subject the EUT to overnight soak at -30℃.

(3) With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 661 for PCS 1900 , channel 190 for GSM850 measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

(4)Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

(5)Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

(6) Subject the EUT to overnight soak at +50℃.

(7) With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

(8) Repeat the above measurements at 10 C increments from +50℃ to -30℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

(9) At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

3.3.2 PROVISIONS APPLICABLE

For Hand carried battery powered equipment

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According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.5VDC and 4.2VDC, with a nominal voltage of 3.8VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

For equipment powered by primary supply voltage

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

MEASUREMENT RESULT

Frequency Error Against Voltage for GSM 850 MHz		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.5	31	0.038
3.8	41	0.050
4.2	21	0.025

Frequency Error Against Voltage for GSM 850 MHz		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-30	25	0.030
-20	37	0.045
-10	43	0.052
0	31	0.038
10	28	0.034
20	21	0.025
30	31	0.038
40	25	0.030
50	24	0.029

Frequency Error Against Voltage for PCS 1900 MHz		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.5	28	0.015
3.8	38	0.021
4.2	32	0.017

Frequency Error Against Temperature for PCS 1900 MHz		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-30	29	0.016
-20	31	0.017
-10	40	0.022
0	31	0.017
10	28	0.015
20	25	0.014
30	39	0.021
40	31	0.017
50	27	0.015

`

3.4 OCCUPIED BANDWIDTH

3.4.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

3.4.2 PROVISIONS APPLICABLE

The occupied bandwidth (99%) shall not exceed 300 KHz.

3.4.3 MEASUREMENT RESULT

Occupied Bandwidth (99%) for GSM 850 MHz		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(kHz)
GSM	824.2	243.76
	836.6	236.34
	848.8	244.53

Occupied Bandwidth (99%) for PCS 1900 MHz		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(kHz)
GSM	1850.2	244.93
	1880.0	248.40
	1909.8	245.01

Please refers to Appendix Ⅱ for compliance test plots for Occupied Bandwidth (99%)

`

3.5 EMISSION BANDWIDTH

3.5.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

3.5.2 PROVISIONS APPLICABLE

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

3.5.3 MEASUREMENT RESULT

Emission Bandwidth (-26dBc) for GSM 850 MHz		
Mode	Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)
GSM	824.2	312.79
	836.6	306.00
	848.8	309.13

Emission Bandwidth (-26dBc) for PCS 1900 MHz		
Mode	Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)
GSM	1850.2	319.31
	1880.0	316.75
	1909.8	312.83

Please refers to Appendix Ⅱ for compliance test plots for Emission Bandwidth (-26dBc)

`

3.6 BAND EDGE

3.6.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

3.6.2 PROVISIONS APPLICABLE

as Specified in FCC rules of 22.917(b) and 24.238(b)

3.6.3 MEASUREMENT RESULT

Please refers to Appendix Ⅲ for compliance test plots for band edges

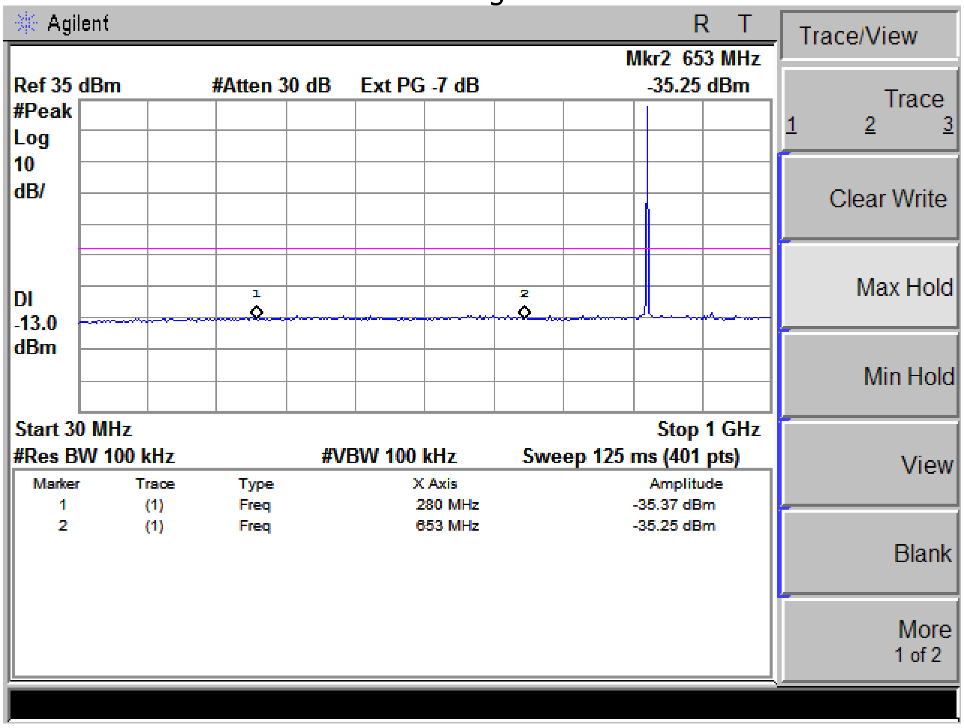
`

APPENDIX I

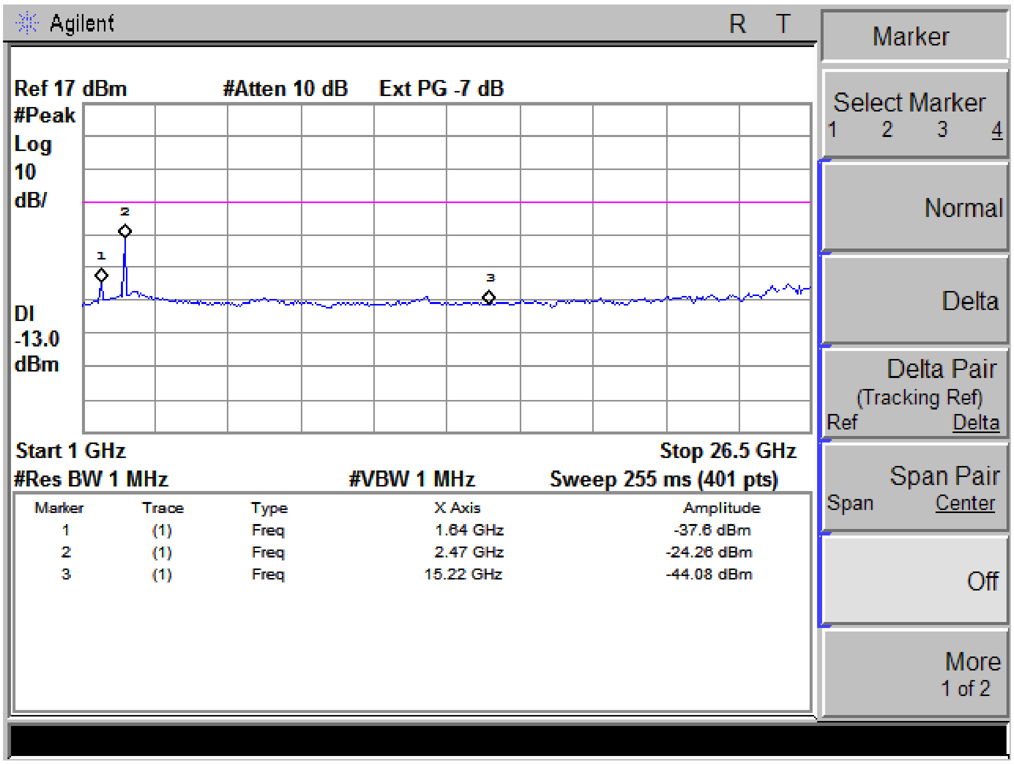
TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

