

FCC TEST REPORT

Test report On Behalf of Universal Physicians, LLC For FastHelp Home Emergency Alert Device – V4-4G Model No.: FH-V4-4G

FCC ID: 2AJG4-FH-V4-4G

- Prepared for :
 Universal Physicians, LLC

 7747 Supreme Street NW, North Canton,Ohio United States 44720
- Prepared By : Shenzhen Tongzhou Testing Co.,Ltd 1th Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China

Date of Test: 2021/7/20 - 2021/8/10

Date of Report: 2021/8/11

Report Number: TZ210702403-E1

The test report apply only to the specific sample(s) tested under stated test conditions It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



TEST RESULT CERTIFICATION

Applicant's name:	Universal Physicians, LLC
Address:	7747 Supreme Street NW, North Canton, Ohio United States 44720
Manufacture's Name:	SHENZHEN SMARTI-TECH LIMITED
Address:	Room 902, Longsheng Times Building, Industrial Road,Longhua District, Shenzhen, Guang dong,China
Product description	
Trade Mark	FastHelp
Product name:	FastHelp Home Emergency Alert Device – V4-4G
Model and/or type reference .:	FH-V4-4G
Standards	FCC Rules and Regulations Part 22 & Part 24 ANSI C63.26:2015

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Date of Test	
Date (s) of performance of tests::	2021/7/20 - 2021/8/10
Date of Issue	2021/8/11
Test Result	Pass

2

Testing Engineer

Anna Hu

(Anna Hu)

Technical Manager :

Hugo

(Hugo Chen)

Authorized Signatory :

Ana

(Andy Zhang)



Revision History

Revision	Issue Date	Revisions	Revised By
000	2021/8/11	Initial Issue	Andy Zhang



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1 TEST STANDARDS

The tests were performed according to following standards:

FCC Part 2: FREQUENCY ALLOCĂ-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS

FCC Part 22 Subpart H: PRIVATE LAND MOBILE RADIO SERVICES.

FCC Part 24 Subpart E: PUBLIC MOBILE SERVICES

ANSI/TIA-603-E-2016: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

ANSI C63.26-2015: IEEE/ANSI Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

FCCKDB971168D01 Power Meas License Digital Systems



2 SUMMARY

2.1 Product Description

EUT	: FastHelp Home Emergency Alert Device – V4-4G
Model Number	: FH-V4-4G
Model Declaration	: N/A
Test Model	: FH-V4-4G
Power Supply	1,DC 3.6V by battrery 2,DC 5.0V charged by adapter
Hardware version	: A01_MB_V1.0
Software version	: A01_V1.0
Sample ID	: TZ210702403–1# & TZ210702403–2#
Adapter	
Model	: CH005A05010001
Input	: 100-240~ 50/60Hz 0.2A
Output	: DC 5.0V,1.0A
GSM	
GSM FCC Operation Frequency	. GSM850(UL: 824 – 849 MHz/DL: 869 – 894 MHz) . GSM1900(UL: 1850 –1910 MHz/DL: 1930 – 1990 MHz)
Channel Separation	: 0.2MHz
Modulation Technology	: GMSK
Antenna Type And Gain	Internal Antenna : GSM850: 0.75 dBi PCS1900: 1.35 dBi
E-UTRA	
E-UTRA FCC Operation Frequency	FDD Band 2 (UL: 1850 – 1910 MHz/DL: 1930 – 1990 MHz) FDD Band 4 (UL: 1710 – 1755 MHz/DL: 2110 – 2155 MHz) FDD Band 5 (UL: 824 – 849 MHz/DL: 869 – 894 MHz) FDD Band 12(UL: 699 – 716 MHz/DL: 729 – 746 MHz) : FDD Band 13(UL: 777 – 787 MHz/DL: 746–756 MHz) FDD Band 17(UL: 704 – 716 MHz/DL: 734–746 MHz) FDD Band 25(UL: 1850 – 1915 MHz/DL: 1930 – 1995 MHz) TDD Band 38(UL: 2570 – 2620 MHz/DL: 2570 – 2620 MHz) TDD Band 41(UL: 2535 – 2655 MHz/DL: 2535 – 2655 MHz)
Channel Separation	: 0.1 MHz
Modulation Technology	: OFDM (16QAM, QPSK)
Antenna Type And Gain	Internal Antenna FDD Band 2: 1.41 dBi, FDD Band 4: 1.37 dBi, FDD Band 5: 0.67 dBi, FDD Band 12: 0.62 dBi, FDD Band 13: 0.57 dBi FDD Band 17: 0.62 dBi, FDD Band 25: 0.21 dBi, TDD Band 38: 1.44 dBi, TDD Band 41: 0.94 dBi

Note: Antenna position refer to EUT Photos.



GSM Card Slot :

	Maximum ERP/EIRP (dBm)	Max. Conducted Power (dBm)	Max. Average Burst Power (dBm)	
GSM 850	27.38	31.99	31.63	
PCS 1900	24.96	29.88	29.72	



2.2 Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate

2.3 Short description of the Equipment under Test (EUT)

2.3.1 General Description

EUT is subscriber equipment in the LTE/GSM system. Frequency bands Shows in section 2.1.

2.4 Normal Accessory setting

Fully charged battery was used during the test.

2.5 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

supplied by the manufacturer

 \bigcirc - supplied by the lab

2.6 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AJG4-FH-V4-4G filing to comply with FCC Part 22 and FCC Part 24 Rules.

2.7 Modifications

No modifications were implemented to meet testing criteria.



3 TEST ENVIRONMENT

3.1 Test Facility

FCC

Designation Number: CN1275 Test Firm Registration Number: 167722 Shenzhen Tongzhou Testing Co.,Ltd has been listed on the US Federal Communications Commission

list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA

Certificate Number: 5463.01 Shenzhen Tongzhou Testing Co.,Ltd has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

IC

ISED#: 22033 CAB identifier: CN0099 Shenzhen Tongzhou Testing Co.,Ltd has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010

3.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar



3.3 Test Description

PCS 1900:

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 24.232(c)	EIRP ≤ 2W(33dBm)	Pass	TZ210702403-2#
Bandwidth	2.1049 24.238(a)	OBW: No limit. EBW: No limit.	Pass	TZ210702403-1#
Band Edges	2.1051, 24.238(a)	-13dBm	Pass	TZ210702403-1#
Spurious Emission at Antenna Terminals	2.1051, 24.238(a)	-13dBm	Pass	TZ210702403-1#
Field Strength of Spurious Radiation	2.1053, 24.238(a)	-13dBm	Pass	TZ210702403-2#
Frequency Stability	2.1055, 24.235	the fundamental emission stays within the authorized frequency block.	Pass	TZ210702403-1#
Peak to average ratio	24.232(d)	<13dB	Pass	TZ210702403-1#

GSM850:

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 22.913(a)	ERP ≤ 7W(38.5dBm)	Pass	TZ210702403-2#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ210702403-1#
Emission Bandwidth	22.917(b)	EBW: No limit.	Pass	TZ210702403-1#
Band Edges Compliance	2.1051, 22.917(a)(b)	-13dBm	Pass	TZ210702403-1#
Spurious Emission at Antenna Terminals	2.1051, 22.917	-13dBm	Pass	TZ210702403-1#
Field Strength of Spurious Radiation	2.1053, 22.917	-13dBm	Pass	TZ210702403-2#
Frequency Stability	2.1055, 22.355	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ210702403-1#
Peak to average ratio	2.1046, 2.913(a)	<13dB	Pass	TZ210702403-1#



