

ARTILLERY/MORTAR FIRE

COMMUNICATIONS

Agencies:	Observer to artillery/mortars
Nomenclature:	Fire direction net/fire control net (USA) Conduct of fire net (USMC)
Frequency:	30.00 to 75.95 Mhz, VHF-FM
Compatible Equipment:	USA: PRC-77, VRC-46, GRC-160 USMC: PRC-77, VRC-12 USAF: PRC-77, PRC-119, VRC-46

ARTILLERY/MORTAR SUPPORT PLANNING

Supporting unit: _____

If this unit or direct communications are unavailable, indicate the unit through which support will be requested: _____

Call sign: _____

Frequency: _____

Period effective from: _____ to: _____

Table 1. Artillery Weapons Capabilities

Weapon	Model	Maximum Range (m)	Range of RAP (m)	Sustainment Rate (RPM)	Ammo	Fuzes
105-mm	M101A1 (USMC)	11,600	14,500	3	HE, WP, ILLUM, HEP, HC, AP, ICM, CHEM, RAP	PD, MT, MTSQ, VT, CP
105-mm	M102	11,500	15,100	3	HE, WP, ILLUM, HEP, HC, HEAT, ICM, CHEM, RAP, APERS-T	PD, VT, BD, MT, MTSQ, CP
105-mm	M119	14,000	23,500	3	HE, WP, ILLUM, HEP, HC, AP, ICM, CHEM, RAP	PD, VT, BD, MT, MTSQ, CP
155-mm	M109A3	18,100	19,300	1	RAP, ICM, HC, ILLUM, CPHD, CHEM, WP, HE, DPICM, ADAM, RAAM	PD, VT, MTSQ, CP, MT
155-mm	M114A2	14,600	30,000	1	HE, RAP, CHEM, ILLUM, ICM, ADAM, RAAM, WP, CPHD, DPICM, HC	PD, VT, MTSQ, CP, MT

Table 1. Artillery Weapons Capabilities (continued)

Weapon	Model	Maximum Range (m)	Range of RAP (m)	Sustainment Rate (RPM)	Ammo	Fuzes
155-mm	M198	24,000	30,000	2	HE, RAP, ICM, CPHD, HC, CHEM, DPICM, ILLUM, WP, ADAM, RAAM	PD, VT, MTSQ, CP, MT
203-mm	M110A2	22,900	30,000	0.5	HE, HES, ICM, CHEM, DPICM, RAP	PD, VT, CP, MT, MTSQ
MLRS	M207	30,000	NA	12	DPICM	TI
ATACMS	M207	100+ /-KM	NA	2	APAM	TI

Table 2. Mortar Weapon Capabilities

Gun/Mortar	Maximum Range (m)	Minimum Range (m)	Maximum Rate of Fire (RPM)	Sustainment Rate (RPM)	Ammo	Fuzes
60-mm	3,500	50	30	15	HE, WP, ILLUM,	Multioption
81-mm	4,789	70	20	8	HE, WP, ILLUM	PD, VT
107-mm	5,650	920	18	3	HE, WP, ILLUM, CHEM	VT, PD, TI

☐ Polar plot:

"Direction _____" in mils/degrees

"Distance _____" in meters

"Up/down _____" in meters

☐ Shift from known point:

"Shift _____"
(target/known point number)

"Direction _____" in mils/degrees

"Left/right _____" in meters
(lateral shift)

"Add/drop _____" in meters
(range shift)

"Up/down _____" in meters

NOTE: Minefield location is center of target area. Minefield point must be at least 425 meters from friendly troops for adjust-fire missions and 700 meters for FFE missions.

3. Target description: " _____ "

4. Method of engagement.

Type of adjustment: " _____ "
(such as **danger close**, **destruction**)

Trajectory: " _____ "
(high/low angle)

Artillery/Mortar Fire _____

Ammunition: " _____ "
(such as *HE, WP, ICM*)

Distribution of fire: " _____ "

NOTE: Control Copperhead by individual round at a minimum of 30 seconds apart. If the FDC controls firing, rounds will be at 30-second intervals.

5. Method of fire and control: " _____ "
(such as *at my command, when ready, TOT*)

6. Observer: "*Direction* _____ *over.*"

NOTE: Transmit as required; must be transmitted prior to sending any corrections.

**FIELD ARTILLERY AERIAL OBSERVER
CALL FOR FIRE**

1. Observer: " _____ , *this is* _____ ,
(artillery/mortar) (observer's ID)
adjust fire, over."

2. Target location: "*Grid* _____ *over.*"
(coordinates)

3. Target description: " _____ "
_____ "

NOTE: Observer may request ranging rounds, TOT, and splash. For adjustments, observer may use gun target line (from ranging rounds), observer target line (aircraft heading indicator), cardinal direction (given in mils), or reference to a readily identifiable terrain feature.