CONDUCTED EMISSION IN GSM BAND

Conducted Emission Transmitting Mode CH 128 30MHz – 1GHz



Conducted Emission Transmitting Mode CH 128 1GHz – 26.5GHz



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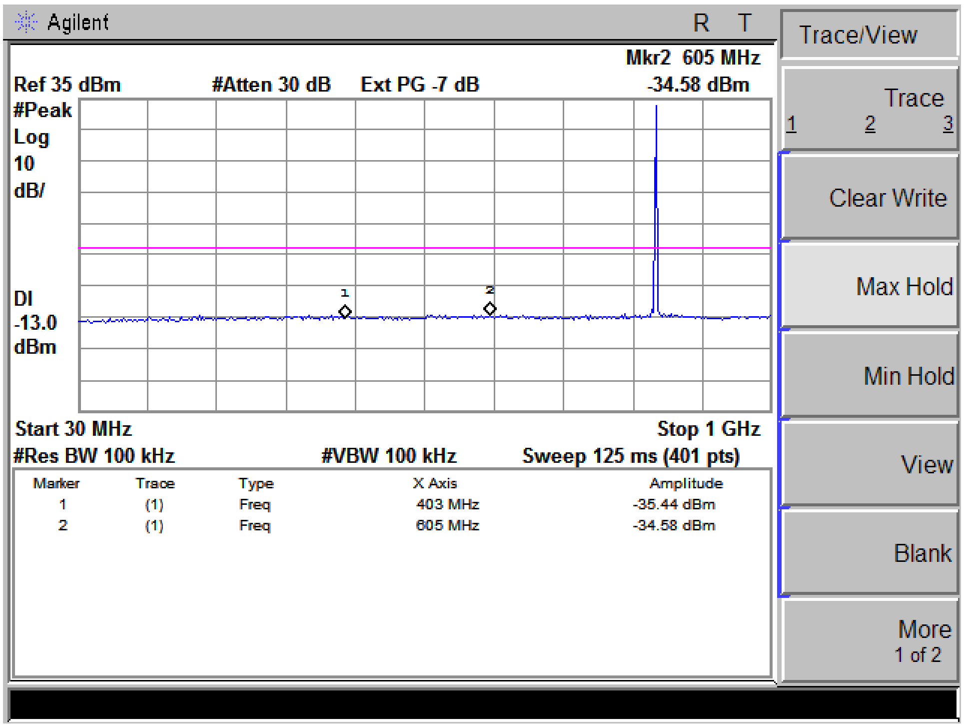
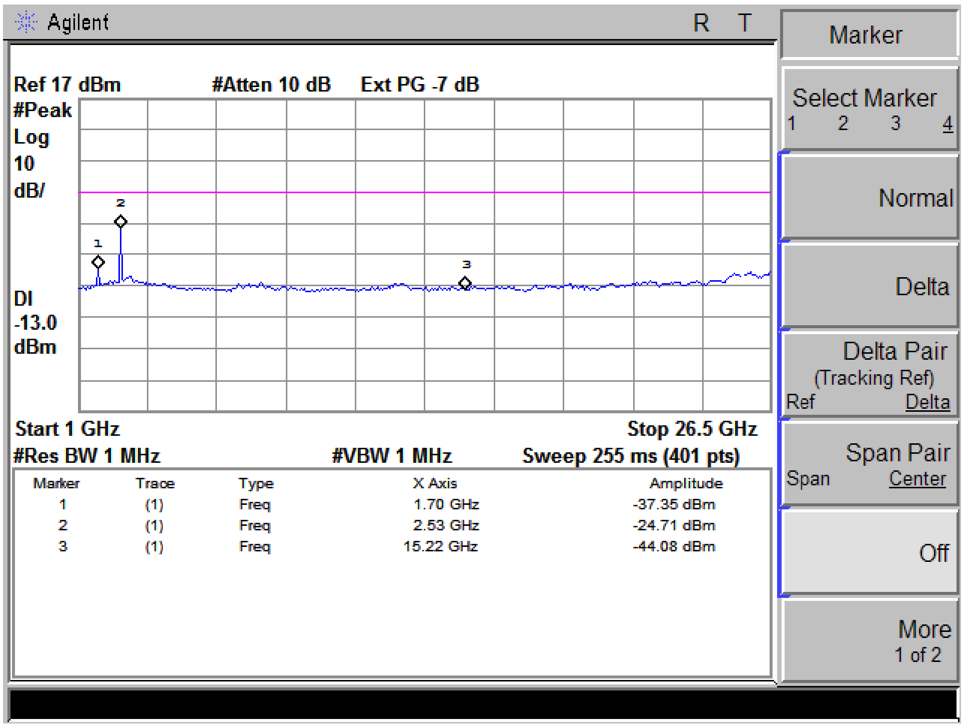
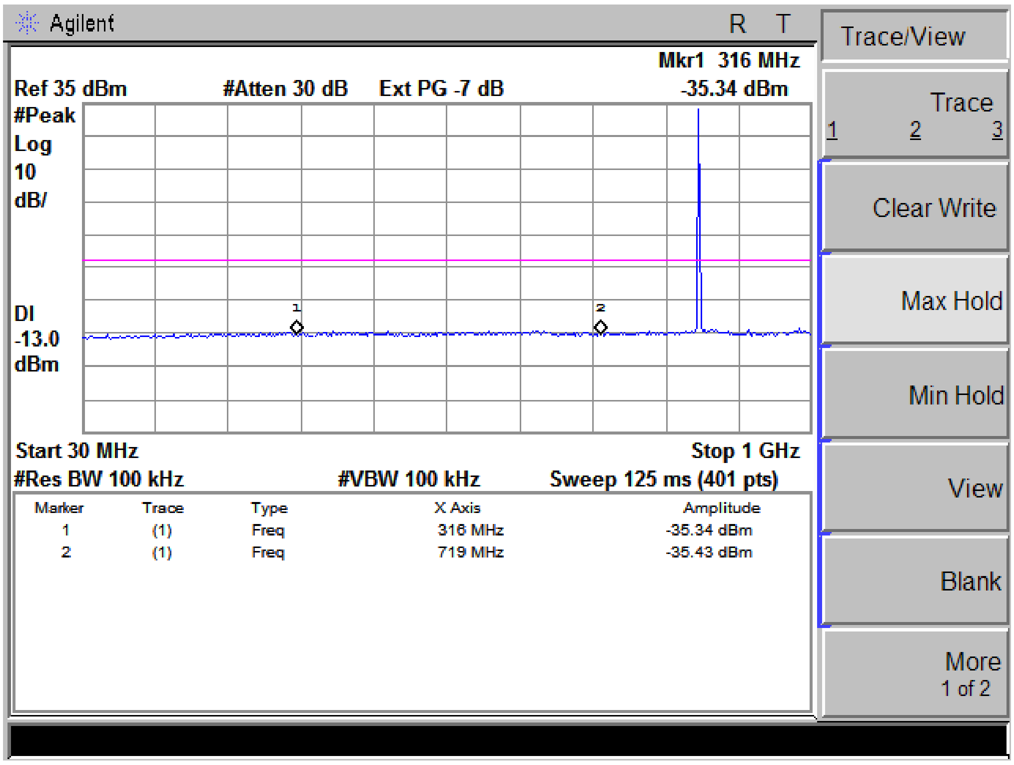
Conducted Emission Transmitting Mode CH 190 30MHz – 1GHz



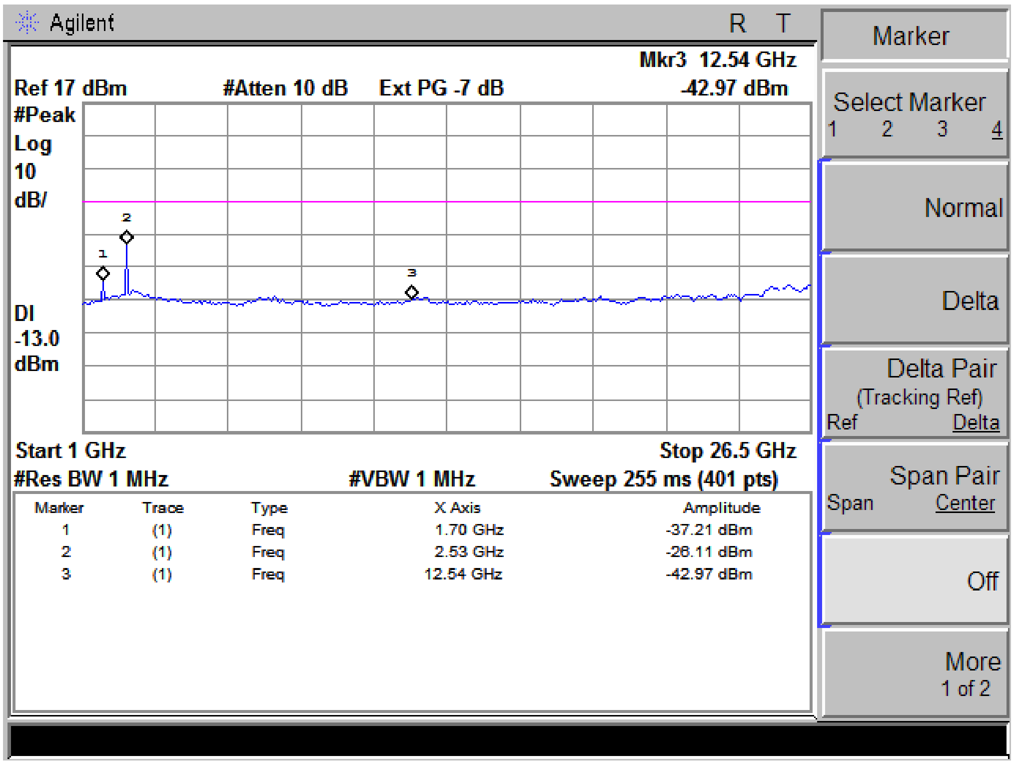
Conducted Emission Transmitting Mode CH 190 1GHz – 26.5GHz