3.4 Equipment Used during the Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	MXA Signal Analyzer	Keysight	N9020A	MY52091623	2021/1/4	2022/1/3
2	Power Sensor	Agilent	U2021XA	MY5365004	2021/1/4	2022/1/3
3	Power Meter	Agilent	U2531A	TW53323507	2021/1/4	2022/1/3
4	Loop Antenna	schwarzbeck	FMZB1519B	00023	2019/11/16	2022/11/15
5	Wideband Antenna	schwarzbeck	VULB 9163	958	2019/11/16	2022/11/15
6	Horn Antenna	schwarzbeck	9120D-1141	1574	2019/11/16	2022/11/15
7	EMI Test Receiver	R&S	ESCI	100849/003	2021/1/4	2022/1/3
8	Controller	MF	MF7802	N/A	N/A	N/A
9	Amplifier	schwarzbeck	BBV 9743	209	2021/1/4	2022/1/3
10	Amplifier	Tonscend	TSAMP- 0518SE		2021/1/4	2022/1/3
11	RF Cable(below 1GHz)	HUBER+SUHNE R	RG214	N/A	2021/1/4	2022/1/3
12	RF Cable(above 1GHz)	HUBER+SUHNE R	RG214	N/A	2021/1/4	2022/1/3
12	RE test software	Tonscend	JS32-RE	V2.0.2.0	N/A	N/A
14	Test Software	Tonscend	JS1120-3	V2.5.77.0418	N/A	N/A
15	Horn Antenna	A-INFO	LB-180400- KF	J211020657	2020/10/12	2022/10/11
16	Amplifier	CDSA	PAP-1840	17021	2020/10/10	2021/10/09
17	Spectrum Analyzer	R&S	FSP40	100550	2021/1/10	2022/1/9
18	UNIVERSAL RADIO COMMUNICATION	R&S	CMW500	101855	2021/1/4	2022/1/3
19	Signal Generator	Keysight	N5182A	MY4620709	2021/1/4	2022/1/3

3.5 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to ETSI TR 100 028 " Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics" and is documented in the Shenzhen Tongzhou Testing Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Tongzhou Testing Co.,Ltd is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.10 dB	(1)
Radiated Emission	1~18GHz	3.70 dB	(1)
Radiated Emission	18-40GHz	3.90 dB	(1)
Conducted Disturbance	0.15~30MHz	1.63 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occupied Bandwidth	9KHz~40GHz	-	(1)
Frequency Error	9KHz~40GHz	1 x 10 ⁻⁷	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.



4 DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMW 500)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. ***Note: GSM 850, GSM 1900 mode have been tested during the test.

The worst condition was recorded in the test report if no other modes test data.

5 TEST CONDITIONS AND RESULTS

5.1 OUTPUT POWER

5.1.1 CONDUCTED OUTPUT POWER

5.1.1.1 MEASUREMENT METHOD

The transmitter output port was connected to base station.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Measure the maximum burst average power and average power for other modulation signal.

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 850, GSM 1900,)at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

5.1.1.2 MEASUREMENT RESULT

Temperature	23.9 ℃	Humidity	56%
Test Engineer	Anna Hu		

Mode	Frequency (MHz)	Reference Power	Peak Power	Avg.Burst Power	Duty cycle Factor(dB)	Frame Power (dBm)	Peak to Average Ratio
	824.2	33	31.51	31.44	-9.03	22.41	0.07
GSM850	836.6	33	31.54	31.39	-9.03	22.36	0.15
	848.8	33	31.99	31.63	-9.03	22.6	0.36

Mode	Frequency (MHz)	Reference	Peak Power	Avg.Burst Power	Duty cycle Factor(dB)	Frame Power(dBm)	Peak to Average Ratio
	1850.2	30	29.77	29.51	-9.03	20.48	0.26
GSM1900	1880	30	29.6	29.53	-9.03	20.5	0.07
	1909.8	30	29.88	29.72	-9.03	20.69	0.16



5.1.2 RADIATED OUTPUT POWER

5.1.2.1 MEASUREMENT METHOD

The measurements procedures specified in ANSI/TIA-603-E-2016 were applied.

1. Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signal operating below 1GHz are performed using dipole antennas. Measurements on signals operating above 1GHz are performed using broadband horn antennas. All measurements are performed as RMS average measurements while the EUT operating at its maximum duty cycle, at maximum power, and at the approximate frequencies.

2. 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.

3. 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. TheARpl 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

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

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

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

7. 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.

8. 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).

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

5.1.2.2 PROVISIONS APPLICABLE

Mode	FCC Part Section(s)	Nominal Peak Power
GSM 850	22.913(a)(2)	<=38.45dBm (7W). ERP
GSM 1900	24.232(c)	<=33dBm (2W). EIRP



5.1.2.3 Measurement Result

Temperature	24.8 ℃	Humidity	58%
Test Engineer	Anna Hu		

	Radiated Power (ERP) for GSM 850						
		Re	sult				
Mode	Frequency	Max. Peak ERP	Polarization	Conclusion			
		(dBm)	Of Max. E.R.P				
	824.2	27.01	Horizontal	Pass			
	836.6	25.95	Horizontal	Pass			
GSM	848.8	27.38	Horizontal	Pass			
GOIM	824.2	22.17	Vertical	Pass			
	836.6	22.33	Vertical	Pass			
	848.8	21.62	Vertical	Pass			

	Radiated Power (E.I.R.P) for GSM1900						
		Re					
Mode	Frequency	Max. Peak ERP	Polarization	Conclusion			
		(dBm)	Of Max. E.I.R.P				
	1850.2	24.16	Horizontal	Pass			
	1880.0	24.96	Horizontal	Pass			
GSM	1909.8	23.11	Horizontal	Pass			
GSIVI	1850.2	20.37	Vertical	Pass			
	1880.0	21.69	Vertical	Pass			
	1909.8	21.22	Vertical	Pass			

Note: Above is the worst mode data.



5.2 PEAK-TO-AVERAGE RATIO

5.2.1 MEASUREMENT METHOD

Use one of the procedures presented in 4.1 to measure the total peak power and record as PPk. Use one of the applicable procedures presented 4.2 to measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

PAPR (dB) = PPk (dBm) - PAvg (dBm).

5.2.2 PROVISIONS APPLICABLE

This is the test for the Peak-to-Average Ratio from the EUT.

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.



5.2.3 MEASUREMENT RESULT

Modes	Max Peak to Average Ratio(dB)	Upper limit(dB)	Result	
GSM850	0.36	13	Pass	
PCS1900	0.26	13	Pass	
Note: refer to section of 5.1.1.2.				



5.3 OCCUPIED BANDWIDTH

5.3.1 MEASUREMENT METHOD

1. The Occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper Frequency limits, the mean power radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

2. RBW=1~5% of the expected OBW, VBW>=3 x RBW, Detector=Peak, Trace mode=max hold, Sweep=auto couple, and the trace was allowed to stabilize.

5.3.2 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

5.3.3 MEASUREMENT RESULT

Temperature	23.9 ℃	Humidity	56%
Test Engineer	Anna Hu		

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
GSM850	128	249.4	313.2		PASS
GSM850	190	244.87	319.3		PASS
GSM850	251	249.53	314.8		PASS
GSM1900	512	245.28	316.6		PASS
GSM1900	661	243.41	310.3		PASS
GSM1900	810	252.71	316.4		PASS



GSM850-824.2MHz-Voice

	n Analyzer - Occ										
KI RL	RF 50 Ω cq 824.200				E:PULSE reg: 824.200	000 MHz	ALIGN AUTO	04:27:53 PM Radio Std:	4 Aug 10, 2021 None	Fr	equency
Center Pre	74 024.200		•	📕 🖬 Trig: Fre	☐ Trig: Free Run Avg Hold: 100/100 #Atten: 18 dB Radi						
		#IFC	Gain:Low	#Atten: 1	6 ab			Radio Dev	ICE: DIS		
	Ref Offset:										
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5.00						Mr.					
-5.00			^n			<u> </u>					
-15.0	_	Jar bar	ส หกั			- h	Jan Winner				
-25.0	_	м ^л .					- Wu				
-35.0	www.www),						muralprov	W NO OM		
-45.0 - 45.0	wary v -										
-55.0											
Center 824	1.2 MH7							Sn	an 1 MHz		
#Res BW				#VE	3W 15 kH	łz			36.8 ms		CF Step 100.000 kHz
										Auto	Man
Occupi	ied Bandy				Total P	ower	36.7	′ dBm			
		249	.40 k	κHz							Freq Offset
Transm	it Freg Erro	or	96	5 Hz	OBW P	ower	go	9.00 %		l '	0 Hz
	•					01101					
хавва	ndwidth		313.2	KHZ	x dB		-26.	00 dB			
1											
							-1				
MSG								5			