MESSAGE TO OBSERVER

Units to fire: " _____ "

Changes to call for fire: " _____ "

Number of rounds: " _____ "

Target number: " _____ "

**ARTILLERY/MORTAR QUICK SMOKE
REQUEST**

1. Observer: " _____ , *this is* _____ , *adjust fire*"
(artillery/mortar) (observer's ID)

2. "Grid" _____ "
(coordinates)

3. Target description: " _____ "

_____ *smoke/WP in effect*"
(include target length, wind direction, desired smoke duration; for
example, 300 m, crosswind, 10 min)

4. Adjust fire up/down.

For ground burst: "up 100"

For canisters bouncing: "up 50"

For canisters spread out: "down 50"

ARTILLERY/MORTAR ILLUMINATION REQUEST - CALL FOR FIRE

WARNING: Use of illumination requires care and adequate coordination to avoid adverse impact on adjacent and supporting units using night-vision devices.

1. Observer: " _____ *this is* _____ "
(artillery/mortar) (observer's ID)
2. Warning order: " _____ , *over.* "
(such as *adjust fire, fire for effect*)
3. Target location: " _____ , *over.* "
(such as *grid, polar, plot*)
4. Target description: " _____ "
_____ "
5. Method of engagement: " _____ "
(illumination)
6. Method of fire control: " _____ , *over.* "
(such as *by shell, at my command, etcetera*)
7. Adjustment of illumination:
" *Direction,* _____ , *over.* "
Corrections include—
" *Right/left* _____ " in 200-m increments
" *Add/drop* _____ " in 200-m increments
" *Up/down* _____ " in 50-m increments

When target is verified, adjust illumination over adjusting point and transmit:

"Coordinated illumination."

Call for fire for target attack, such as HE, ICM, etcetera.

When maximum target illumination is obtained, the observer transmits—

"Illumination mark"

and adjusts and fires for effect with the attack munitions.

NOTE: Coordinated illumination directs the FDC to calculate and direct the firing of the illumination and the attack munitions at a time that should result in the attack munitions impacting when the target is at maximum illumination. Observers desiring to control the firing of both the illumination and the attack munitions should transmit—

"By shell, at my command"

To receive two-or four-gun illumination at any time during the illumination mission, transmit—

For two-gun illumination: *"Range spread"* or *"Lateral spread"*

For four-gun illumination: *"Range and lateral spread"*

Table 4. Artillery/Mortar Illumination Factors
(Danger-close distance is 600 meters for all rounds)

Weapon	Shell Type	HOB (m)	Burn Time (sec)	Rate of Fall (m/sec)
60-mm	M83A1	160	25	6
60-mm	M83A2	160	32	6
60-mm	M83A3	160	32	6
81-mm	M301A3	600	60	6
105-mm	M314A2	750	60	10
105-mm	M314A3	750	70-75	10
107-mm	M335	700	60	10
107-mm	M335A1	700	70	10
107-mm	M335A2	400	90	5
155-mm	M118	750	60	10
155-mm	M485A	600	120	5
203-mm (8-in)	NA	NA	NA	NA

ARTILLERY COUNTERFIRE INFORMATION FORM

1. SHELREP, MORTREP, BOMREP.

a. Unit of origin: _____
(call sign)

b. Position of observer: _____
(encoded UTM grid coordinates)

c. Direction: _____ ; angle of fall: _____
(flash, sound, or groove)

d. Time from: _____

e. Time to: _____

f. Area shelled: _____
(encoded UTM grid coordinates)

g. Number/nature of delivery: _____

h. Nature of fire: _____
(such as *adjust fire, fire for effect*)

i. Number, type, and caliber of shells: _____

j. Flash-to-bang time: _____ seconds
(elapsed time between impact and sound)

(Flash-to-bang time in sec X 350-m = distance in meters)

k. Damage: _____
(encoded as required)

Artillery/Mortar Fire _____

l. Remarks: _____

2. Location report.

m. Serial number: _____

NOTE: Each location produced by a locating unit is given a serial number.

n. Target number: _____

(if target number has
already been assigned)

o. Position of location: _____

(grid reference or grid
bearing of located weapon)

p. Accuracy: _____

q. Time of location: _____

r. Target description: _____

3. Counterfire action.

s. Time fired: _____

t. Fired by: _____

u. Number of rounds, type of projectile, and fuze: _____