Conducted Emission Transmitting Mode CH 251 30MHz – 1GHz

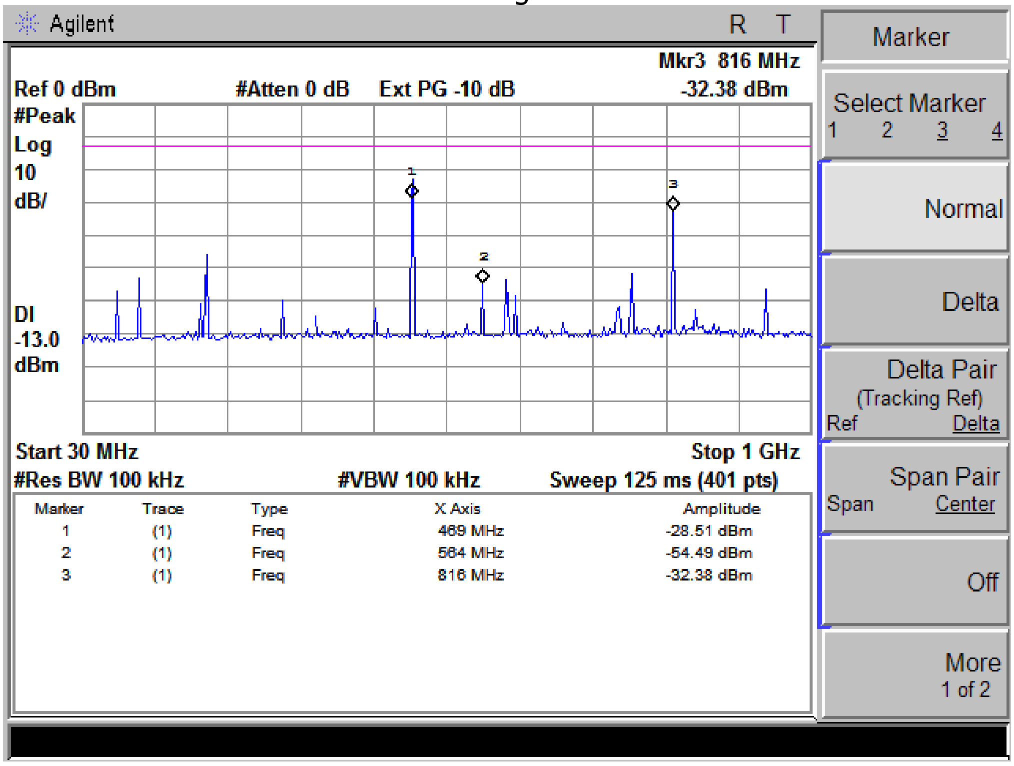


Conducted Emission Transmitting Mode CH 251 1GHz – 26.5GHz

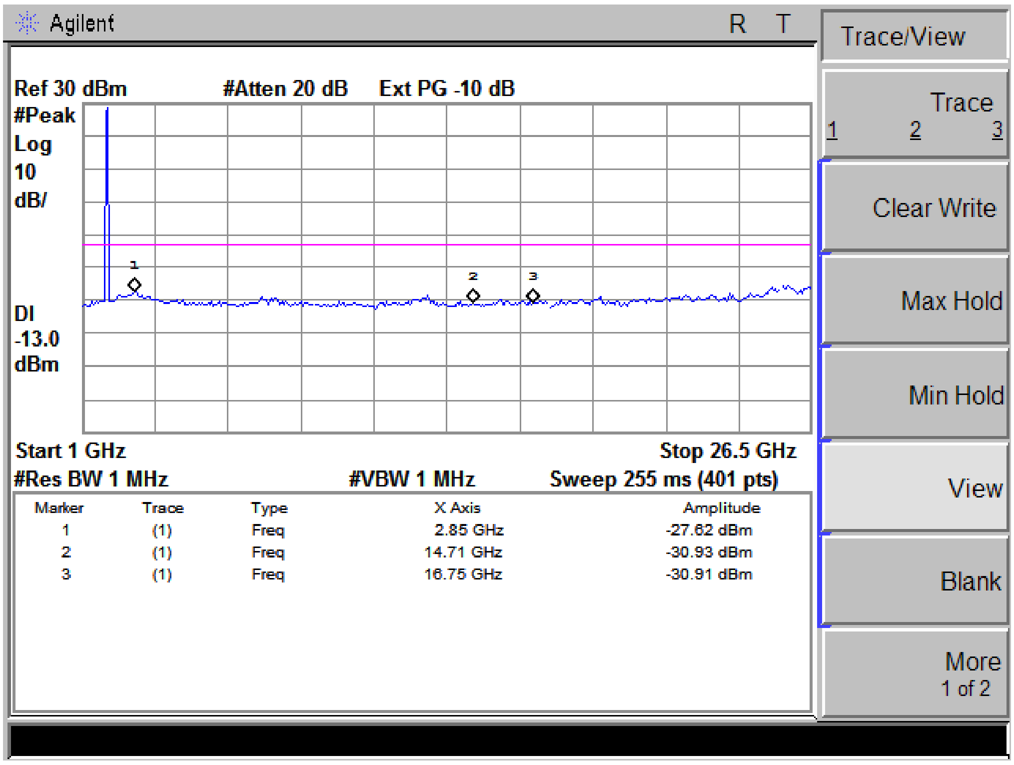


CONDUCTED EMISSION IN PCS BAND

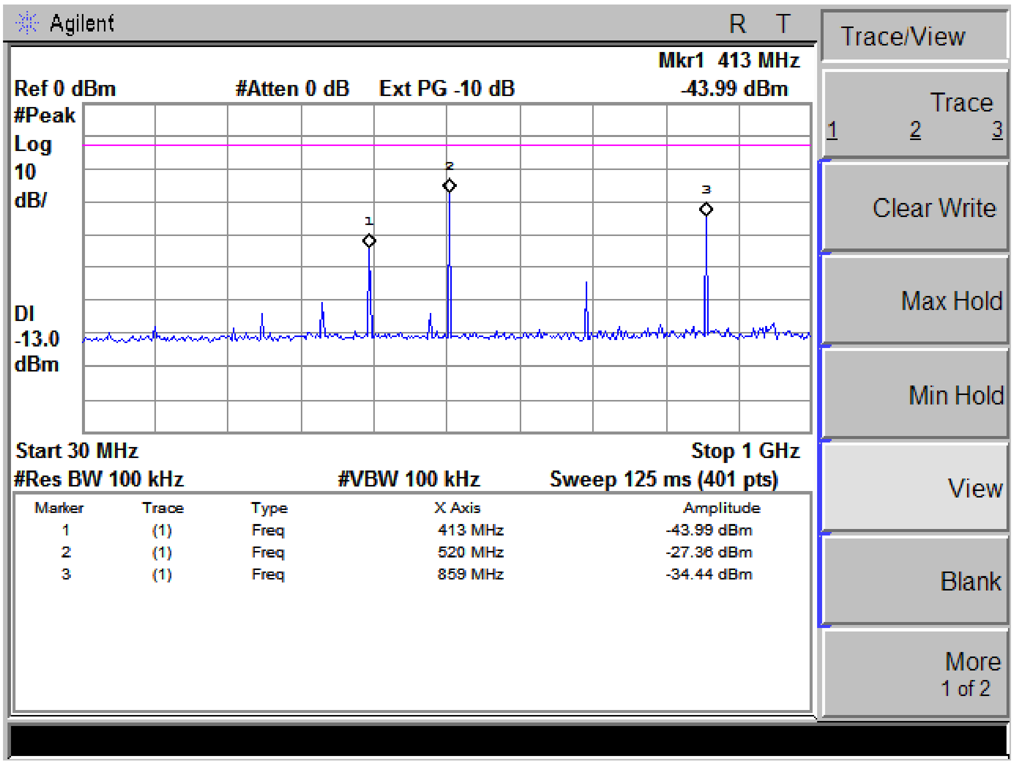
Conducted Emission Transmitting Mode CH 512 30MHz – 1GHz