GSM850-836.6MHz-Voice

		Analyzer - Occ										
Cent		RF 50 Ω		REC		E:PULSE req: 836.600	000 MHz	ALIGNAUTO	04:29:14 PM Radio Std:	4 Aug 10, 2021 None	Fi	requency
Com		1000.000		·	Trig: Fre #Atten: 1	e Run	Avg Hold	l: 100/100	Radio Dev	ino: BTS		
_			#IFU	Gain:Low	#Attent 1	5 GD			Radio Dev	ice. B13		
		Ref Offset										
10 dE Log	s/div	Ref 35.00	U aBM									
25.0					. Sharr	way when						Center Freq
15.0				m		- 0° ~ Ww	<u>ا</u> بر				836	6.600000 MHz
5.00				- N			1 m					
-5.00				ÍN.								
-15.0			مى كى مى مى مى	~/-			<u> </u>					
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-35.0		Maynor M	μ					-	WWWWWW	and free free free free		
-45.0	And Charge	Mr. Ann							"" "	. An ward a		
-55.0												
	ter 836.	6 MU-7							En	an 1 MHz		
	SBW 5.				#VE	3W 15 kH	Iz			36.8 ms		CF Step
									•		Auto	100.000 kHz Man
0	ccupie	ed Band	width			Total P	ower	36.7	7 dBm			
			244	.87 k	Hz							Freq Offset
l	-,							~				0 Hz
		Freq Err	or	-1.111	KHZ	OBW P	ower		9.00 %			0112
X	dB Ban	dwidth		319.3	kHz	x dB		-26.	00 dB			
MSG								Ko STATU:	s			



GSM850-848.8MHz-Voice

	Spectrum Analyzer - Oc										
<mark>(XI</mark> RL Cente	er Freg 848.800		REC		E:PULSE reg: 848.800	000 MHz	ALIGN AUTO	04:29:47 PM Radio Std:	4 Aug 10, 2021 None	Fr	equency
Conto			Gain:Low	Trig: Fre #Atten: 1		Avg Hold	: 100/100	Radio Dev	ice: BTS		
		#IFU	sain:Low	#Attent. I				Radio Dev			
10 dB/c	div Ref Offset										
Log											
25.0				when the	Mar Mar Mar					(Center Freq
15.0 —			L. L	M P	M	'n				848	3.800000 MHz
5.00 —						Wr.					
-5.00 —			STA -			<u> </u>	-0 -1				
-15.0 —		Norman	*'			- h	Alurhan Wing				
-25.0 —	. 1	N ^M					- ¹ / ₁				
-35.0 —	more when when							1 JAM WARK	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
-45.0 🛪	wrtzw										
-55.0 —											
	er 848.8 MHz								an 1 MHz		CF Step
#Res	BW 5.1 kHz			#VE	3W 15 kH	z		Sweep	36.8 ms		100.000 kHz
00	cupied Band	huidth			Total Po	wer	36 9) dBm		<u>Auto</u>	Man
1 ~	cupieu banu		50 L		· otar · ·		0010				
		249	.53 k	HZ							Freq Offset
Tra	ansmit Freq Eri	ror	-2.292	kHz	OBW P	ower	99	0.00 %			0 Hz
x d	B Bandwidth		314.8	kHz	x dB		-26.	00 dB			
~ -					× ==						
MSG								5			
							•				

GSM1900-1850.2MHz-Voice

Agilent Spectrum Analyz					M Aug 10, 2021	ſ
Center Freq 1.8	50 Ω AC COR 5020000 GH		NSE:PULSE	ALIGNAUTO 04:42:14P Radio Std	M Aug 10, 2021 : None	Frequency
		Trig: F		d: 100/100 Radio Dev	iaa BTC	
	#IFC	Gain:Low #Atten	: 18 dB	Radio Dev	lice: BTS	
	Offset 27 dB					
10 dB/div Ref	f 35.00 dBm					
25.0						Center Freq
15.0		יייעייי איייערער אויי	1 march Charles			1.850200000 GHz
5.00			- WYV			
-5.00		Mar				
-15.0	mmm	www.	\\	and the second s		
-25.0	ma .					
-35.0	n Navy			U WMM VV	-	
-25.0 -35.0 -45.0	1 14				manner	
-55.0						
Center 1.85 GHz					an 1 MHz	CF Step
#Res BW 5.1 kH	z	#	VBW 15 kHz	Sweep	36.8 ms	100.000 kHz
Occupied E	Sandwidth		Total Power	35.4 dBm		<u>Auto</u> Man
		00.1-11-				
	245	.28 kHz				Freq Offset
Transmit Fre	q Error	1.823 kHz	OBW Power	99.00 %		0 Hz
x dB Bandwie	dth	316.6 kHz	x dB	-26.00 dB		
MSG				STATUS		
				-9		



GSM1900-1880MHz-Voice

Agilent Spectrum A													
Center Freq	RF 50 Ω 1.88000	AC COR 0000 GH			Center F	E:PULSE req: 1.88000				04:44:05 PM Radio Std:	4 Aug 10, 2021 None	F	requency
										Radio Dev	ice: BTS		
`	Ref Offset:	07 -10											
10 dB/div	Ref 35.00												
25.0					л	K n							Center Freq
15.0				- m	and And ra	^N up ^N Hillinger		_					0000000 GHz
5.00			مالا	ŕ–			WY May	_					
-5.00			۴ ^ا ر ار				111						
-15.0		Jan Mary Mark	br					᠋᠋ᢆᡃᡰ᠕᠋ᡝ᠕	۱ <u>.</u>				
-25.0	Mal	_µ∾ √							ատուն	N WWW A			
-35.0 -45.0 \	In My Maril									···· ·································	ᢣᡙᢧᡧᢧᡘᡟ᠕ᡀᡗ		
-55.0													
										0			
Center 1.88 #Res BW 5.*					#VE	3W 15 kH	Iz				an 1 MHz 36.8 ms		CF Step
						Total P			25.5	dBm		Auto	100.000 kHz Man
Occupie	d Bandy					Total P	ower		30.0	asm			
		243	.41	KH2	Ζ								Freq Offset
Transmit	Freq Erre	or	-2.01	3 kH	z	OBW P	ower		99	.00 %			0 Hz
x dB Ban	dwidth		310.3	3 kH	z	x dB			-26.0	00 dB			
								1					
MSG								<u>ال</u>	STATUS				

GSM1900-1909.8MHz-Voice

	rum Analyzer - Occ										
Center F	RF 50 Ω				:E:PULSE reg: 1.909800	0000 GHz	ALIGN AUTO	04:45:06 Pl Radio Std	M Aug 10, 2021 : None	Fr	equency
e en le r				Trig: Fre #Atten: 1		Avg Hold	d: 100/100	Radio Dev	vice: BTS		
]		Jan.LOw		• ••			114410 201	1		
10 dB/div	Ref Offset Ref 35.0										
Log 25.0											
15.0				www	and manipulation						enter Freq
5.00				r.v.	· ~Y	m.				1.90	5600000 GH2
-5.00						Vų					
-15.0		100mm	where the second s			V					
-25.0		M					- ""\\				
-35.0	why Why why	1						hand have been a second second	Carl and Mu		
-45.0 hallon	mander A. M.							- u	a a group a		
-55.0											
Center 1			I	I					an 1 MHz		CF Step
#Res BW	5.1 kHz			#VI	3W 15 kH	z		Sweep	36.8 ms		100.000 kHz
Occu	pied Band	width			Total Po	ower	35.4	1 dBm		<u>Auto</u>	Man
			.71	kH7							
										'	req Offset= 0 Hz
Trans	mit Freq Err	or	-4:	56 Hz	OBW Po	ower	99	9.00 %			0 H2
x dB E	Bandwidth		316.4	1 kHz	x dB		-26.	00 dB			
MSG								6			
MaG							LOSTATU:	3			



5.4 BAND EDGE

5.4.1 MEASUREMENT METHOD

1. All out of band emissions are measured with an analyzer spectrum connected to the antenna terminal of the EUT while the EUT at its maximum duty cycle, at maximum power, and at the approximate frequencies. All data rates were investigated to determine the worst case configuration

2. 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. Start and stop frequency were set such that the band edge would be placed in the center of the plot.

4. Span was set large enough so as to capture all out of band emissions near the band edge.

5. RBW>1% of the emission bandwidth, VBW >=3 x RBW, Detector=RMS, Number of points>=2 x Span/RBW,

Trace mode=max hold, Sweep time=auto couple, and the trace was allowed to stabilize

5.4.2 PROVISIONS APPLICABLE

As Specified in FCC rules of 22.917(a), 24.238(a)and KDB 971168 D1 V03R01.

5.4.3 MEASUREMENT RESULT

Pass

Temperature	23.9 ℃	Humidity	56%
Test Engineer	Anna Hu		



GSM850-824.2MHz-Voice

Agilent Spectrum Analyzer - Sw					
Center Freq 823.95		SENSE:PULSE	ALIGN AUTO #Avg Type: RMS	04:49:34 PM Aug 10, 2021 TRACE 1 2 3 4 5 6	Frequency
Ref Offset 27	PNO: Wide ↔ IFGain:Low 7 dB	┘ Trig: Free Run #Atten: 18 dB	Avg Hold: 10/10 Mkr1	түре Милини Det A N N N N 823.998 5 MHz -18.869 dBm	Auto Tune
10 dB/div Ref 30.00			And the state of t		Center Freq 823.950000 MHz
-10.0 -20.0 -30.0		1 			Start Freq 823.450000 MHz
-30.0 -40.0 -50.0 -60.0 Start 823.4500 MHz					Stop Freq 824.450000 MHz
Start 823.4500 MHz #Res BW 3.9 kHz		11 kHz*		Stop 824.4500 MHz 3.000 s (2001 pts)	CF Step 100.000 kHz <u>Auto</u> Man
Image: Non-Section 2 Image: No	823.998 5 MHz	-18.869 dBm			Freq Offset 0 Hz
MSG				s	

GSM850-848.8MHz-Voice

Agilent Spectrum Analyzer - Swept SA				
🕅 RL RF 50 Ω AC Center Freq 849.050000		ALIGNAUTO 04: #Avg Type: RMS Avg[Hold: 10/10	30:27 PM Aug 10, 2021 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
Ref Offset 27 dB	PNO: Wide ↔ → Trig: Free Run IFGain:Low #Atten: 18 dB		0.022 0 MHz 18.748 dBm	Auto Tune
10 dB/div Ref 30.00 dBm 20.0 10.0 0.00	Walky to the the particular			Center Freq 849.050000 MHz
-10.0 -20.0 -30.0				Start Freq 848.550000 MHz
-40.0		Mang and a state of the second	******	Stop Freq 849.550000 MHz
Start 848.5500 MHz #Res BW 3.9 kHz MKR MODE TRC SCL		#Sweep 3.00	849.5500 MHz 00 s (2001 pts) FUNCTION VALUE	CF Step 100.000 kHz <u>Auto</u> Mar
2 3 4 5 6 7	9.022 0 MHz -18.748 dBm			Freq Offse 0 Hz
8 9 9 10 11 1 4 MSG		STATUS	×	



GSM1900-1850.2MHz-Voice

-		ectr			zer - Sv																
Cei		r Fi		⊪ । 1.8	50 s 3499			CORF			7	E:PULS			ј Тур	ALIGNAUTO e: RMS		TRACE	Aug 10, 20 1 2 3 4 5	56	Frequency
			R	ef Of	fset 2	7 dB	3	PNO	D: Wide ain:Lov		Trig: Free #Atten: 1		1	Avg	Hold:	Mkr1 1		DET	0 GH	v N Z	Auto Tune
Lõg 20.1 10.1	0 0	iv	R	ef 3	0.00	dBi	m								M	hayaya ^{an} diyekiyekiy					Center Freq 1.849950000 GHz
0.0 -10.1 -20.1 -30.1											م اللان	, MARY	↑ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						-13.00 at	∋≖ 1	Start Freq 1.849450000 GHz
-40.1 -50.1 -60.1	-		h ini	NH P	*****	4 4 44	banka a	- International In International International Internation	₩₩ ₩₩	****	under a free and the second										Stop Freq 1.850450000 GHz
#R	art 1 es E	SW	3.9	kН	GHz z		×		#V	вw	11 kHz*		FUN	CTION		Si #Sweep			001 pt		CF Step 100.000 kHz <u>Auto</u> Man
1 2 3 4 5 6 7 8		1	f			1.8	349 9	96 0	GHz		<u>-18.035 dl</u>	3m									Freq Offset 0 Hz
9 10 11 <											111					Ko statu:	s				

GSM1900-1909.8MHz-Voice

Agilent Spectrum Analyzer - Swept SA				
Center Freq 1.910050000 G		ALIGN AUTO #Avg Type: RMS Avg Hold: 10/10	04:45:46 PM Aug 10, 2021 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
	PNO: Wide 🗭 Trig: Free Run FGain:Low #Atten: 18 dB		910 019 5 GHz -20.405 dBm	Auto Tune
	144 the second sec			Center Freq 1.910050000 GHz
-10.0 -20.0 -30.0	1 1		-13:00 dBm	Start Freq 1.909550000 GHz
-40.0 -50.0 -60.0		Water Birthan Strand Birthan Strand Str	norther have detailed by the U.S. All and the state	Stop Freq 1.910550000 GHz
Start 1.9095500 GHz #Res BW 3.9 kHz			pp 1.9105500 GHz 3.000 s (2001 pts) FUNCTION VALUE	CF Step 100.000 kHz <u>Auto</u> Man
1 f 1.910 01 2 - - 3 - - 4 - - 5 - - 6 - - 7 - -	9 5 GHz -20.405 dBm			Freq Offset 0 Hz
8 9 10 11			×	
MSG		STATUS		



5.5 SPURIOUS EMISSION

5.5.1 CONDUCTED SPURIOUS EMISSION

5.5.1.1 MEASUREMENT METHOD

The following steps outline the procedure used to measure the conducted emissions from the EUT. 1. The level of the carrier and the various conducted spurious and harmonic frequency is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the approximate frequencies. All data rates were investigated to determine the worst case configuration.

2. 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.

3. Determine EUT transmit frequencies: the following typical channelswere chosen to conducted emissions testing.

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

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



5.5.1.2 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.

5.5.1.3 MEASUREMENT RESULT

Pass

Temperature	23.9 ℃	Humidity	56%
Test Engineer	Anna Hu		



Agiler	nt Spe	ectru	m An	alyzer -	Swep	ot SA							<u> </u>			-					
LXI R			RF		JΩ	AC	COF	RREC		SENS	SE:PUL	.SE			ALIGN AUTO		04:28:36 P	M Aug 10, 2	021	-	
Cen	iter	Fre	eq (515.0	000	000	MHz	2		1	_				: RMS			CE 1 2 3 4		Fre	equency
								NO: Fa: Gain:Lo	st ⊶⊷ ow	Trig: Fre #Atten: 2			Avgļi	Hold:	100/100		C	PE MWWW ET PNNN	N N		Auto Tune
10 d	B/di	v		Offset f 35.0											М	kr'		81 MI 12 dB			Auto Tune
Log 25.0																				с	enter Freq
15.0 5.00																				515.	.000000 MHz
-5.00																					Start Freq
-15.0 -25.0	F															1		-13.00	aBm	30.	.000000 MHz
-25.0	***		-				البادوالياب		in a state	وأشروه بينيا المرجين الأر	-	he an			in the second state of the		ومخ التناوينات	ويترك وأبعظها وترابي	an ini		~ -
-45.0 -55.0	⊢																			1.000	Stop Freq 000000 GHz
Star																	Stop 1	0000 G			
#Re								#	VBW	3.0 MHz	z			S	weep 1.						CF Step 000000 MHz
MKB 1	MODE N	TRC 1	SCI f			×	808.8	1 MHz	z	-27.612 d	Bm	FUN	CTION	FUN	ICTION WIDTH		FUNCTI	ON VALUE		<u>Auto</u>	Man
2 3 4									-											F	req Offset
5 6																			Ξ		0 Hz
7 8 9																					
10 11																			-		
K MSG															K STATU	IS					