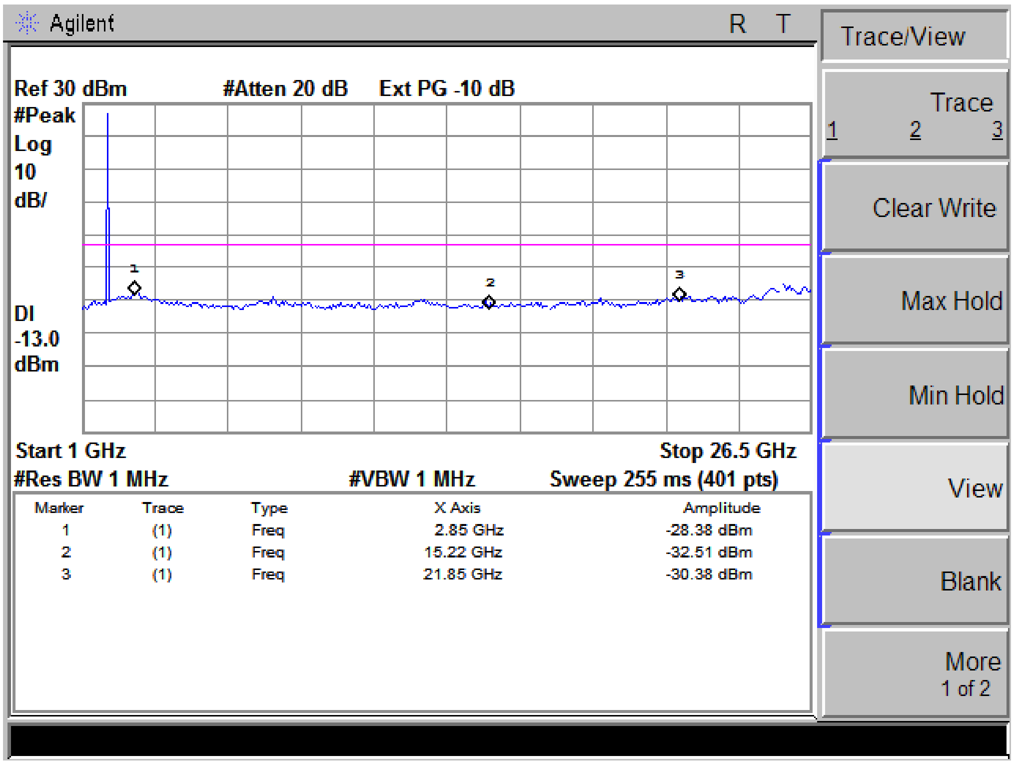
Conducted Emission Transmitting Mode CH 512 1GHz – 26.5GHz



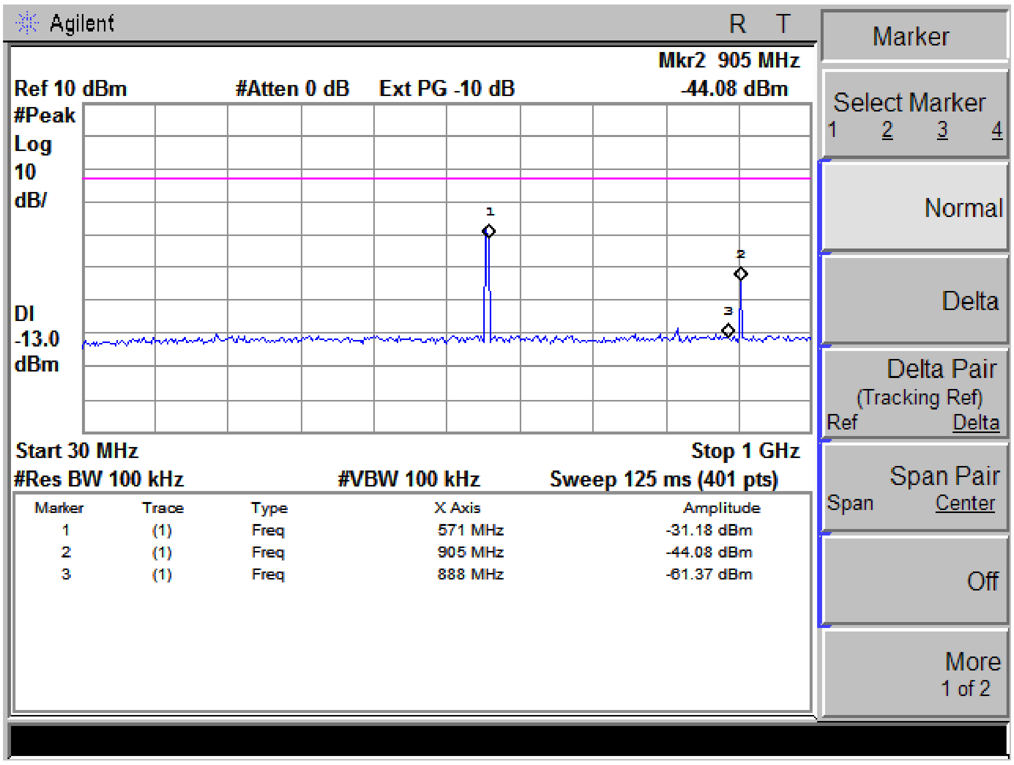
Conducted Emission Transmitting Mode CH 661 30MHz – 1GHz



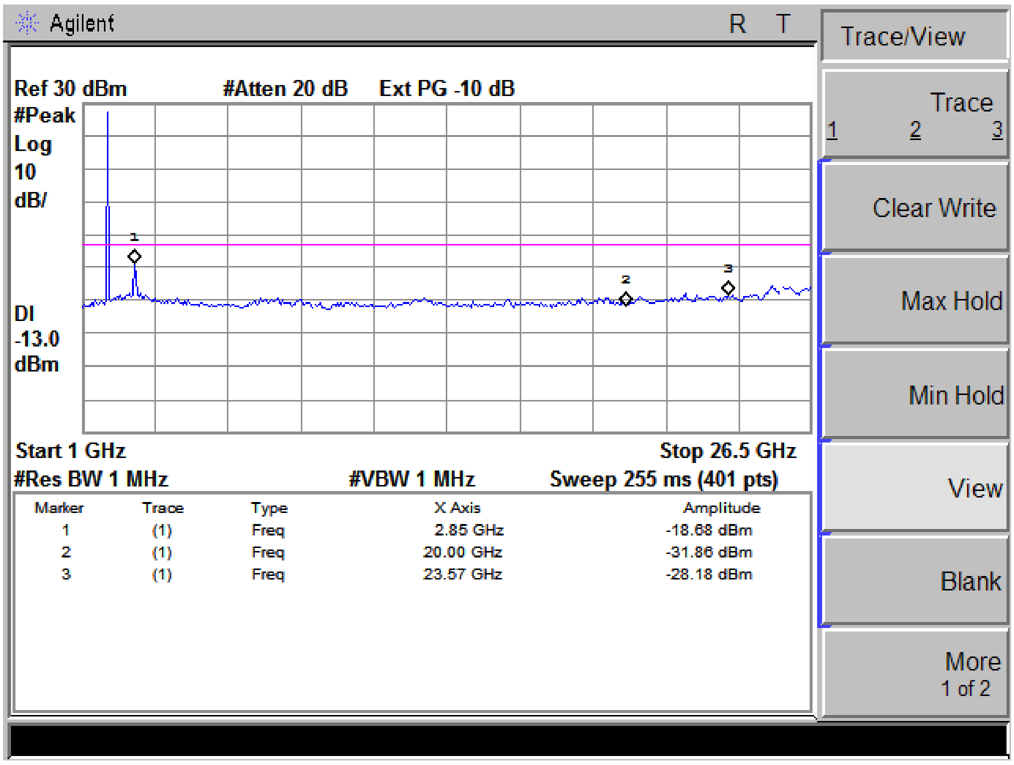
Conducted Emission Transmitting Mode CH 661 1GHz – 26.5GHz