GSM850-824.2MHz-Voice@30mHz-1GHz@Pass

GSM850-824.2MHz-Voice@1GHz-9GHz@Pass

				Swept S												
L XI R		R		50 Ω AC				SENSE:	PULSE			ALIGN AUTO		M Aug 10, 2021		Frequency
Cen	ter F	req	5.000	00000	00 GH	z		_	_			RMS		CE 1 2 3 4 5 6		Frequency
					PN	10: Fast		: Free I		AvgiH	old:	100/100		PEM WWWW		
					IFG	Gain:Low	#Att	en: 24	dВ							A
		_										Mk	(r1 7.65	6 8 GHz		Auto Tune
10 -	B/div			t27 dB)0 dBn	•									01 dBm		
Log	Bialv	R	1 20.0							_				or abiii		
10.0																0
10.0																Center Freq
0.00															5	.000000000 GHz
-10.0														-13.00 dDm		
													1	-13.00 ubiii		
-20.0											-		•••			Start Freq
-30.0	المسيط		والمتر المراجع		بالالتحار فليرحل	and the second	ماطليمتين إيران ريغا	الأمعنا ومن			144	ال التي وي ال ما الله العلم الم		in the second		
						ي محمد ا									1	.000000000 GHz
-40.0															-	
-50.0																
																Stop Freq
-60.0																.000000000 GHz
-70.0										_						
Star	t 1.0	00 G	Hz										Stop 9	0.000 GHz		CF Step
#Re	s BW	/ 1.0	MHz			#VE	3W 3.0 I	MHz			Sv	veep 13	.33 ms (2	20001 pts)		800.000000 MHz
												-			Au	
	MODE		L		X		Y			NCTION	FUN	CTION WIDTH	FUNCT	ON VALUE	<u> </u>	
1	Ν	<u>1</u> f			7.656 8	3 GHz	-24.4	01 dBr	n							
2			-													Freq Offset
4																
5														=		0 Hz
5 6																
7																
8			-													
10																
11														~		
<							1	ш						>		
MSG															<u> </u>	



GSM850-836.6MHz-Voice@30mHz-1GHz@Pass

		ectru	m An	alyzer - S	iwept	SA													
Cen		Fre	RF eq :	50 515.00		AC DO N] .	ISE:PU		Тури	ALIGN AUTO e: RMS 100/100	0	TRA	M Aug 10, 2 CE 1 2 3 4 PE M W/W/	156	Frequency
10 di	B/di			Offset 2				lO: Fas ain:Lo		#Atten:						□ 882.	39 MI 64 dB	Hz	Auto Tune
Log 25.0 15.0 5.00		-																	Center Freq 515.000000 MHz
-5.00 -15.0 -25.0			_														-13.00		Start Freq 30.000000 MHz
-35.0 -45.0 -55.0		***								high is a company of the line				die wei in finetei					Stop Freq 1.000000000 GHz
Star #Re	s B Mode	W 1	.0 SCI	MHz		×			/BW	3.0 MH		CTION		weep 1.	.333	ms (2	0000 G 0001 p		CF Step 97.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10	N	1	f			88	32.39) MHz		-28.864 (dBm								Freq Offset 0 Hz
10 11 K														Ko statu	JS			>	

GSM850-836.6MHz-Voice@1GHz-9GHz@Pass

	rum Analyzer - Swept S	SA				
Center F	RF 50 Ω A	IC CORREC	SENSE:PULSE	ALIGNAUTO #Avg Type: RMS	04:29:38 PM Aug 10, 2021 TRACE 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 27 dB		≓ Trig: Free Run #Atten: 24 dB	Avg Hold: 100/100	түре Мимиини Det P N N N N kr1 3.173 2 GHz -24.173 dBm	Auto Tune
Log 10.0 0.00 -10.0					-13.00 dDm	Center Freq 5.000000000 GHz
-20.0 -30.0					na na salaika Man Juan Indonesia. Na na salaika Man Juan Indonesia Na salaika Man Juan Indonesia (Man Juan Indonesia)	Start Freq 1.000000000 GHz
-50.0 -60.0 -70.0						Stop Freq 9.000000000 GHz
Start 1.00 #Res BW	1.0 MHz	#VBV	V 3.0 MHz -24.173 dBm	Sweep 1	Stop 9.000 GHz 3.33 ms (20001 pts) FUNCTION VALUE	CF Step 800.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 6 7 8		3.173 2 GHZ	-24.1/3 dBm			Freq Offset 0 Hz
9 10 11 ×			m	K ostatu	JS	



GSM850-848.8MHz-Voice@30mHz-1GHz@Pass

		ectru	n An	alyzer - Sw	vept SA													
Cen		Fre	RF Pq (50 s 515.00				1	e Pun		#Avg 1 Availte	Гуре	ALIGN AUTO : RMS 100/100	04:	TRA	M Aug 10, 20 CE 1 2 3 4 PE M WWW	5.6	Frequency
10 di	B/div			Offset 2		PNO: F IFGain:I	ast ↔ Low	#Atten: 2		_					⊳ 877.	10 MH 87 dB	N N IZ	Auto Tune
Log 25.0 15.0 5.00																		Center Freq 515.000000 MHz
-5.00 -15.0 -25.0															● ¹	-13.00 c		Start Freq 30.000000 MHz
-35.0 -45.0 -55.0		had i h	her hild	in eine sin eine sin Present gereiten eine				lad ja jaj na statust										Stop Freq 1.000000000 GHz
Star #Re	s B	W 1	.0 P	VIHz			#VBW	3.0 MHz		FUNC	CTION		weep 1.3	333 r	ns (2	0000 GH 0001 pt		CF Step 97.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11	N	1	f		87	77.10 M⊢		-28.187 dl	Bm									Freq Offset 0 Hz
K MSG				·			· · · ·											

GSM850-848.8MHz-Voice@1GHz-9GHz@Pass

	rum Analyzer - S	Swept SA								
Center F		000000 GH			PULSE	#Avg Typ Avg[Hold:		TRAC	M Aug 10, 2021 E 1 2 3 4 5 6 PE M WWWWWW	Frequency
10 dB/div	Ref Offset Ref 20.00	1Ft 27 dB	NO: Fast ↔ Gain:Low	#Atten: 24		Avginoia		r1 5.92	2 4 GHz 80 dBm	Auto Tune
Log 10.0 0.00									-13.00 dDim	Center Freq 5.000000000 GHz
-20.0 -30.0					l (b. p. potenti li fato at () generali de la constance po		launa a tang dan pangana ang sang sa	in a standard		Start Fred 1.000000000 GHz
-50.0 -60.0 -70.0										Stop Fred 9.000000000 GHz
Start 1.00 #Res BW	1.0 MHz	×	#VBV	V 3.0 MHz	FU		weep 13	.33 ms (2	.000 GHz 0001 pts) IN VALUE	CF Step 800.000000 MH: <u>Auto</u> Mar
1 N 2 3 4 5 6 7 8		5.922	4 GHz	-24.180 dE	5m					Freq Offse 0 H:
9 10 11 < MSG				iiii			K STATUS	5	v	



GSM1900-1850.2MHz-Voice@30mHz-1GHz@Pass

		ectru	m An	alyzer - S	wept S	5A													
wµ Cer		Fre	RF Pq	50 515.00		0 MH				SENS				Туре	ALIGN AUTO : RMS 100/100	TRA	M Aug 10, 202 CE 1 2 3 4 5 PE M WWWW	56	Frequency
10 d	B/di [,]			Offset 2				: Fast n:Low		#Atten: 2						r1 796.	PNNN	N N	Auto Tune
Log 10.0 0.00 -10.0																	-13.00 dE		Center Freq 515.000000 MHz
-20.0 -30.0 -40.0	u shat y			is free second protocols free based in the free space	1000 101	in – letter Jose Sjæselvegeste			li der	and field you a scholar & later parage for some of the scholar bar	.		ang kan kala da				तः स्वर्थः व अन्यतः विश्वस्थाः स्वर्थः म् स्वर्थः विश्वस्थितः वृष्ट्रस्य स्वर्थः म् स्वर्थः स्वर्थे स्वर्थन्ति विश्वस्थितः अस्य	đ.	Start Freq 30.000000 MHz
-50.0 -60.0 -70.0																			Stop Freq 1.000000000 GHz
	s B	W 1	.0 I	VIHz		×			BW	3.0 MHz		FUNC	TION		weep 1.3 CHONWOTH	133 ms (2	0000 GH 20001 pt 0N VALUE		CF Step 97.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11 <	N		f			796.	11 N			-28.444 dl	Bm								Freq Offset 0 Hz
MSG																			·

GSM1900-1850.2MHz-Voice@1GHz-7GHz@Pass

Agilent Spectrum Analyzer - Swept SA							
RL RF 50 Ω AC Center Freg 4.000000000	CORREC	SENSE:PULSE	#Avg Type:		TRAC	Aug 10, 2021	Frequency
Ref Offset 27 dB	PNO: East +++ Tri	g: Free Run ten: 24 dB	Avg Hold: 1		^{DE} 1 6.355	6 GHz 5 dBm	Auto Tune
25.0 15.0 5.00							Center Freq 4.000000000 GHz
-5.00		مر بر بر بر بر بر بر بر مر المراجع . مراجع من المراجع .	u y sy avkardaska uje ti			1 <u>-13.00 dBm</u>	Start Freq 1.000000000 GHz
-35.0 -45.0 -55.0							Stop Freq 7.000000000 GHz
Start 1.000 GHz #Res BW 1.0 MHz MKR MODE TRE SCL	#VBW 3.0	r Func		veep 10.0	Stop 7. 67 ms (20	000 GHz 0001 pts) NVALUE	CF Step 600.000000 MHz <u>Auto</u> Man
1 N 1 f 6 2 -	.355 6 GHz -23.6	315 dBm					Freq Offset 0 Hz
MSG							



GSM1900-1850.2MHz-Voice@7GHz-13.6GHz@Pass

		ectrui	n An	alyzer - S														
ι <mark>xı</mark> ⊪ Cer		Fre	RF Pq '	50 10.300			Hz		SENS				Туре	ALIGN AUTO : RMS 100/100	TF	PM Aug 10, 2 ACE 1 2 3 4 YPE M WWWA	56	Frequency
10 a	B/di			Offset 2			IO: Fast Gain:Lov		#Atten: 24			1810	1014.		12.47	DET P NNN I 07 GI B18 dB		Auto Tune
Lõg 10.0 0.00																-13:00	dBm	Center Freq 10.300000000 GHz
-20.0 -30.0 -40.0	• •••• •	i tent	e e e e e e e e e e e e e e e e e e e			(in literaje	والنغاي	i an						, the self web J for solid the		hin a line più di bite a più	i dhe	Start Freq 7.00000000 GHz
-50.0 -60.0 -70.0																		Stop Freq 13.60000000 GHz
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1 2 3 4 5 6 7 8 9 10 11	N				12.	4/10/	GHZ		-22.818 di	3m								Freq Offset 0 Hz
MSG															S			

GSM1900-1850.2MHz-Voice@13.6GHz-20GHz@Pass

		ctrum.	Analy	/zer - Sv											
LXI RI	-	_	RF	50 \$		CORREC		SEN	SE:PULSE		Hour To	ALIGNAUTO		PM Aug 10, 2021 ACE 1 2 3 4 5 6	Frequency
Cen	ter	Frec	110	5.800	00000	DO GHZ	<u>r</u> Fast ⊷	🚽 Trig: Fr	ee Run			d: 100/100	т	YPE M WWWWW	
						IFGain		#Atten:	24 dB					DET P N N N N N	
				offset 2	7.40							Mkr1	18.897	' 92 GHz	Auto Tune
10 di	Bídiv			mset∠ 20.00									-18.3	360 dBm	
Lõg															
10.0			-		-										Center Freq
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-30.0	<u> </u>	1 1 1 1 1	10 PAP												13.60000000 GHz
-40.0	<u> </u>														l
-50.0					_										
-60.0					_										Stop Freq
-70.0															20.00000000 GHz
Star	t 13	.600	Gŀ	Iz										0.000 GHz	CF Step
#Re	s₿V	N 1.0) M	Hz			#VB	W 3.0 MH	z			Sweep 16	6.00 ms (20001 pts)	640.000000 MHz
MKB	MODE	TRC S	CL		×			Y		FUNC	TION F	UNCTION WIDTH	FUNCT	ION VALUE	<u>Auto</u> Man
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11														~	
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GSM1900-1880MHz-Voice@30mHz-1GHz@Pass

		ctrur	n An	alyzer - Sw	rept SA													
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10 dE	B/div			Offset 27			IO: Fast Gain:Lov		#Atten: 2						، kr1 799	PNNN	J N Z	Auto Tune
Log 10.0 0.00																-13.00 df		Center Freq 515.000000 MHz
-20.0 -30.0 -40.0				er patels in sould be a	*****	n tha state	tu paktu	<u>internet</u>	u se ang kilining sung salang panggan ng pangangan ng pangangan ng panggan ng panggan ng panggan ng panggan ng panggan ng panggan ng panggan panggan ng panggan ng p	a ka ila	ni taniti na na Jihat Ji pina kanazi nji ta		Walt	film to prime in faith	1	an likewa ta pina da ang ta Mana kata sa kang katang ka	9	Start Freq 30.000000 MHz
-50.0 -60.0 -70.0																		Stop Freq 1.000000000 GHz
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1 2 3 4 5 6	N	1	f			799.06	5 MHz		-28.366 dl	Bm								Freq Offset 0 Hz
7 8 9 10 11																	>	
MSG														I statu:	s			

GSM1900-1880MHz-Voice@1GHz-7GHz@Pass

Agilent Spectrum Analyzer - Swept SA				
RL RF 50 Ω AC Center Freq 4.000000000	CORREC SENSE:PULSE	ALIGNAUTO B #Avg Type: RMS	4:44:28 PM Aug 10, 2021 TRACE 1 2 3 4 5 6	Frequency
Ref Offset 27 dB	PNO: Fast +++ Trig: Free Run IFGain:Low #Atten: 24 dB		5.892 4 GHz -24.090 dBm	Auto Tune
25.0 15.0				Center Freq 4.00000000 GHz
-5.00				Start Freq 1.000000000 GHz
-35.0				Stop Freq 7.00000000 GHz
Start 1.000 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz		Stop 7.000 GHz ms (20001 pts)	CF Step 600.000000 MHz <u>Auto</u> Man
1 N 1 f 5 3 - - - - 4 - - - - 5 - - - - 6 - - - - 7 - - - - 8 - - - - 9 - - 10 -	3.892 4 GHz -24.090 dBm			Freq Offset 0 Hz
II ≪ MSG		STATUS		



GSM1900-1880MHz-Voice@7GHz-13.6GHz@Pass

Agilent Spect	trum An											
Center F	req (00000 G			E:PULSE		ALIGNAU Type: RMS Iold: 100/10	;	TRAG	M Aug 10, 2021 CE 1 2 3 4 5 6 PE M WWWWWW	
10 dB/div		Offset 27 f 20.00 d	dB	NO: Fast Gain:Low	#Atten: 24				kr1 13	⊳ 3.036	03 GHz 67 dBm	Auto Tune
10.0 0.00												Center Freq 10.300000000 GHz
-20.0								st his e _i le shie data dat				Start Freq 7.000000000 GHz
-50.0 -60.0 -70.0												Stop Freq 13.600000000 GHz
Start 7.0 #Res BW	/ 1.0 [MHz	×	#VE	3.0 MHz	F	UNCTION	Sweep	12.00) ms (2	.600 GHz 0001 pts)	
1 N 2 3 4 5 6 7 8 8 9 10	1 f		13.036 0	3 GHz	-22.767 df	3m						Freq Offset 0 Hz
10 11 K MSG					Ш			r kolo s	STATUS		×	