Conducted Emission Transmitting Mode CH 810 30MHz – 1GHz



Conducted Emission Transmitting Mode CH 810 1GHz – 26.5GHz



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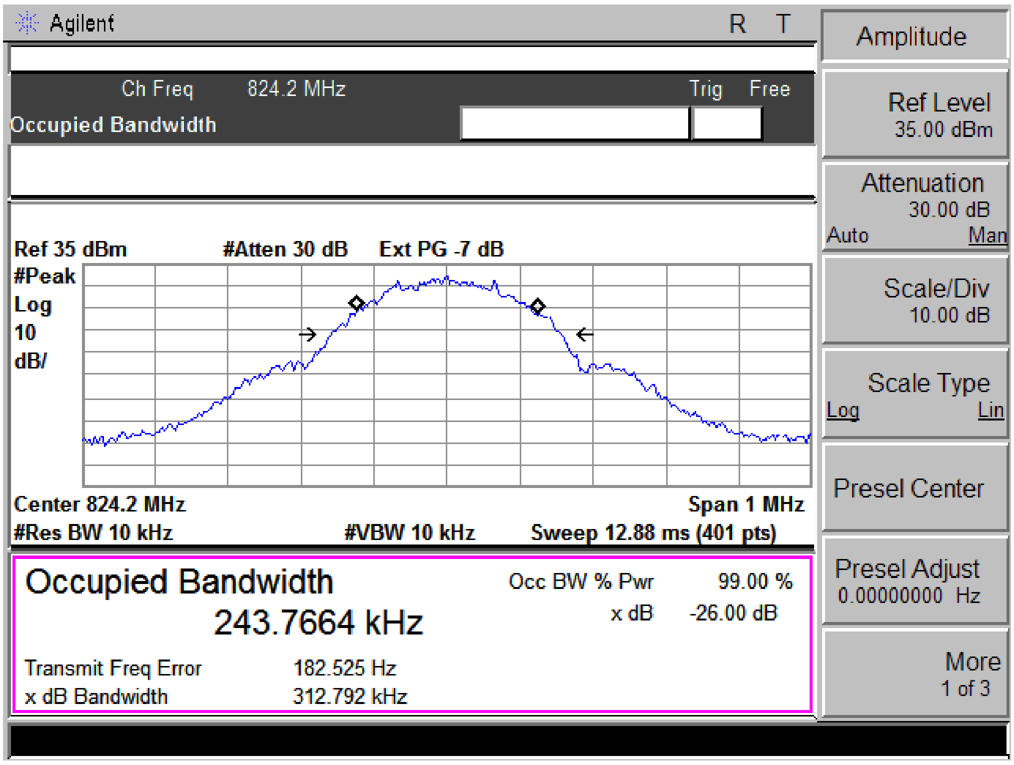
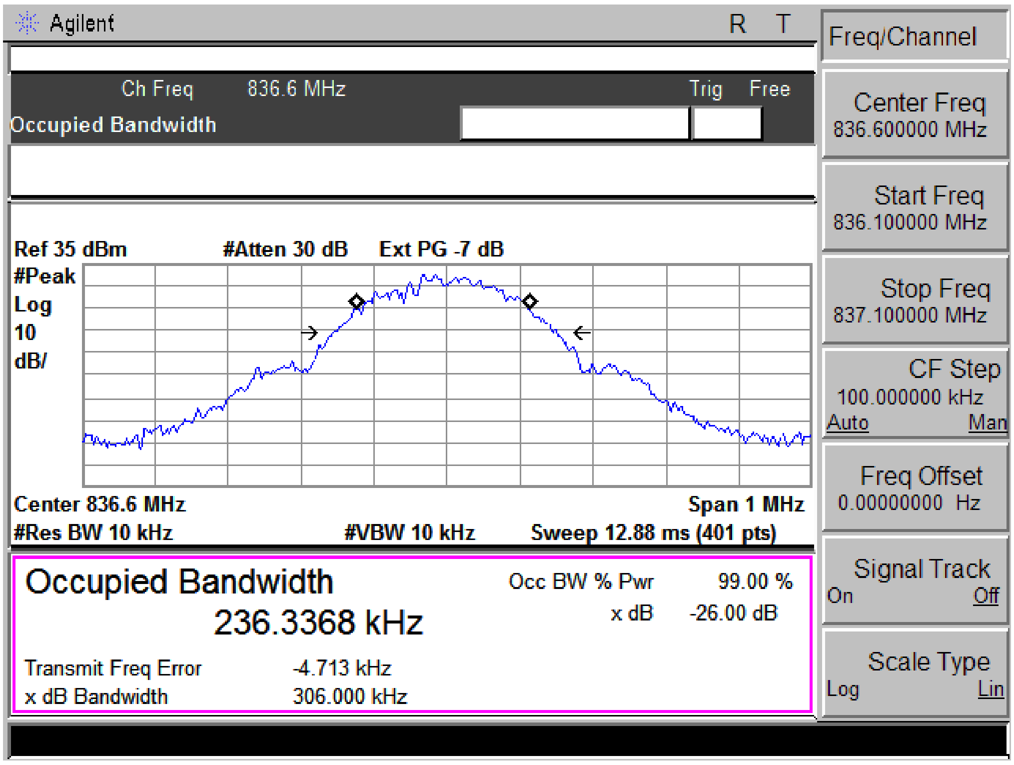
APPENDIX II

TEST PLOTS FOR OCCUPIED BANDWIDTH (99%)
EMISSION BANDWIDTH (-26dBC)

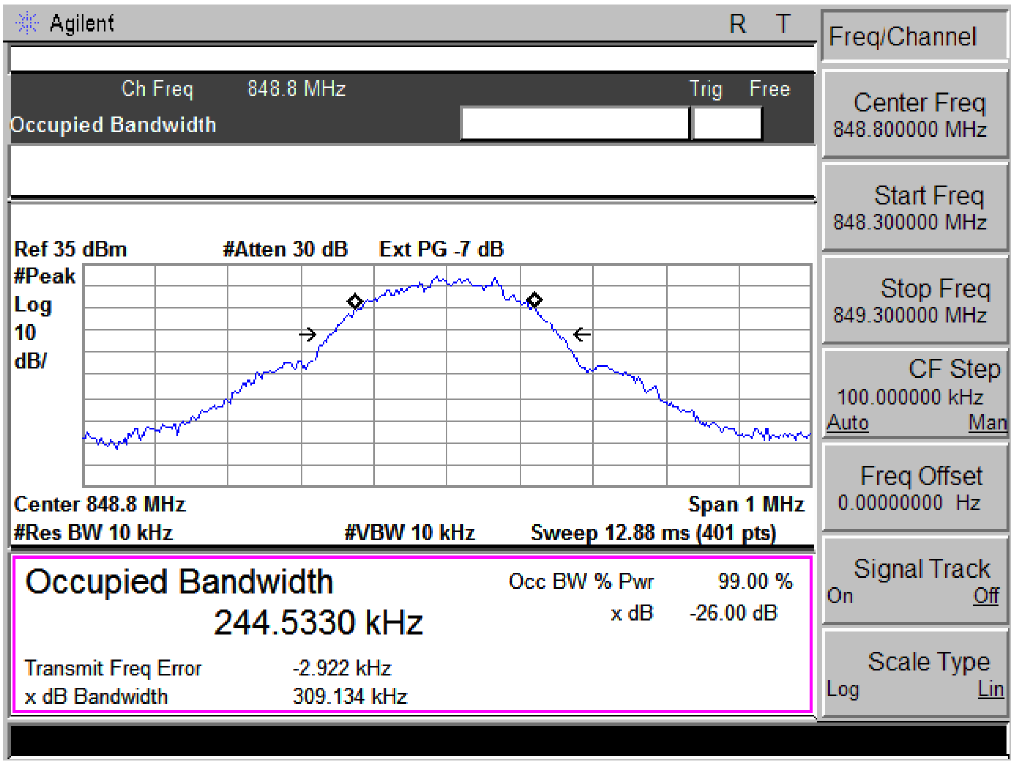
Occupied Bandwidth (99%) GSM 850 BAND CH 128



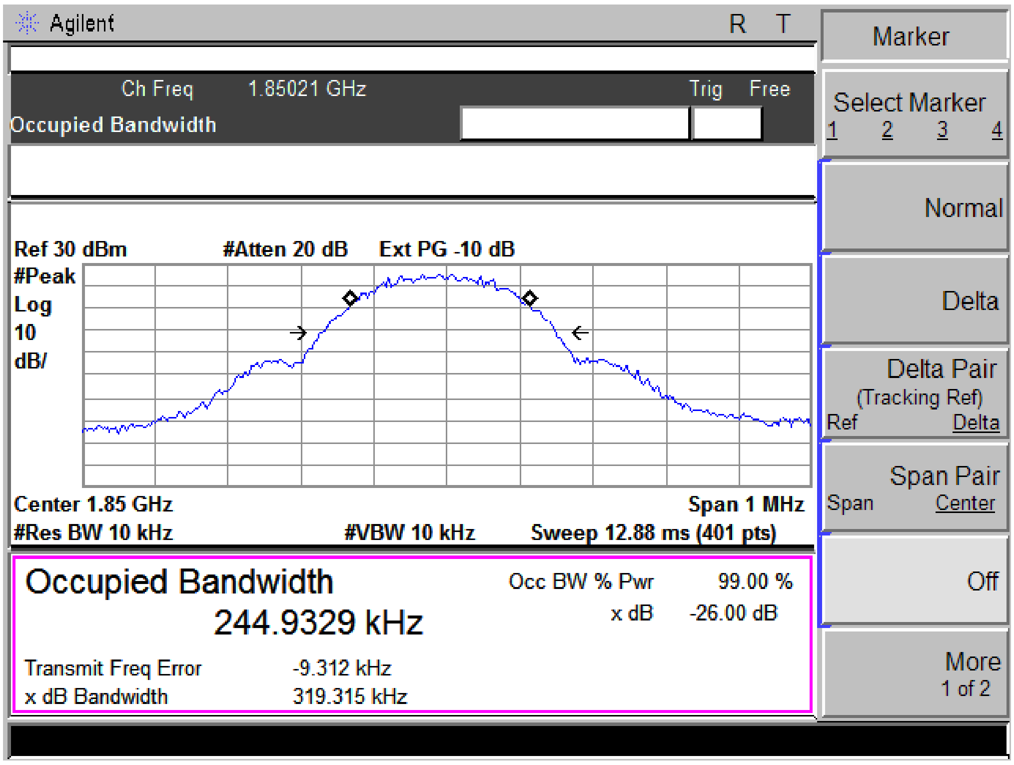
Occupied Bandwidth (99%) GSM 850 BAND CH 190