GSM1900-1880MHz-Voice@13.6GHz-20GHz@Pass

Agilen		ctru	m An	alyzer	- Swe	pt SA											
LXI RI			RF		50 Ω	AC	CORREC		SENSI	E:PULSE				ALIGN AUTO		PM Aug 10, 2021	Frequency
Cen	iter	Fre	eq '	16.8	000	0000	0 GHz	2		_				RMS		ACE 1 2 3 4 5 6	
							PNO:	Fast 🔸	Trig: Free			Avg H	lold:	100/100			
							IFGain	n:Low	#Atten: 2	1 dB						Derp ratation	
														Mkr1	19.010) 24 GHz	Auto Tune
				Offs												096 dBm	
10 di Log	Bidiv	/	Re	f 20.	υυ α	вm									-17.5		
-																	
10.0																	Center Freq
0.00			_														16.80000000 GHz
10.0															.1		
-10.0			-										_		•	-13:00 dBm	
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	1	ψų.	de de		ومعر العدوا		i i a chuid inn An tha an t		ورور برجا برقر ومرور والمرود و						and the second secon	1	Start Freq
-30.0	-		1.10														13.60000000 GHz
-40.0			_														
-50.0																	
-50.0																	Stop Freq
-60.0			_														
-70.0																	20.00000000 GHz
-70.0																	
Star																0.000 GHz	CF Step
#Re	s Bl	W 1	.0	VIHz				#VBW	3.0 MHz				S٧	weep 16	.00 ms (20001 pts)	640.000000 MHz
MKB	MODE	i ses	l eer			×					FUNC	TION		CTION WIDTH	CLINE	TION VALUE	Auto Man
MKH 1	N		f				10 24 G	1.1-	47,006 40	1	FUNC	TIUN	FUN	LTION WIDTH	FUNC		
2	N	1	T			19.0	10 24 6	HZ	-17.096 di	sm							
3										_							Freq Offset
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MSG																	
MSG														STATUS			



GSM1900-1909.8MHz-Voice@30mHz-1GHz@Pass

Agilent	Spect	rum A	nalyzer	- Swep	it SA														
(x) RL Cent	er F	_R req	515.0	50 Ω DOOC	ac 100 N				1				Туре	ALIGN AUTO : RMS 100/100	04:45	TRAC	Aug 10, 2 E 1 2 3 4 E MWW/	56	Frequency
10 dB	/div		f Offse ef 20.0			PNC IFGa	D: Fast hin:Lov	v	#Atten::			1810	1014.		kr1 8 28-	DE 50.		HZ	Auto Tune
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-50.0 - -60.0 - -70.0 -																			Stop Freq 1.000000000 GHz
Start #Res	BW	1.0	MHz		X		#V	вw	3.0 MH	z	FUN	CTION		weep 1.	333 m	s (2	1000 G 0001 p INVALUE		CF Step 97.000000 MHz <u>Auto</u> Man
2 3 4 5 6	N	f			8	50.18	MHz		-28.868 (1Bm									Freq Offset 0 Hz
7 8 9 10 11																		~	
MSG														🚺 STATU	s				

GSM1900-1909.8MHz-Voice@1GHz-7GHz@Pass

Agilen		ctrun		alyzei															
ເ×≀ ⊪ Cen		Fre	RF	1.00	50Ω		0 GI				ENSE:F		#Avg T _}	ype:		TR	PM Aug 10, 2021 ACE 1 2 3 4 5 6		Frequency
10 d	B/div				et 27	′ dB dBm	IF	'NO: Fa Gain:L	ast ↔► .ow	, ⊤rig: F #Atter			Avg Ho	ld: ′		r1 6.66	7 0 GHz 81 dBm		Auto Tune
Log 25.0 15.0 5.00																		4.	Center Freq 000000000 GHz
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-35.0 -45.0 -55.0					The America													7.	Stop Freq 000000000 GHz
Star #Re	s BV	N 1	.0 N SCI							/ 3.0 M					veep 10.	67 ms (7.000 GHz 20001 pts) TON VALUE	e Auto	CF Step 600.000000 MHz 2 Man
1 2 3 4 5 6	N	1	f				6.667	0 GH	z	-23.081	l dBr	n 							Freq Offset 0 Hz
7 8 9 10 11										<u></u>							<u> </u>		
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GSM1900-1909.8MHz-Voice@7GHz-13.6GHz@Pass

		ctrum	i Ana	lyzer - Swe	ept SA											
Cen		Fre	RF q 1	50 Ω 0.3000	000000		SENSE				Туре	ALIGN AUTO : RMS 100/100	TRA	M Aug 10, 20 CE 1 2 3 4 5 PE M WWW	56	Frequency
10 di				Offset 27	dB	NO: Fast Gain:Lov	#Atten: 24			AY UI	1010.		12.518	DET P N N N N	z N	Auto Tune
10 at Log 10.0 0.00		/	Kei	20.00 0										-13.00 dl		Center Freq 10.300000000 GHz
-20.0 -30.0 -40.0				Hildroom, or brill selfs.					i an still som met k		di di di					Start Freq 7.000000000 GHz
-50.0 -60.0 -70.0																Stop Freq 13.60000000 GHz
Star #Re:	s B\ Mode	N 1.	.0 N		×		3.0 MHz Y		FUNC	TION		weep 12 chonwidth	.00 ms (2	3.600 GH 20001 pt Ionvalue		CF Step 660.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11	N	1	f		12.518 \$	2 GHz	-22.851 dE	3m								Freq Offset 0 Hz
MSG												I o status	5			

GSM1900-1909.8MHz-Voice@13.6GHz-20GHz@Pass

		ctrun		ılyzer - Sw	ept SA												
LXI R			RF	50 Ω		CORREC		SENS	E:PULS	E			ALIGN AUTO		M Aug 10, 202		Frequency
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—													Miland	40.044	08 GH	٦I	Auto Tune
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10 d Log	B/div	1	Ref	20.00	dBm				_					-17.0			
10.0																	
10.0																	Center Freq
0.00	-		-													-11	16.800000000 GHz
-10.0														 1	-13.00 dE	hTT:	
-20.0																	
-20.0	1.11		يلد مد بال	ويعالمه والمحمد	ورادير خيروريان	وفأول وراريدانه	م القرير الم المراجع المراجع المراجع ال	and setting provide the	the second	ر جد دانان میدا	معادير القربل	المقامي		and the second se			Start Freq
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-40.0																-11	
-50.0																	
																	Stop Freq
-60.0			-													-11	20.000000000 GHz
-70.0																-11	20.00000000 GH2
Star	rt 13	3.60	0 G	Hz										Stop 20).000 GH	z	CF Step
#Re	s Bì	W 1.	A 0.	/IHz			#VBW	3.0 MHz				S٧	veep 16	.00 ms (2	20001 pts	5)	640.000000 MHz
MKB	MODE	тос	eci.		×			~		FUNC	TION	Гены	CTION WIDTH	FUNCT	ION VALUE		<u>Auto</u> Man
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4																_	0 Hz
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MSG													🕼 STATUS				

5.5.2 RADIATED SPURIOUS EMISSION

5.5.2.1 MEASUREMENT METHOD

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the



receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.

- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

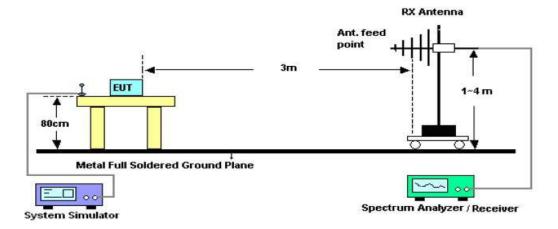
5.5.2.2 TEST SETUP



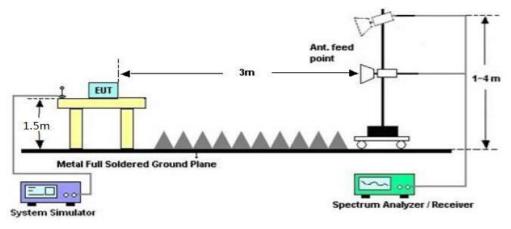
3m RX Antenna B0cm Metal Full Soldered Ground Plane System Simulator System Simulator

Radiated Emission Test-Setup Frequency Below 30MHz

RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



5.5.2.3 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. **Note:** only result the worst condition of each test mode:



5.5.2.4 MEASUREMENT RESULT

Temperature	24.8 ℃	Humidity	58%
Test Engineer	Anna Hu		

GSM 850:

	The Worst Test	Results for Channel	251/848.8 MHz	
Frequency	Emission Level	Limits	Margin	Comment
(MHz)	(dBm)	(dBm)	(dB)	Comment
1697.25	-57.15	-13	44.15	Horizontal
3394.90	-39.98	-13	26.98	Horizontal
5092.44	-51.35	-13	38.35	Horizontal
1697.35	-41.70	-13	28.70	Vertical
3394.82	-50.28	-13	37.28	Vertical
5092.50	-47.37	-13	34.37	Vertical

PCS 1900:

	The Worst Test	Results for Channel	661/1880.0 MHz	
Frequency	Emission Level	Limits	Margin	Comment
(MHz)	(dBm)	(dBm)	(dB)	Comment
3599.73	-57.65	-13	44.65	Horizontal
7199.62	-40.72	-13	27.72	Horizontal
10799.64	-53.52	-13	40.52	Horizontal
3599.80	-38.35	-13	25.35	Vertical
7199.77	-52.58	-13	39.58	Vertical
10799.78	-46.29	-13	33.29	Vertical

RESULT: PASS

Note:

1. Margin = Limit - Emission Level

2. Below 30MHZ no Spurious found and Above is the worst mode data.



5.6 FREQUENCY STABILITY

5.6.1 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 CMW500 DIGITAL RADIO COMMUNICATION TESTER.