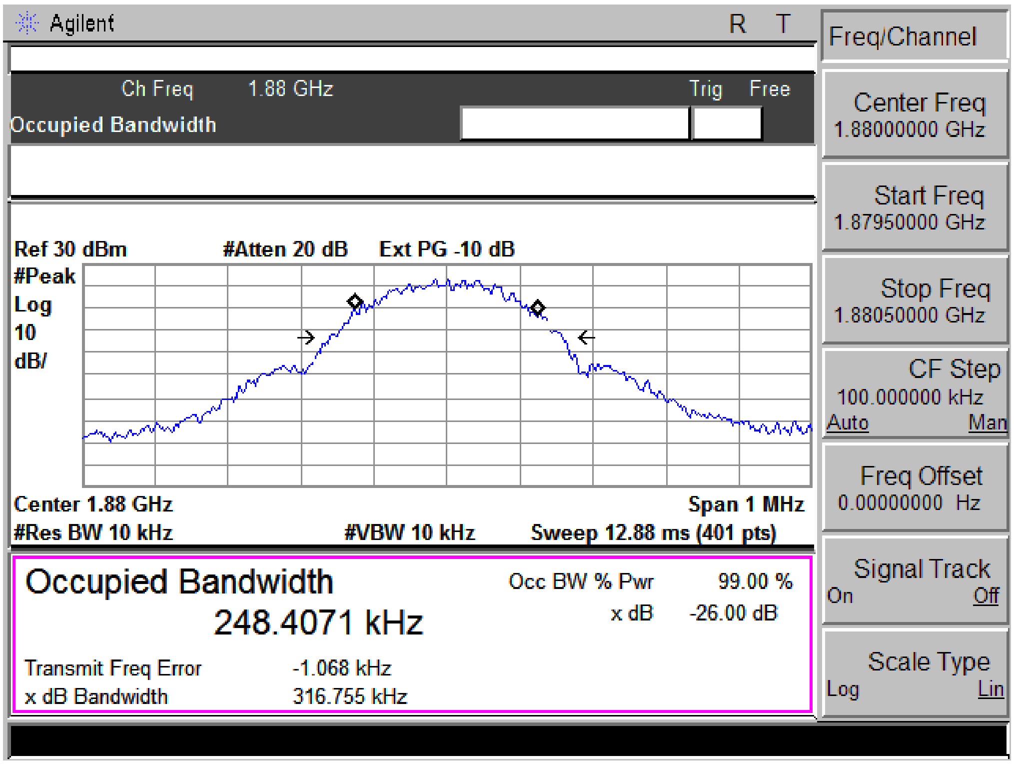
Occupied Bandwidth (99%) GSM 850 BAND CH 251



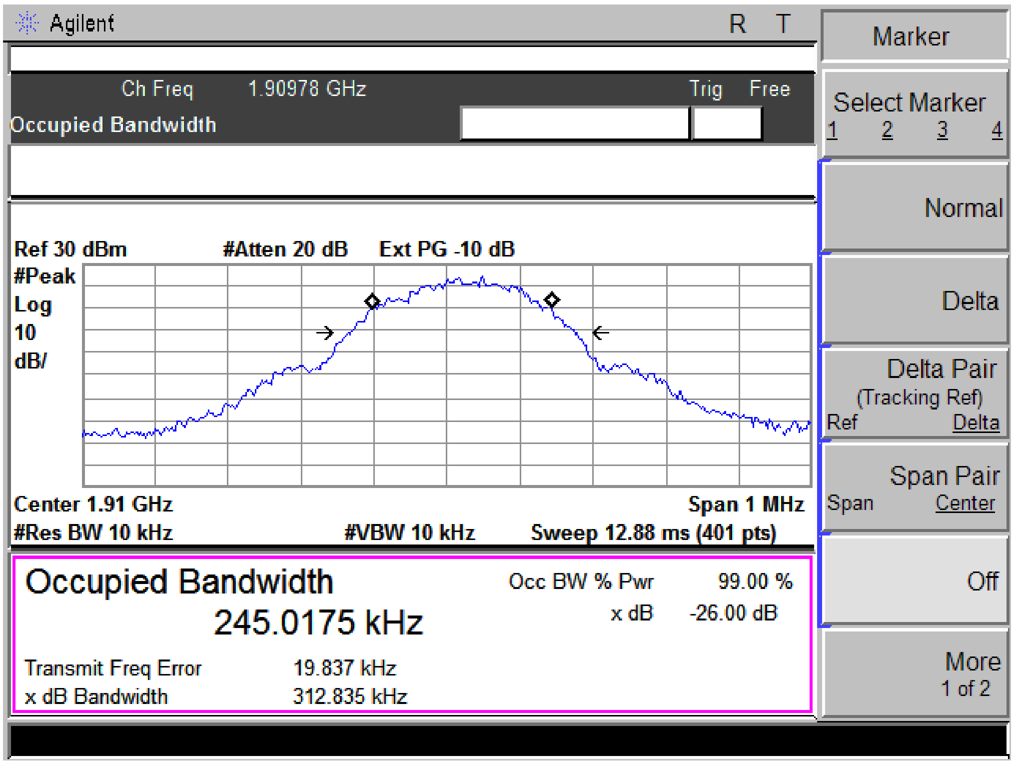
Occupied Bandwidth (99%) PCS 1900 BAND CH 512



Occupied Bandwidth (99%) PCS 1900 BAND CH 661



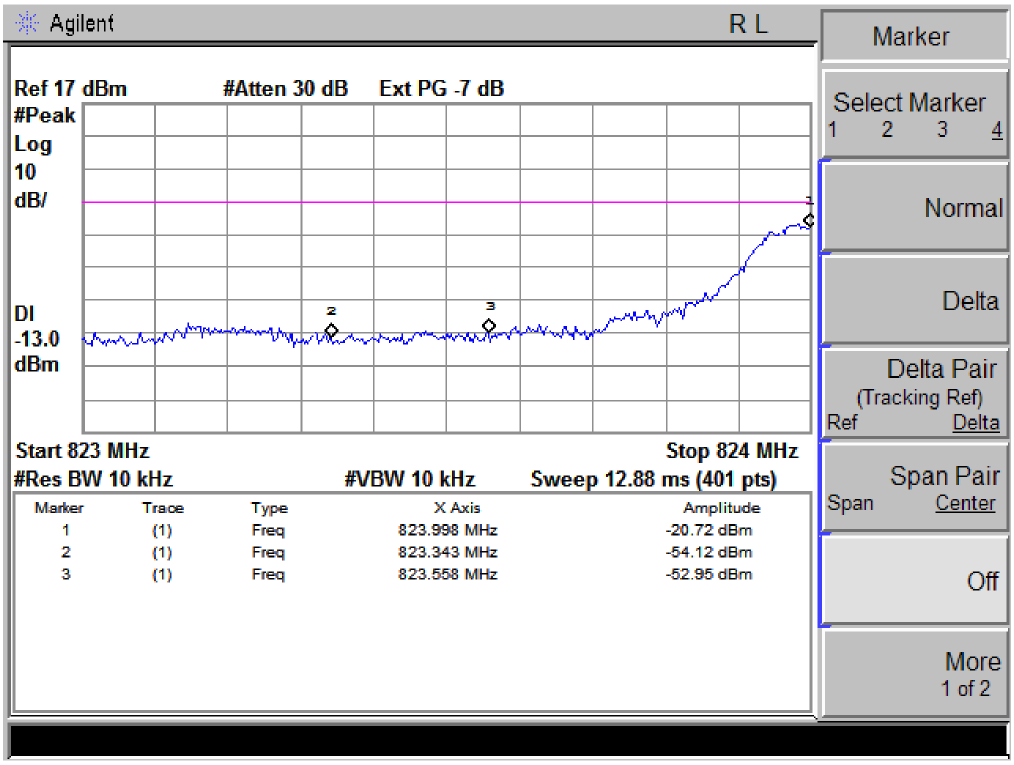
Occupied Bandwidth (99%) PCS 1900 BAND CH 810