- 1 Measure the carrier frequency at room temperature.
- 2 Subject the EUT to overnight soak at -10° C.

3 With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on channel 661 for PCS 1900 band , channel 190 for GSM 850 band 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° C increments from -10° C to $+50^{\circ}$ C. 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 CMW500 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°C to -10°C. 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.

5.6.2 PROVISIONS APPLICABLE

5.6.2.1 FOR HAND CARRIED BATTERY POWERED EQUIPMENT

According to the ANSI/TIA-603-E-2016, 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 3.7VDC. 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.



5.6.2.2 FOR EQUIPMENT POWERED BY PRIMARY SUPPLY VOLTAGE

According to the ANSI/TIA-603-E-2016,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, the normal environment temperature is 20°C.



5.6.3 MEASUREMENT RESULT

Pass

For GSM Test Band=GSM850/GSM1900

				Voltage			
Band	Channel	Voltage	Temperature	Deviation	Deviation	Limit	Verdict
Danu	Channel	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	Verdict
GSM850	128	VL	TN	11.99	0.0143	2.5	PASS
GSM850	128	VN	TN	8.5	0.0102	2.5	PASS
GSM850	128	VH	TN	12.16	0.0145	2.5	PASS
GSM850	190	VL	TN	7.87	0.0094	2.5	PASS
GSM850	190	VN	TN	13.63	0.0163	2.5	PASS
GSM850	190	VH	TN	8.56	0.0102	2.5	PASS
GSM850	251	VL	TN	9.38	0.0112	2.5	PASS
GSM850	251	VN	TN	6.28	0.0075	2.5	PASS
GSM850	251	VH	TN	10.46	0.0125	2.5	PASS
GSM1900	512	VL	TN	12.52	0.0067	2.5	PASS
GSM1900	512	VN	TN	12.45	0.0066	2.5	PASS
GSM1900	512	VH	TN	14.19	0.0075	2.5	PASS
GSM1900	661	VL	TN	26.45	0.0141	2.5	PASS
GSM1900	661	VN	TN	25.21	0.0134	2.5	PASS
GSM1900	661	VH	TN	26.01	0.0138	2.5	PASS
GSM1900	810	VL	TN	25.23	0.0134	2.5	PASS
GSM1900	810	VN	TN	24.97	0.0133	2.5	PASS
GSM1900	810	VH	TN	22.6	0.0120	2.5	PASS

Temperature									
Band	Channel	Voltage	Temperature	Deviation	Deviation	Limit	Verdict		
		(Vdc)	(°C)	(Hz)	(ppm)	(ppm)			
GSM850	128	VN	-30	9.37	0.0112	2.5	PASS		
GSM850	128	VN	-20	8.23	0.0098	2.5	PASS		
GSM850	128	VN	-10	10.68	0.0128	2.5	PASS		
GSM850	128	VN	0	7.86	0.0094	2.5	PASS		
GSM850	128	VN	10	10.46	0.0125	2.5	PASS		
GSM850	128	VN	20	9.06	0.0108	2.5	PASS		
GSM850	128	VN	30	10.27	0.0123	2.5	PASS		
GSM850	128	VN	40	9.62	0.0115	2.5	PASS		
GSM850	128	VN	50	8.84	0.0106	2.5	PASS		
GSM850	190	VN	-30	9.39	0.0112	2.5	PASS		
GSM850	190	VN	-20	12.89	0.0154	2.5	PASS		
GSM850	190	VN	-10	7.87	0.0094	2.5	PASS		
GSM850	190	VN	0	10.85	0.0130	2.5	PASS		
GSM850	190	VN	10	7.53	0.0090	2.5	PASS		



			Те	emperature			
Band		Voltage	Temperature	Deviation	Deviation	Limit	Verdict
	Channel	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
GSM850	190	VN	20	8.56	0.0102	2.5	PASS
GSM850	190	VN	30	9.07	0.0108	2.5	PASS
GSM850	190	VN	40	9.16	0.0110	2.5	PASS
GSM850	190	VN	50	10.4	0.0124	2.5	PASS
GSM850	251	VN	-30	8.72	0.0104	2.5	PASS
GSM850	251	VN	-20	7.46	0.0089	2.5	PASS
GSM850	251	VN	-10	7.92	0.0095	2.5	PASS
GSM850	251	VN	0	11.43	0.0137	2.5	PASS
GSM850	251	VN	10	6.57	0.0079	2.5	PASS
GSM850	251	VN	20	6.65	0.0080	2.5	PASS
GSM850	251	VN	30	6.47	0.0077	2.5	PASS
GSM850	251	VN	40	11.3	0.0135	2.5	PASS
GSM850	251	VN	50	9.34	0.0112	2.5	PASS
GSM1900	512	VN	-30	12.41	0.0066	2.5	PASS
GSM1900	512	VN	-20	10.2	0.0054	2.5	PASS
GSM1900	512	VN	-10	7.56	0.0040	2.5	PASS
GSM1900	512	VN	0	11.09	0.0059	2.5	PASS
GSM1900	512	VN	10	8.42	0.0045	2.5	PASS
GSM1900	512	VN	20	6.49	0.0035	2.5	PASS
GSM1900	512	VN	30	9.03	0.0048	2.5	PASS
GSM1900	512	VN	40	13.05	0.0069	2.5	PASS
GSM1900	512	VN	50	11.32	0.0060	2.5	PASS
GSM1900	661	VN	-30	27.84	0.0148	2.5	PASS
GSM1900	661	VN	-20	23.52	0.0125	2.5	PASS
GSM1900	661	VN	-10	24.43	0.0130	2.5	PASS
GSM1900	661	VN	0	27.63	0.0147	2.5	PASS
GSM1900	661	VN	10	27.27	0.0145	2.5	PASS
GSM1900	661	VN	20	25.53	0.0136	2.5	PASS
GSM1900	661	VN	30	23.42	0.0125	2.5	PASS
GSM1900	661	VN	40	25.43	0.0135	2.5	PASS
GSM1900	661	VN	50	27.06	0.0144	2.5	PASS
GSM1900	810	VN	-30	26.34	0.0140	2.5	PASS
GSM1900	810	VN	-20	25.43	0.0135	2.5	PASS
GSM1900	810	VN	-10	25.83	0.0137	2.5	PASS
GSM1900	810	VN	0	22.47	0.0120	2.5	PASS
GSM1900	810	VN	10	26.93	0.0143	2.5	PASS
GSM1900	810	VN	20	29.44	0.0157	2.5	PASS
GSM1900	810	VN	30	29.94	0.0159	2.5	PASS
GSM1900	810	VN	40	32.05	0.0170	2.5	PASS
GSM1900	810	VN	50	28.46	0.0151	2.5	PASS



6 Test Set up Photos of the EUT

Please refer to separated files for Test Setup Photos of the EUT.

7 External Photos of the EUT

Please refer to separated files for External Photos of the EUT.

8 Internal Photos of the EUT

Please refer to separated files for Internal Photos of the EUT.