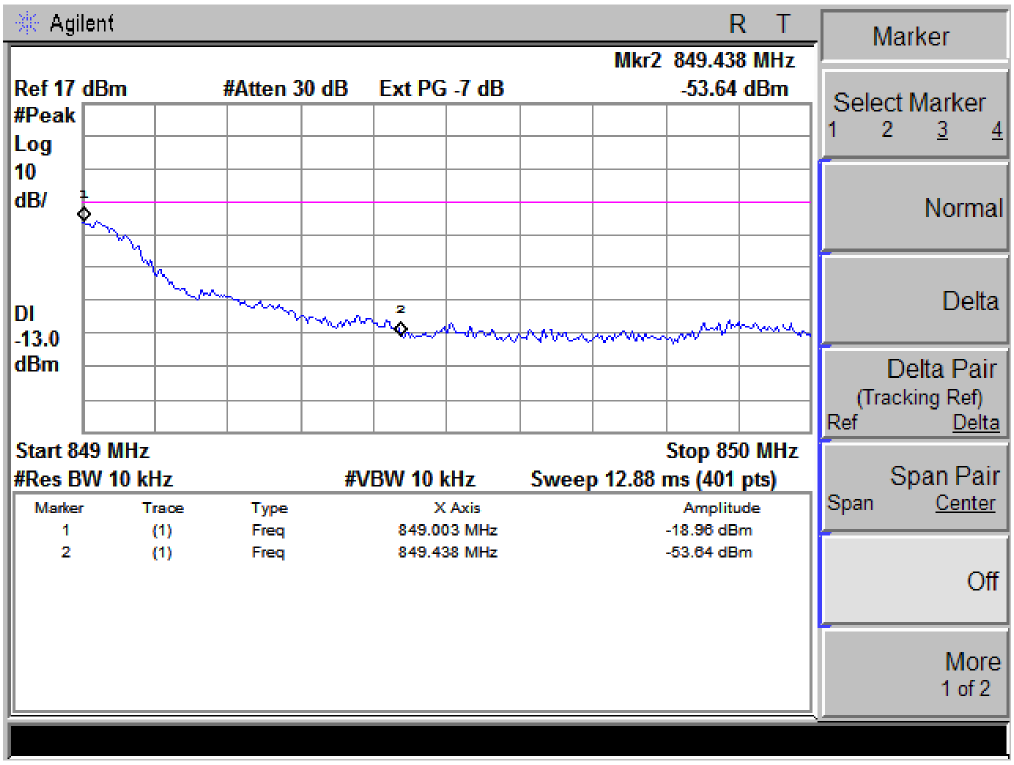
APPENDIX III

TEST PLOTS FOR BAND EDGES

Low Band Edge GSM 850 BAND CH 128



High Band Edge GSM 850 BAND CH 251



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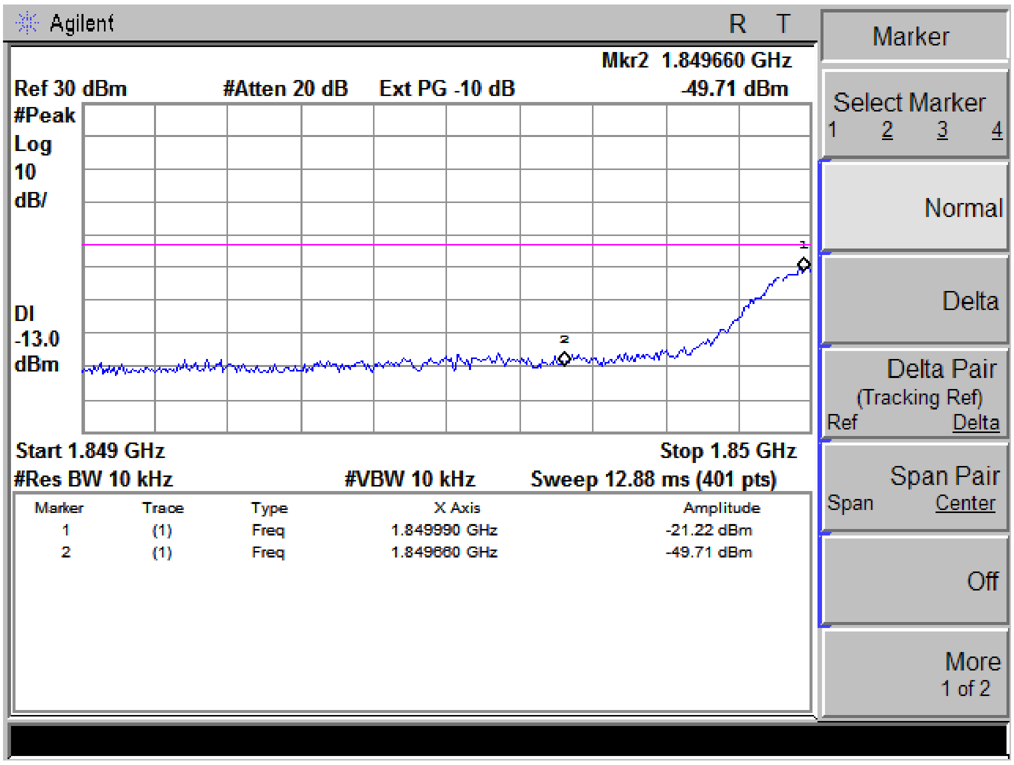
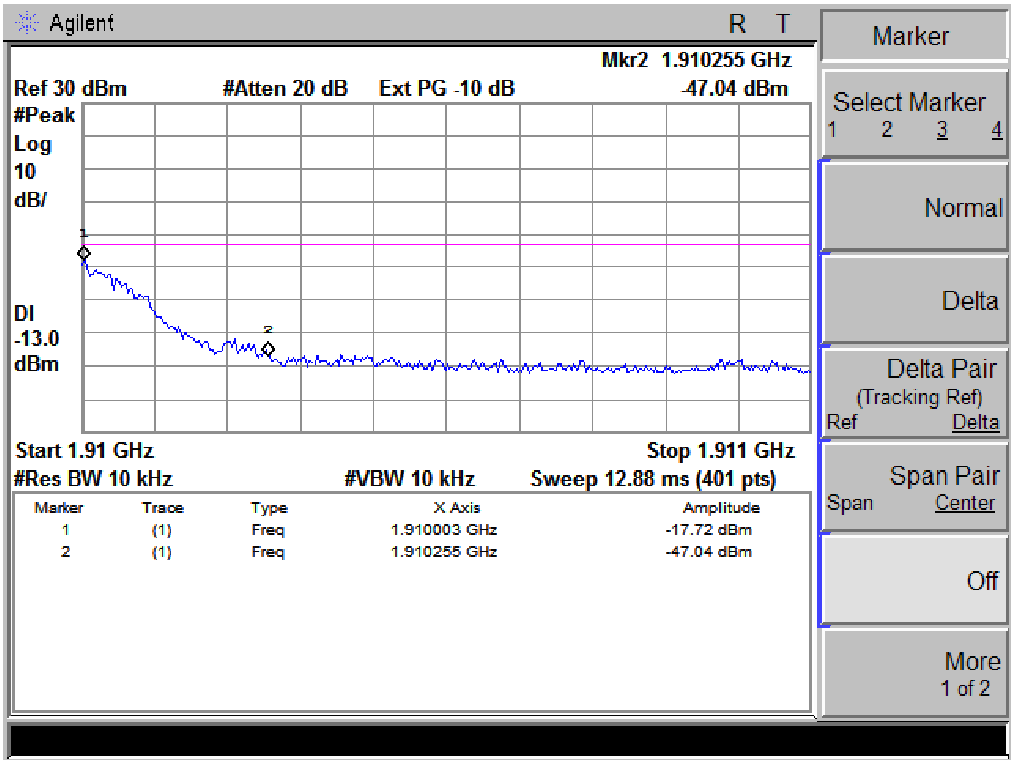
Low Band Edge PCS 1900 BAND CH 512



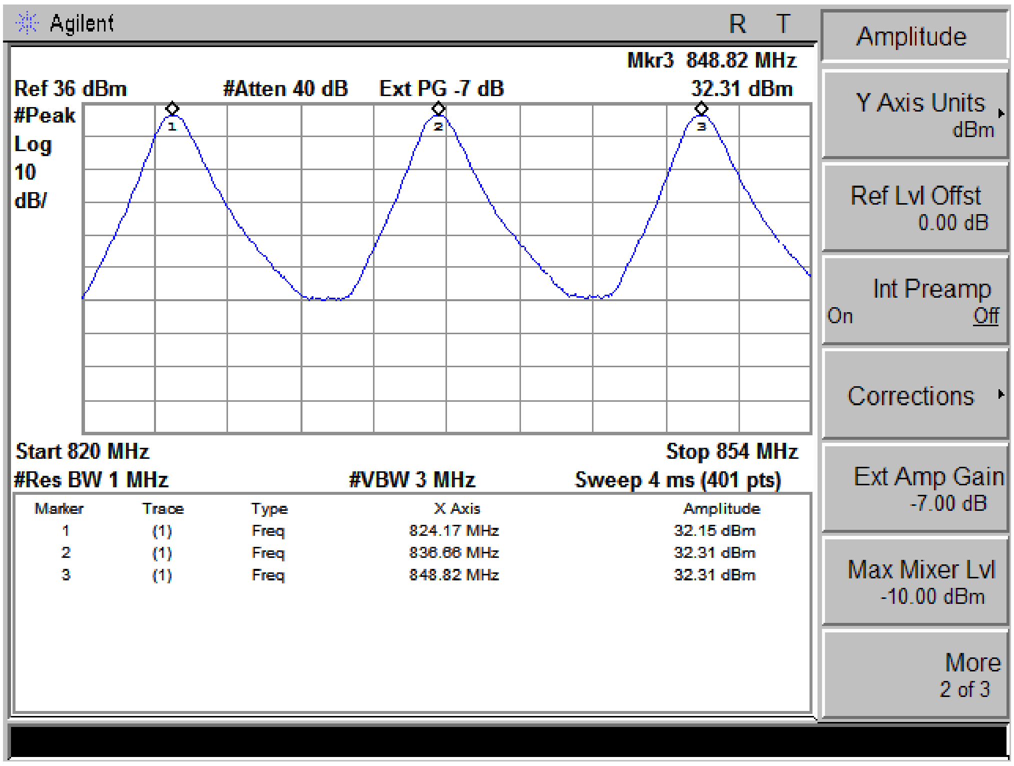
High Band Edge PCS 1900 BAND CH 810



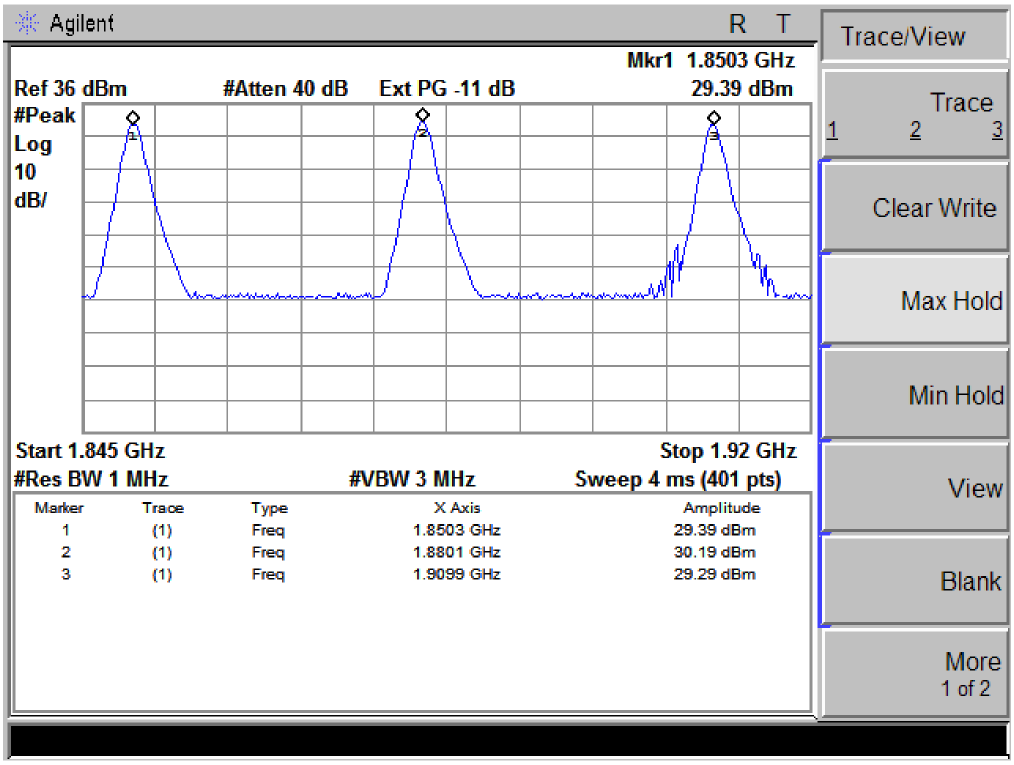
APPENDIX IV

CONDUCTED OUTPUT POWER

GSM850(128,190,251)

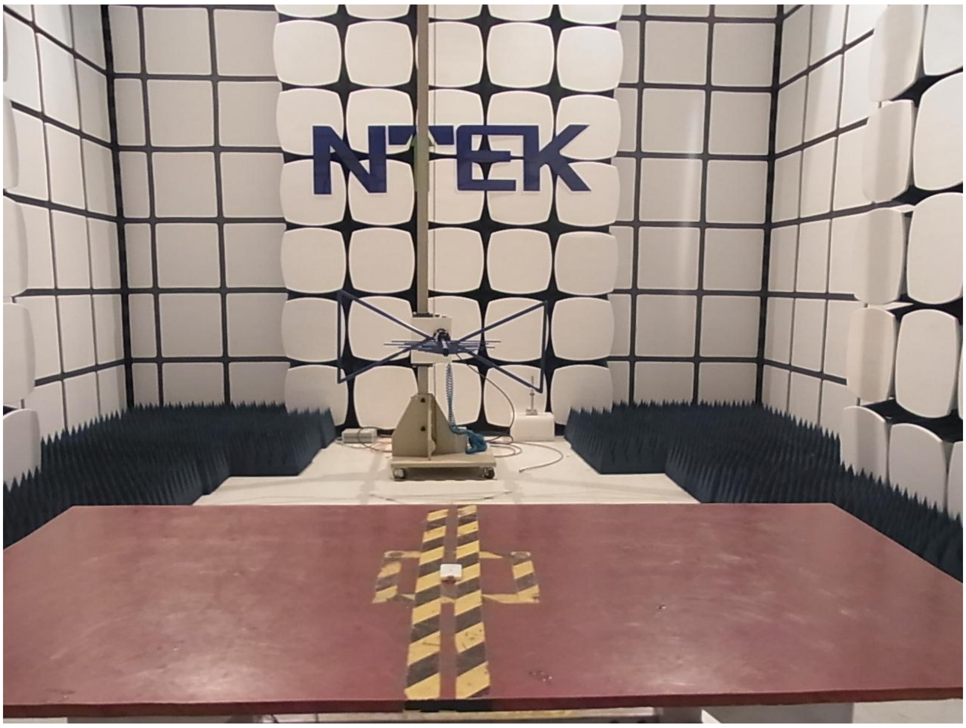


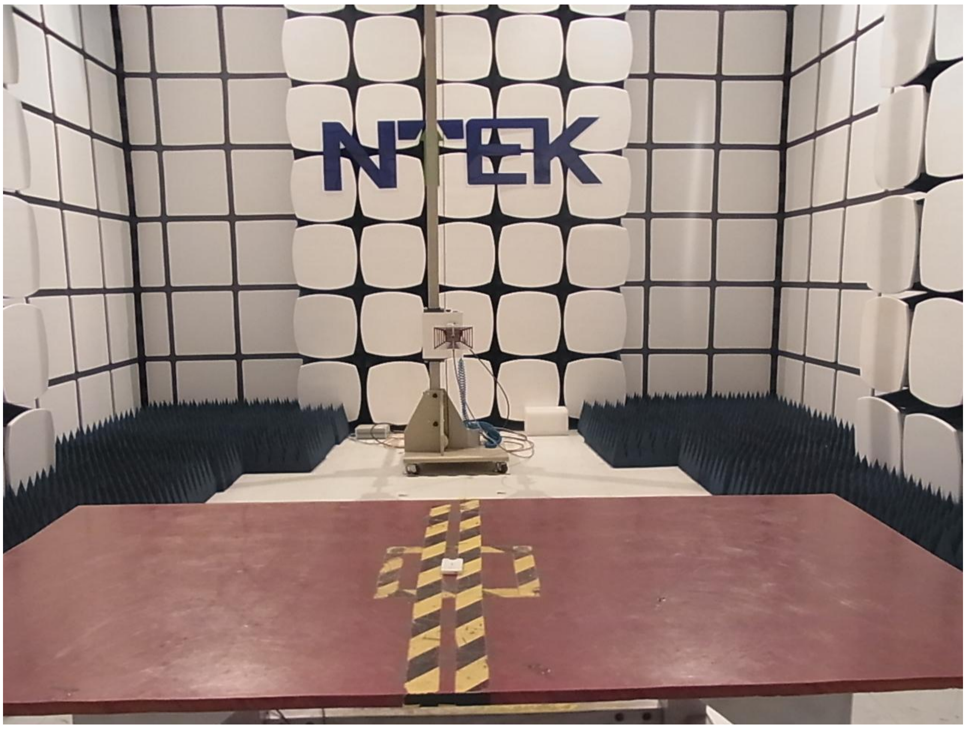
GSM1900(512,661,810)



4. EUT TEST PHOTO

Radiated Measurement Photos





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